REGENTS' FINAL

JANUARY 2021

UCSF COMPREHENSIVE PARNASSUS HEIGHTS PLAN

Environmental Impact Report

State Clearinghouse Number 2020010175

Volume 2 of 2 (Chapters 8 and 9)

UCSF

University of California
San Francisco

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UCSF COMPREHENSIVE PARNASSUS HEIGHTS PLAN

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Volume 2 of 2 (Chapters 8 and 9)

Prepared for
University of California, San Francisco
Real Estate - Campus Planning
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CHAPTER 8
Comments and Responses

8.1 Introduction

8.1.1 Purpose of the Comments and Responses Document

The Comprehensive Parnassus Heights Plan (CPHP) is a conceptual, flexible plan to meet projected space needs for critical programs in research, patient care, and education at the Parnassus Heights campus site while improving the functional and aesthetic design of the campus environment. The Plan also includes planning for development of much-needed on-campus housing. The CPHP includes an Initial Phase that primarily comprises: 1) Irving Street Arrival improvements, 2) Research and Academic Building (RAB), 3) New Hospital, and 4) initial Aldea Housing Densification; as well as certain other Initial Phase improvements. This phase is anticipated to be completed by approximately year 2030. Beyond the Initial Phase, the Future Phase encompasses the remaining development described in the CPHP envisioned for completion by the horizon year of 2050.

Because the CPHP proposes to modify the Parnassus Heights development plan identified in the 2014 LRDP, an amendment of the 2014 Long Range Development Plan (LRDP) is proposed. This amendment would incorporate the CPHP into the 2014 LRDP, replacing the Parnassus Heights chapter of the 2014 LRDP and making other necessary conforming changes.

As required by the California Environmental Quality Act (CEQA), this EIR: (1) assesses the potentially significant direct and indirect environmental impacts, as well as the potentially significant cumulative impacts, associated with implementation of the CPHP; (2) identifies feasible means of avoiding or substantially lessening significant adverse impacts; and (3) evaluates a range of reasonable alternatives to the proposed CPHP, including the required No Project Alternative.

The University of California (University or UC) is the "lead agency" for the environmental review of the CPHP and for the LRDP amendment to incorporate concepts and proposals identified in the CPHP. UC is governed by the Board of Regents of UC (UC Regents), which under Article IX, Section 9, of the California Constitution, has "full powers of organization and government" subject only to very specific areas of legislative control. The UC Regents has the responsibility for certifying this Final EIR, and approving the LRDP amendment.

As described in greater detail under Section 8.1.2, Environmental Review Process, below, UCSF published a Draft EIR on the proposed CPHP on July 13, 2020, and the public review period for

that document ended on September 11, 2020. The Draft EIR, as revised (see consolidated Draft EIR in Volume 1 of this Final EIR), together with this Comments and Responses document (Volume 2 of this Final EIR), and appendices to these documents – see Section 8.1.2.3, below, constitute the Final EIR for the proposed CPHP in fulfillment of requirements of CEQA and consistent with CEQA Guidelines Section 15132. The Final EIR will be considered by decision-makers before deciding whether to approve the proposed LRDP amendment to incorporate the CPHP and reflects the Lead Agency's independent judgment and analysis of the physical impacts of the Project on the environment (CEQA Guidelines, Section 15090).

This Comments and Responses document provides written responses to comments received during the public review period for the Draft EIR. It contains a list of agencies, organizations and persons that commented on the Draft EIR; copies of comments received on the Draft EIR; and written responses to those comments. It also contains revisions to the Draft EIR to clarify or correct information in the Draft EIR. Section 8.1.3, Method of Organization, below, provides a description of the overall contents and organization of this Comments and Responses document.

8.1.2 Environmental Review Process

8.1.2.1 Notice of Preparation and Public Scoping

On January 14, 2020, a Notice of Preparation (NOP), including an Initial Study, was published for the CPHP EIR. A 38-day public comment period ended on February 21, 2020. A copy of the NOP/Initial Study is included in Appendix A, and also in this Final EIR. A scoping meeting was held on February 10, 2020, at Millberry Union on the Parnassus Heights campus site, to accept public input on environmental topics to be analyzed in the EIR and approaches to the impact analyses. Written comments received on the NOP, and a transcript of the scoping meeting, are included in Appendix B in the Draft EIR, and also in this Final EIR.

8.1.2.2 Draft EIR Public Review

On July 13, 2020, UCSF released for public review the Draft EIR on the CPHP. A 60-day public review and comment period on the Draft EIR began on July 13 and closed on September 11, 2020. During the public review period, UCSF received two comment letters from governmental agencies, 20 comments letters from organizations, and 59 comment letters from individuals. UCSF also held a public hearing on August 26, 2020 via Zoom to receive oral comments on the Draft EIR.

8.1.2.3 Final EIR: Consolidated Draft EIR and Comments and Responses Document

This Final EIR consists of two parts (Volumes 1 and 2):

- Volume 1 of this Final EIR is a consolidated Draft EIR that incorporates staff-initiated changes and revisions made in response to comments that were received on the Draft EIR; and includes associated appendices.

- Volume 2 of this Final EIR consists of this Comments and Responses document, as described under Section 8.1.1, above, and Section 8.1.3, below; and includes associated appendices.

The UC Regents will hold a public hearing to consider whether to certify the Final EIR as complying with the requirements of CEQA, and whether to approve the LRDP amendment to incorporate the CPHP. UCSF notify all agencies that submitted comments on the Draft EIR of the availability of the Final EIR at least 10 days prior to the UC Regents meeting on the Final EIR (CEQA Guidelines, Section 15088(b)). Additionally, as a courtesy, UCSF all will notify all others who submitted comments on the Draft EIR of the availability of the Final EIR at least 10 days prior to the UC Regents meeting on the Final EIR.

The UC Regents must certify the Final EIR before deciding whether to approve the LRDP amendment to incorporate the CPHP. Prior to approval of a project for which the EIR identifies significant environmental effects, CEQA requires the adoption of Findings of Fact (CEQA Guidelines, Sections 15091 and 15092). If the Findings of Fact identify significant adverse impacts that cannot be avoided or substantially lessened, the UC Regents must adopt a statement of overriding considerations for those impacts (CEQA Guidelines, Section 15093(b)).

8.1.3 Method of Organization

This Response to Comments Document is organized as follows:

- Chapter 8, *Comments and Responses*, organized as follows
  - Section 8.1, *Introduction*, describes the purpose of the Response to Comments Document, the environmental review process, and the organization of this document.
  - Section 8.2, *Agencies, Organizations and Individuals Commenting on the Draft EIR*, lists all agencies, organizations, and persons that submitted written and/or spoken comments on the Draft EIR during the public review period.
  - Section 8.3, *Master Responses*, contains comprehensive responses on topics that were discussed frequently in public comments on the Draft EIR.
  - Section 8.4, *Written and Spoken Comments on the Draft EIR, and Responses to Comments*, contains all comment letters received, and a copy of the public hearing transcripts held, during the public review period for the Draft EIR, and the UCSF's responses to significant environmental points raised in these letters and the public hearing.
  - Section 8.5, *Revisions to the Draft EIR*, presents changes and revisions to the Draft EIR. UCSF made changes and revisions to the Draft EIR either in response to comments received on the document, or as necessary to clarify statements and conclusions made in the document. None of the changes and revisions in in Section 8.5 substantially affect the analysis or conclusions presented in the Draft EIR.
- Chapter 9, *Mitigation Monitoring and Reporting Program*, presents the Mitigation Monitoring and Reporting Program (MMRP) required under CEQA, which identifies the specific timing and roles and responsibilities for implementation of adopted mitigation measures.

8.1.4 Draft EIR Recirculation Not Required

CEQA Guidelines Section 15088.5 requires Draft EIR recirculation when "significant new information" is added to an EIR because the EIR is changed in a way that deprives the public of a meaningful opportunity to comment on a project's significant environmental effects or feasible mitigation measures or alternatives to reduce or avoid such effects that are not proposed for adoption. The comments, responses, and Draft EIR revisions presented in this document do not constitute such "significant new information;" instead, they clarify, amplify, or make insignificant modifications to the Draft EIR. For example, none of the comments, responses, and Draft EIR revisions disclose new or substantially more severe significant environmental effects of the proposed CPHP, or new feasible mitigation measures or alternatives considerably different than those analyzed in the Draft EIR that would clearly lessen the proposed CPHP's significant effects.

8.2 Agencies, Organizations and Individuals Commenting on the Draft EIR

This Comments and Responses document provides written responses to comments received on the Draft EIR during its public review period (July 13, 2020 through September 11, 2020), including all written comments submitted either by letter or email, and all oral comments presented at the public hearing for this document.

This section lists all agencies, organizations, and individuals ("persons") who submitted comments on the Draft EIR. Persons who submitted written comments are grouped according to whether they represent a public agency, organization, or an individual citizen, as well as persons who provided oral comments at the public hearing.

For each commenter on the Draft EIR, the person's name, agency or organization as applicable, comment format, comment date, and a commenter code are provided. The commenter codes were assigned to facilitate the preparation of responses, and there is a unique commenter code for each comment letter, email, and public hearing transcript based on the name of the agency, organization, or individual submitting the comment. Comments submitted by mail, email, or orally at the public hearing (as transcribed in the official public hearing transcript) are all coded and numbered the same way.

The commenter code for comments on the Draft EIR begins with a prefix indicating whether the commenter represents a public agency (A), an organization (O), an individual (I), or a speaker at the public hearing (PH). This is followed by a hyphen and the acronym of the agency or organization, or the individual's last name. Within each category, commenters are listed in alphabetical order by code.

The commenter codes are used to identify individual comments on separate topics within each comment letter, email, comment card, or public hearing transcript. Each individual comment from each commenter are bracketed and numbered sequentially following the commenter code. The bracketed comments and corresponding comment codes are shown in the margins of the comments. There is a unique comment code for each distinct comment.

8.2.1 List of Commenters on the Draft EIR

8.2.1.1 List of Public Agencies Commenting in Writing on the Draft EIR

Table 8.2-1, below, provides a list of all public agencies commenting in writing on the Draft EIR.

TABLE 8.2-1
PUBLIC AGENCIES COMMENTING IN WRITING ON THE DRAFT EIR

No.	Commenter Code	Name of Person and Agency Submitting Comments	Comment Format	Comment Date
1	A-SFHPC	Aaron Hyland, President, San Francisco Historic Preservation Commission	Letter	09/08/2020
2	A-SFP	Lisa Gibson, Environmental Review Officer, San Francisco Planning Department	Letter	09/11/2020

SOURCE: ESA, 2020

8.2.1.2 List of Organizations Commenting in Writing on the Draft EIR

Table 8.2-2, below, provides a list of all organizations commenting in writing on the Draft EIR.

TABLE 8.2-2
ORGANIZATIONS COMMENTING IN WRITING ON THE DRAFT EIR

Commenter Code	Name of Person and Organization Submitting Comments	Comment Format	Comment Date
O-LD1	Richard Drury, Lozeau Drury LLP [a]	Letter	08/19/2020
O-LD2	Richard Drury, Lozeau Drury LLP [a]	Letter	09/11/2020
O-LD3	Richard Drury, Lozeau Drury LLP [a]	Letter	10/01/2020
O-TL1	Thomas N. Lippe, Law Offices of Thomas N. Lippe, APC [b]	Letter	09/10/2020
O-TL2	Thomas N. Lippe, Law Offices of Thomas N. Lippe, APC [b]	Letter	09/10/2020
O-TL3	Thomas N. Lippe, Law Offices of Thomas N. Lippe, APC [b]	Letter	09/11/2020
O-TL4	Thomas N. Lippe, Law Offices of Thomas N. Lippe, APC [b]	Letter	09/11/2020
O-SM	Patrick M. Soluri, Soluri Meserve, A Law Corporation [b]	Letter	09/11/2020
O-PARKIN	William P. Parkin, Wittwer Parkin, LLP [b]	Letter	09/11/2020
O-86D	Executive Committee of 86 Dwellers	Email	09/08/2020
O-SFFA	San Francisco Forest Alliance	Email	09/10/2020
O-CNPS	Eddie Bartley, President, California Native Plant Society, Yerba Buena Chapter	Letter	09/10/2020
O-NZA	Nathan Zakheim, Director, Nathan Zakheim Associates	Letter	09/08/2020
O-YBNC	John Elberling, Manager, The Yerba Buena Neighborhood Consortium	Letter	09/11/2020
O-GGAS	Pam Young, Director, Golden Gate Audubon Society	Letter	09/11/2020
O-NNDPA	Harvey Smith, President, National New Deal Preservation Association	Email	09/11/2020
O-SFPC	Severtnick, Cynthia, eGroup Moderator, San Francisco, Preservation Consortium	Email	09/11/2020
O-NCAAP	Reverend Dr. Amos C. Brown, San Francisco President, NAACP San Francisco Branch	Letter	09/03/2020
O-SFH	Mike Buhler, President and CEO, San Francisco Heritage	Letter	09/11/2020
O-SUT	Ildiko Polony, Executive Director, Sutro Stewards	Letter	09/11/2020
O-EBPA	Maxine Ventura, Chronic Effects Researcher, East Bay Pesticide Alert	Email	09/11/2020

NOTES:
[a] Representing the Parnassus Neighborhood Coalition
[b] Representing San Franciscans for Balanced and Livable Communities

SOURCE: UCSF, 2020

8.2.1.3 List of Individuals Commenting in Writing on the Draft EIR

Table 8.2-3, below, provides a list of all individuals commenting in writing on the Draft EIR.

TABLE 8.2-3
INDIVIDUALS COMMENTING IN WRITING ON THE DRAFT EIR

Commenter Code	Name of Individual Submitting Comments	Comment Format	Comment Date
I-Calvin	Calvin, Elissa	Email	08/05/2020
I-Cherny	Cherny, Robert W.	Letter	08/21/2020
I-Eroy	Eroy, Ariane	Email	08/23/2020
I-Kelly	Kelly, Dennis	Email	08/25/2020
I-Travis	Travis, Cynthia	Email	08/25/2020
I-Plane	Plane, Ann Marie, et al.	Letter	08/31/2020
I-Rothstein	Rothstein, Julie Louise	Email	09/02/2020
I-Anderson	Anderson, Henry G.	Email	09/03/2020
I-McMorris	McMorris, Susan	Email	09/03/2020
I-Ungaretti	Ungaretti, Lorri	Email	09/05/2020
I-HofmannR	Hofmann, Roger	Letter	09/05/2020
I-Marcuse	Marcuse, Harold	Email	09/05/2020
I-Robertson	Robertson III, Armand James	Letter	09/08/2020
I-Hutchinson	Hutchinson, James L	Letter	09/08/2020
I-Klein	Klein, Joel	Email	09/08/2020
I-Vernitsky	Vernitsky, Gregory	Email	09/10/2020
I-Denney	Denney, Carol	Email	09/10/2020
I-Glikshtern	Glikshtern, Anastasia	Email	09/10/2020
I-Cohen	Cohen, Susan Sackheim	Email	09/10/2020
I-Horton	Horton, Inge	Email	09/10/2020
I-BaldaufH	Baldauf, Hans	Email	09/10/2020
I-Sandler	Sandler, Gretchen	Email	09/10/2020
I-BaldaufM	Baldauf, Maria	Email	09/10/2020
I-Craig	Craig, Logan	Email	09/10/2020
I-Hanley	Hanley, Emma	Email	09/10/2020
I-HofmannP	Hofmann, Pam	Email	09/11/2020
I-Rothman	Rothman, Richard	Email	09/11/2020
I-Klipp	Klipp, Joshua	Email	09/11/2020
I-Cole	Cole, Jeff	Email	09/11/2020
I-Yap	Yap, Lope	Letter	09/11/2020
I-DeSnoo	DeSnoo, Neal, et al.	Letter	09/11/2020
I-Cater	Cater, Elaine	Email	09/11/2020
I-Goodman	Goodman, Robert C.	Letter	09/11/2020
I-Kushner1	Kushner, Pinky	Letter	09/11/2020
I-Kessler	Kessler, Lisa, MS, MD	Letter	09/11/2020

TABLE 8.2-3 (CONTINUED)
INDIVIDUALS COMMENTING IN WRITING ON THE DRAFT EIR

Commenter Code	Name of Individual Submitting Comments	Comment Format	Comment Date
I-Wrynn	Wrynn, Phyllis	Letter	09/11/2020
I-Jones	Jones, Sarah	Email	09/11/2020
I-Jacobs	Jacobs, Scott and Jing	Letter	09/11/2020
I-Leonard	Leonard, Edward	Letter	09/11/2020
I-Liederman	Liederman, Lori	Letter	09/11/2020
I-Zeff	Zeff, Maury	Email	09/11/2020
I-George	George, Laura Voisin, et al.	Letter	09/11/2020
I-Starn	Starn, Frances	Email	09/11/2020
I-Lebus	Lebus, Scott, DDS, MS	Email	09/11/2020
I-Welborn	Welborn, Teresa	Email	09/11/2020
I-Wuerfel	Wuerfel, Nancy	Email	09/11/2020
I-Hodgkins	Hodgkins, Rick	Email	09/11/2020
I-Maerki	Maerki, Susan	Letter	09/11/2020
I-Kaplan	Kaplan, Eleanor	Email	09/11/2020
I-Scatena	Scatena, Pat	Letter	09/11/2020
I-Brown1	Brown, Tish	Email	09/11/2020
I-Brown2	Brown, Tish	Email	09/12/2020
I-Gallegos	Gallegos, Julie Long	Email	09/11/2020
I-Siegel1	Siegel, Sam	Email	09/11/2020
I-Siegel2	Siegel, Sam	Email	09/11/2020
I-Yang	Yang, Letitia	Email	09/11/2020
I-Arbel	Arbel, Rox	Email	09/11/2020
I-Kushner2	Kushner, Pinky	Email	09/14/2020
I-Welch	Welch, Calvin	Letter	09/15/2020
I-Louie	Louie, Denise	Email	10/02/2020

SOURCE: ESA, 2020

8.2.1.4 List of Individuals Commenting Orally at the Public Hearing on the Draft EIR

Table 8.2-4, below, provides a list of all individuals commenting orally at the public hearing on the Draft EIR.

TABLE 8.2-4
INDIVIDUALS COMMENTING ON THE DRAFT EIR, PUBLIC HEARING

Commenter Code	Name of Individual Submitting Comments	Comment Format	Comment Date
PH-Grover	Grover, Whitney	Transcript	08/26/2020
PH-Eroy	Eroy, Ariane	Transcript	08/26/2020
PH-Smith	Smith, Harvey	Transcript	08/26/2020
PH-Quick	Quick, Jeanette	Transcript	08/26/2020
PH-Cohen	Cohen, Janice	Transcript	08/26/2020
PH-Cole	Cole, Jeff	Transcript	08/26/2020
PH-Ungaretti	Ungaretti, Lorri	Transcript	08/26/2020
PH-Rothman	Rothman, Richard	Transcript	08/26/2020
PH-Yap	Yap, Lope	Transcript	08/26/2020
PH-Kessler	Kessler, Lisa	Transcript	08/26/2020
PH-Manzo	Manzo, Jonathan	Transcript	08/26/2020
PH-Cohn	Cohn, Cathy	Transcript	08/26/2020
PH-Gottstein	Gottstein, Adam	Transcript	08/26/2020
PH-Semler	Semler, Michael	Transcript	08/26/2020
PH-Scatena	Scatena, Patrice	Transcript	08/26/2020
PH-Zakheim	Zakheim, Nathan	Transcript	08/26/2020

SOURCE: ESA, 2020

8.3 Master Responses

8.3.1 Introduction

This section presents "master responses" addressing a number of similar or recurring topics in the comments received on the Draft EIR. The intent of the master responses is to avoid repetition within this document and improve readability by giving a single, comprehensive response to these comments. Responses to the individual comments that raise these recurring topics refer the reader to the master responses in this chapter.

8.3.2 Summary of Master Responses

- **Master Response 1: Non-CEQA Comments**
- **Master Response 2: General Comments on EIR and Environmental Topics**
- **Master Response 3: COVID-19**
- **Master Response 4: Space Ceiling and Population**
- **Master Response 5: EIR Alternatives**
- **Master Response 6: Public Resources Code Section 21099**
- **Master Response 7: Aesthetic Impacts**
- **Master Response 8: Wind Impacts**
- **Master Response 9: Shadow Impacts**
- **Master Response 10: Bird Strikes**
- **Master Response 11: Toland Hall Murals**
- **Master Response 12: Stormwater, Wastewater, and Water Quality**
- **Master Response 13: Land Use Impacts**
- **Master Response 14: Population and Housing Impacts**
- **Master Response 15: Indirect Displacement and Gentrification Impacts**
- **Master Response 16: Transportation Significance Criteria**
- **Master Response 17 Mode Share Assumptions and Methodology**
- **Master Response 18: Analysis of Parking Impacts**
- **Master Response 19: Project Effects (i.e., Population Increase) on Transportation System**
- **Master Response 20: Project Effects on Transit**
- **Master Response 21: Project Effects on Ambulance Delays and Access**

8.3.3 Master Responses

8.3.3.1 Master Response 1: Non-CEQA Comments

Under CEQA, the lead agency "shall evaluate comments on environmental issues" received from people who have reviewed a draft EIR and prepare written responses that "describe the disposition of each significant environmental issue that is raised by commenters" (Pub. Res. Code Section 21091(d); CEQA Guidelines Section 15088(c)). CEQA does not require that substantive responses be provided for comments that do not address the adequacy or accuracy of the environmental analysis in the Draft EIR or that do not raise a significant environmental issue (Id.).

A number of comments were received on the Draft EIR that did not question the adequacy or accuracy of the environmental analysis or raise a significant environmental issue requiring a response. Examples include but are not limited to:

- ***Opinions on the Project, and other Miscellaneous Opinions:*** Comments were received that express support for, or opposition to, the proposed CPHP, and/or on the perceived merits or demerits of the CPHP. Other comments express opinions and observations, or editorialize on non-environmental issues that are beyond the purview of CEQA and the EIR. These comments do not address the adequacy or accuracy of the environmental analysis in the Draft EIR, or pertain to environmental effects of the proposed CPHP, including the Initial Phase projects.

- ***Socioeconomic Comments:*** A number of comments were received related to socioeconomic issues. As discussed on pages 4.0-4 to 4.0-5 in Section 4.0, Introduction to Environmental Analysis, in the Draft EIR, under CEQA, economic and social effects of a proposed project by themselves are not considered to be significant impacts, and are relevant only insofar as they may serve as a link in a chain of cause and effect that may connect the proposed project with a physical environmental effect, or they may be part of the factors considered in determining the significance of a physical environmental effect. In addition, economic and social factors may be considered in the determination of feasibility of a mitigation measure or an alternative to the proposed project (see CEQA Guidelines Section 15064(e)). As such, the potential effect of the CPHP on economic and social issues, in and of themselves, such as tax revenues, the cost of public services, cost of housing or property values, are not part of this EIR.

- ***Quality of Life Comments:*** Comments were received that increased growth at the Parnassus Heights campus site under the proposed CPHP would have an adverse effect on the quality of life of the local residents and on the character of the community. Potential effects of a proposed project on the quality of life and related conditions, in and of themselves, are not considered environmental impacts under CEQA. See *San Franciscans for Reasonable Growth v. City and County of San Francisco* (1989) 209 Cal.App.3d 1502. Similarly, changes in community character are not environmental effects under CEQA. See *Preserve Poway v. City of Poway*, 245 Cal. App. 4th 560, 575-82 (2016) (changes in community character are not effects under CEQA). CEQA does require that the environmental document evaluate and disclose significant impacts, among others, on transportation, air quality, noise, and public services at the project site and its vicinity. Those effects are fully analyzed and disclosed in the Draft EIR.

UCSF acknowledges the public's concerns about these types of issues. UCSF generally does not provide individual responses to these comments in this Comments and Responses chapter of the

Final EIR. In some cases, UCSF has elected to provide individual responses to certain non-CEQA issues for informational purposes. In all cases, these non-CEQA comments are part of the record on the CPHP, and will be considered by the UC decision-makers as part of the project consideration process.

8.3.3.2 Master Response 2: General Comments on EIR and Environmental Topics

A number of general, unsubstantiated statements were received regarding overall concerns with the Draft EIR, including, but not limited to, potential impacts on various environmental topics, mitigation measures, and alternatives. Due to the lack of specificity in these comments, the responses to these comments are generally incorporated in the responses to specific comments raised on the same general topics.

UCSF acknowledges the receipt of these types of comments. While UCSF generally does not provide individual responses to these comments in this Comments and Responses chapter of the Final EIR, they are part of the record on the CPHP, and will be considered by the UC decision-makers as part of the project consideration process.

8.3.3.3 Master Response 3: COVID-19

Comments raised regarding Coronavirus disease 2019 (COVID-19) addressed a number of topics, including the CEQA baseline used in the Draft EIR to evaluate potential impacts, the need to address impacts of COVID-19 itself, including the pandemic's effect on building design, health care delivery, and overall population density (i.e., the number of residents, students, faculty, staff) in the City and at the Parnassus Heights campus site. Many comments suggested that UCSF should "take a pause" and re-envision the proposed CPHP when more is known about long-term effects of COVID-19 on our society, questioning the need for the CPHP and concluding that the EIR is not "operationally adequate for the next 30 years" (**I-Kushner-3**). These comments are responded to under several topic headings below.

Topic 1: CEQA Baseline

One commenter suggests that the Draft EIR analysis incorrectly relies on a pre-pandemic baseline, pointing out that the Notice of Preparation (NOP) was issued in mid-January 2020, while COVID-19 was first reported in Wuhan, China on December 31, 2019. The commenter suggests that as "a health based organization… [UCSF was] fully aware early on of the implications of the Wuhan outbreak" **(O-LD2-11** and **O-LD2-55**), later suggesting that the EIR baseline either be updated "to reflect conditions Pre-COVID 19 and Post emergence of COVID 19," [emphasis added] or that the project be delayed "until more is known about the COVID crisis" (see **O-LD2-56** and **I-BaldaufH-1**).

While these comments acknowledge that environmental conditions at the time an NOP is issued are generally used as the environmental setting or "baseline" for evaluating potential impacts of a project (CEQA Guidelines Section 15125(a)(1)), they conflate an initial report of COVID-19 in China two weeks before the NOP was issued with a full understanding of likely permanent social

and physical manifestations of the pandemic for UCSF and Parnassus Heights into the future. This is clearly at odds with the CEQA Guidelines, which suggest that projected future conditions may be used as a baseline in lieu of existing conditions only when they are not hypothetical, but are supported by reliable projections, based on substantial evidence in the record (CEQA Guidelines Section 15125(a)(2) and (3)). In this instance, there remains profound uncertainty about ways in which the pandemic will affect human behavior in the long term, as stated on page 1-9 of the EIR:

> The current Coronavirus disease 2019 (COVID-19) pandemic has introduced a substantial amount of uncertainty in human lives. The pandemic has directly affected human behavior, requiring people to shelter in place, implement social distancing, and make other changes to the manner in which they live. Indirectly it has affected the economy resulting in reduced consumer spending, business closures, and widespread unemployment. While some of these trends are considered short-term and are expected to reverse, it is likely that there could be more permanent changes in the ways humans live and behave in the post pandemic world. As with humans, institutions such as UCSF are also expected to make changes to the manner in which they operate. As a result of the pandemic, UCSF will likely consider operational changes such as increases in telework and telehealth services, especially primary and secondary health care services. At the same time, the pandemic has highlighted the importance of biomedical research and advanced tertiary and quaternary health care, along with the need for more doctors and increased and improved inpatient facilities. The net effect of the pandemic on the Parnassus Heights campus site development and operations cannot be predicted at this point in time without speculation.

Suggestions that the EIR should re-evaluate issues based on "reasonable assumptions of a post Covid world" (**I-BaldaufH-1**) run counter to CEQA Guidelines Section 15064(f)(5), which states "speculation…shall not constitute substantial evidence" and cannot support the determination as to whether there are one or more significant impacts. Instead, agencies are directed to note their conclusion when "a particular impact is too speculative for evaluation" and terminate discussion of the impact" (CEQA Guidelines Section 15145). Agencies are also expected to comply with CEQA "at the earliest feasible time" (CEQA Guidelines Section 15004(b)(1)). While recognizing the need for a "balancing of competing factors," the CEQA Guidelines do not anticipate halting the environmental review process until baseline environmental conditions change or stabilize (CEQA Guidelines Section 15004((b)).

For all of the above these reasons, the environmental setting at the time the NOP was issued is appropriately used in the Draft EIR as the baseline from which to evaluate potential impacts of the proposed CPHP and its Initial Phase projects. Even if the EIR were to include, as one commenter suggested (**I-Maerki-7**), preliminary findings of a UCSF committee looking at lessons learned regarding clinical services delivery and workforce strategy based on the institution's experience of COVID-19 thus far, this information would be descriptive and preliminary rather than definitive, and could not be used as the baseline for evaluating impacts under CEQA.

Topic 2: Impacts of COVID-19 and Need for a "Pause" and/or Re-envisioning

Many comments suggest that impacts of COVID-19 such as the "danger and challenges" associated with a centralized hospital system should be included in the EIR (**I-BaldaufH-1**), both because they affect the need for the project and because they have implications for the project's design/components. (See for example, **I-Jacobs-3, I-Leonard-20, O-SUT-8**.)

The same commenters often request that UCSF "pause" its planning process to allow a fuller understanding and consideration of COVID-19 impacts, and "re-envision" the proposed CPHP, including the New Hospital, and evaluate other alternatives (**O-LD2-11 & 55**). One comment describes the pandemic as the "defining event of our generation… [with] far reaching impacts not just on healthcare provision and medical research, but on every aspect of urban planning," and then goes on to say that UCSF "should pause, study and reflect" because COVID-19 has "impaired… [UCSF's] ability to produce a thorough and complete analysis" and undercut the justification for the CPHP (**I-Kessler**). Many similar comments suggest that COVID-19 will lead to permanent changes in health care and building design, including not just increased use of "telehealth" and increased remote working/learning, but also use of separate, smaller facilities rather than "one big hospital." (See **I-Sandler-5, I-Jones-7, I-Zeff-13,** and **I-Lebus-4**.)

A couple of comments address project features other than the New Hospital, for example, suggesting that the design of UC Hall should be studied and potentially retained, saying that its design is "perfect to minimize the spread of infections" and was built when tuberculosis was "raging, and the pandemic of 1918 flu was just around the corner" (**I-Kushner1-4**). Another comment suggests that the pandemic will limit the need for increased housing, eliminating the need to densify Aldea Housing and avoid short term displacement of residents during phase one of that project (**O-SUT-8**).

Several comments also point to process issues, suggesting that an ongoing stakeholder process is a good reason to pause and "discuss an appropriately scaled Project" (**O-LD2-56**) or that COVID-19 affected outreach efforts, limiting people to the internet (**O-86D-3**).

As discussed in Section 4.0, Introduction to Environmental Analysis, in the Draft EIR, CEQA case law is clear that an EIR is intended to identify impacts of a proposed project on the environment, rather than impacts of the environment on a project [*California Building Industry Association v. Bay Area Air Quality Management District (2015)*, 62 Cal.4th 369, 386]. For this reason, suggested "impacts" of COVID-19 are not impacts requiring analysis and disclosure under CEQA, but are offered by the commenters as reasons for UCSF to reconsider the characteristics of the proposed project itself or alter/delay the planning process.

Any proposed project such as the CPHP is under consideration until the CEQA review is complete and the decision-makers (in this case, the Regents) make a decision to approve, disapprove, or modify a proposed project. UCSF's objectives for the CPHP and the need for the proposed project are provided in Sections 3.5 and 3.6 of the EIR, and will be available to the decision-makers, along with the comments questioning their currency in light of the pandemic. Decision-makers will also consider the range of alternatives included in the EIR, including alternatives like Alternative 1B: No Project – Development Under the 2014 LRDP, Alternative 2:

Reduced Project Alternative, and Alternative 4: CPHP with New Hospital – Phased Option, which all include smaller versions of the New Hospital included in the CPHP. And decision-makers will have to decide whether the benefits of the project outweigh the unavoidable adverse environmental effects (CEQA Guidelines Section 15093), a decision that will focus on the impacts and benefits of the project, rather than the impacts of COVID-19, as suggested by one commenter (**I-Leonard-20**).

It's also important to note that the CPHP is a long-term development framework or plan that is likely to build-out over 30 years or longer with various changes and refinements over time. With this expectation, the EIR provides a "program-level" review based on the level of detail available at this time, and only evaluates certain "Initial Phase" projects with "project level" specificity. As noted in the Draft EIR, pages 1-7 and 1-8, the New Hospital will be the subject of a separate, project-specific EIR when more details about its design become available and all future phase projects will be evaluated when sufficient detail is known to determine whether additional environmental review is required, and if so, whether such review would entail an EIR, a Mitigated Negative Declaration or an Addendum. Use of a program-level EIR ensures that the EIR's analysis will be supplemented as needed based on new information about individual projects and the circumstances which exist at the time they move forward. In this way, the EIR will remain valid as a foundation for any further analysis needed as permanent impacts of COVID-19 on our society and environment are experienced and understood, and as modifications to concepts and future projects included in the CPHP are proposed if/as warranted.

Topic 3: Impacts of COVID-19 on EIR Impacts and Mitigation

Certain commenters suggest that COVID-19 has changed impacts and mitigation that are included in the EIR, requiring revisions. For example, comments suggest decreases in transit ridership and increase in auto use warrant re-analysis of transportation impacts and that MUNI's financial crisis could have significant impacts on congestion, VMT, parking, and emissions (**I-BaldaufH-1, I-Craig-6, I-Hanley-3, I-Welborn-1, I-Kushner1-1**). Comments also suggest the need for revisions to construction and operational traffic mitigation as a result of these changes (**I-Craig-6**), noting that parking and transportation issues that are "supposed to be mitigated by MUNI expansion" are unlikely to be addressed with lower transit ridership (**I-Zeff-12**). Issues other than transportation are also raised, including the suggestion that the EIR incorporate revised growth projections (**I-Leonard-9**), and "effects of airborne pollutants on respiratory health in the setting of a virus that targets the lungs" (**I-Kessler-4**).

Most of these comments relate to the CEQA baseline issue discussed in Topic 1, above, since impacts are determined by comparing anticipated conditions after the project is implemented to the pre-project baseline or to a specific threshold and the EIR cannot speculate about a future that includes currently unknown long term consequences of the pandemic, if any. For example, if faculty, staff, patients, and visitors come to the Parnassus Heights campus site at a lower rate in the future because of increased telehealth and telecommuting, transportation impacts in the form of VMT per capita could be lower than presented in the EIR. However, if faculty, staff, patients and visitors access the Parnassus Heights campus site by automobile (rather than transit) at a

higher rate in the future, transportation impacts in the form of VMT per capita could be higher.[1] If travel patterns change in both ways, transportation impacts in the form of VMT could be lower, higher, or the same. It is not possible, nor is it appropriate, for the EIR to conjecture about which of these futures will come to pass and the EIR appropriately considers the potential impacts of the project based on travel demand and mode choices as they were before the pandemic using a pre-pandemic "existing" baseline and as they are projected to be in 2040 using a transportation model (and threshold) that reflects local and regional travel projections developed by the San Francisco County Transportation Authority (SFCTA) and the Metropolitan Planning Commission (MTC).

Just as it is not possible to re-assess transportation impacts based on conjecture about long term effects of COVID-19, it is also not possible to revise growth projections used in the EIR or the evaluation of air pollutant emissions. Nonetheless, as suggested by a commenter, the text of the EIR describing potential health consequences of particulate emissions on page 4.2-4 has been amended; please refer to Section 8.5 of this Comments and Responses document for proposed additions. It should be noted that this information is preliminary and has not resulted in changes to the thresholds of significance for air pollutant emissions established by BAAQMD or related impacts presented in the Draft EIR Section 4.2.3.

While it is not possible to re-evaluate the effectiveness of mitigation based on conjecture about the long term consequences of the pandemic on transit agencies or travel patterns, it is also not necessary to do so because mitigation measures (and related impact conclusions) in the EIR have been drafted to be durable as the CPHP is implemented over time and will be re-evaluated in the future if/as needed (see Draft EIR page 1-7). For example, mitigation measures provided to address air pollutant emissions in Impact AIR-2 include project-level operational measures (CPHP Mitigation Measure AIR-2a) requiring specific improvements such as secure bike parking and preferential parking for carpools and vanpools, or include a performance standard (CPHP Mitigation Measure AIR-2b) specifying the reduction in average daily vehicle trips that UCSF must achieve through a variety of transportation demand management (TDM) program enhancements. Once the mitigation measures are adopted, the actions and performance standard they contain must be implemented/met regardless of changes to travel patterns or transit agency funding, and even with implementation of this mitigation, which collectively represent all feasible measures to reduce criteria pollutant emissions association with project operations, the impact would remain Significant and Unavoidable.

The effectiveness of other mitigation in the EIR is also clearly unrelated to the (currently unknown) future consequences of COVID-19, either because the measures relate to existing physical conditions that will not change as a result of the pandemic (e.g. measures regarding geologic hazards and historic buildings), or because they are structured in such a way to require future/ongoing analysis as implementation of the CPHP occurs over time (e.g. measures to require project-specific health risk analysis and ongoing GHG monitoring and offset purchases).

[1] As shown in Draft EIR Table 4.15-16, existing and projected future VMT per capita are well below the threshold of significance, such that it would take a substantial increase in VMT per capita of over 30 percent for employees and over 60 percent for residents to change the EIR's conclusion that Impact TRANS-2 is less than significant.

8.3.3.4 Master Response 4: Space Ceiling and Population

This master response addresses the issues raised in Comments **O-LD2-2B, O-LD2-4** through **O-LD2-10, O-LD2-54, I-Travis-4, I-Robertson-2, I-Robertson-3, I-Robertson-5, I-Cole-6, I-Goodman-2, I-Goodman-5, I-Goodman-6, I-Goodman-14, I-Kessler-2, I-Kessler-3, I-Jacobs-2, I-Jacobs-8, I-Leonard-2, I-Leonard-6, I-Leonard-14, I-Maerki-5,** and **I-Scatena-3**.

As discussed in Section 3.7.2 of the Project Description, the 1976 Regents' Resolution adopted a limit on the amount of built space at the Parnassus Heights campus site (with some housing excluded), commonly referred to as the "space ceiling," within the newly designated campus site boundaries. The resolution set the space ceiling at 3.55 million gross square feet (gsf). The 2014 LRDP amended the Regents' Resolution to exclude other residential square footage within the campus site from the space ceiling. Currently, the Parnassus Heights campus site contains approximately 3.68 million gsf of space (excluding housing), approximately 128,600 gsf or 3.6 percent above the space ceiling.

The 1976 Regents' Resolution also recognized the principle of limiting the average daily population at the Parnassus Heights campus site to be substantially in accordance with the level projected in the 1976 LRDP, which was estimated to be about 13,400 persons. The 1996 LRDP increased the limit on average daily population to 16,000. The 2014 LRDP amended the Regents' Resolution to tie the average daily population goal for the Parnassus Heights campus site to population projections contained in the most recent LRDP EIR. At the time of adoption of the 2014 LRDP, the average daily population at Parnassus Heights was estimated at approximately 17,950 persons, and projected to increase to about 18,500 by the LRDP horizon year of 2035.

The space ceiling of 3.55 million gsf was first identified in the 1976 Regents' Resolution, now 44 years ago when health care standards were vastly different compared to standards of care today. The reader is referred to Draft EIR section 3.5 Project Need regarding the need for additional space to meet modern standards for clinical, research, and education space; to serve the Bay Area's growing and aging population; and to have flexibility in its facilities to meet health care challenges such as the current COVID-19 pandemic.

Land use planning provisions are not permanent, and are subject to revision to meet the current and projected needs of their communities. In 1976, the Regents directed that the LRDP be amended to include the parameters set forth in the 1976 Regents' Resolution. Per the University of California Facilities Manual, Section 3.1.5, "LRDPs may be amended either for individual building projects or area plans, or it may be totally revised when it becomes out of date."

Aspects of the 1976 Regents' Resolution have been amended in the past. For example, since its inception in 1973 as open space, the acreage and configuration of the UCSF Mount Sutro Open Space Reserve was modified several times, in 1975, 1976, and 2008. Additionally, the average daily population goal for the Parnassus Heights campus site was increased in 1996 and 2014, as referenced above. Also as discussed above, as part of the 2014 LRDP, all residential space was excluded from the space ceiling calculation to help foster the development of campus housing and pave the way for UCSF to improve its job-housing balance, lessen traffic impacts, and enhance campus vitality.

The UC Regents under Article IX, Section 9 of the California Constitution has "full powers of organization and government" subject only to very specific areas of legislative control. As the UC Regents imposed the space ceiling at the Parnassus Heights campus site, it has the full authority to amend it or eliminate it altogether. UCSF is proposing that the Regents amend the 2014 LRDP to incorporate the concepts and proposals of the CPHP, and, relative to the Regents' Resolution, to increase the space ceiling from the current limit of 3.55 million gsf to a proposed 5.05 million gsf and to update the projected average daily population from approximately 18,500 in horizon year 2035 to about 25,300 in horizon year 2050. These actions are fully within the Regents' authority.

As CEQA is concerned with physical impacts on the environment, the issue of the change to the Regents' Resolution and space ceiling are irrelevant to the Draft EIR. The Draft EIR adequately analyzes the potential physical impacts that would result from the proposed CPHP, including those related to the increased space ceiling and higher projected daily population, in the various impact discussions.

Comments **O-LD2-4** through **O-LD2-10** make several assertions regarding the legal nature of the Regents' Resolution, including that the space ceiling is enforceable under the legal doctrines of promissory estoppel and equitable estoppel. These comments do not address the adequacy of the Draft EIR, and therefore no response is necessary. However, these comments are part of the administrative record and will be provided to the decision-makers.

8.3.3.5 Master Response 5: EIR Alternatives

A number of comments focused on the subject of EIR alternatives, including comments that summarized CEQA requirements for providing a reasonable range of alternatives, comments that argued in favor of adoption a particular alternative, and comments suggesting that the Draft EIR improperly rejected alternatives. Many comments provided suggestions and arguments in favor of various project alternatives, focusing mainly on alternatives that would construct the New Hospital off-site (i.e., somewhere other than the Parnassus Heights campus site). These comments are responded to under several topic headings below.

Topic 1: CEQA Requirements for Alternatives; Reasonable Range of Alternatives; Environmentally Superior Alternative

As discussed in Chapter 6, Alternatives, pages 6-1 to 6-2 in the Draft EIR and noted in Comment **O-LD2-12**, CEQA requires that an EIR describe and evaluate a range of reasonable alternatives to the proposed project, or to the location of the proposed project, and evaluate the comparative merits of the alternatives (CEQA Guidelines Section 15126.6(a), (d)). While several commenters suggested that the Draft EIR does not meet CEQA's requirement for a "reasonable range of alternatives" (**O-LD2-75, I-Leonard-10, I-Goodman-23**), this issue is governed by the "rule of reason," which requires the EIR to describe and consider only those alternatives necessary to permit informed public participation, and an informed and reasoned choice by the decision-making body (CEQA Guidelines Section 15126.6(a), (f)). In this instance, the EIR analyzes two "no project" alternatives and three alternatives to the proposed CPHP; it also describes three alternatives that were considered but were not carried forward for analysis for specific reasons.

Specifically, the alternatives that were selected for evaluation in the Draft EIR were:

- Alternative 1: No Project Alternative, consisting of:
  - 1A: No Project - No Development; and
  - 1B: No Project - Development under the 2014 LRDP;
- Alternative 2: Reduced Project;
- Alternative 3: CPHP Including New Hospital – 19-Story Option; and
- Alternative 4: CPHP including New Hospital – Phased Option.

Alternatives considered in the Draft EIR but dismissed from further consideration for reasons explained in Draft EIR Section 6.4 include the following:

- No New Hospital at Parnassus Heights Campus Site / Implement Phase 2 of Medical Center at Mission Bay;
- New Hospital on UC Hall Site; and
- New Hospital at Mount Zion Campus Site.

Two of these alternatives are discussed further below in the context of off-site alternatives.

As the commenters point out, the range of alternatives must, at a minimum, include alternatives that could feasibly attain most of the basic objectives of the project and could avoid or substantially lessen any of the significant effects of the project (CEQA Guidelines Section 15126.6(a)-(c)). Objectives for the Parnassus Heights campus site, the CPHP, and its Initial Phase projects are listed in Section 3.6 and Section 6.2.1 of the Draft EIR and far from being "overly restrictive" (**I-Goodman-23**), appropriately focus on UCSF's goals for the campus site, since the proposed project is a plan for that campus site. The objectives contain such statements as:

- Revitalize the aging Parnassus Heights campus to enhance its place as a premier educational, research, and clinical institution – one that draws in research and clinical faculty, staff, students, and trainees;
- Ensure that adequate space is provided to foster collaboration and to facilitate the interdependence and connectivity for operational efficiency and effectiveness of instruction, clinical, research and support uses in close physical proximity to each other;
- Increase the quantity and improve the quality of research space, to enhance synergies between research and clinical activities at Parnassus Heights for UCSF to maintain its stature as a world-class hub of basic, translational, and clinical research; and
- Develop a new inpatient facility that has sufficient space to accommodate modern regulatory requirements and industry standards of contemporary hospitals, such as construction codes, sizes of operating rooms, ratio of operating rooms to pre- and post-recovery areas, and space for privacy and infection control issues.

Section 3.5 of the Draft EIR also describes the "need" for the project, articulating the reasons that UCSF prepared the proposed CPHP and is pursuing development at Parnassus Heights above and beyond what was included in the 2014 LRDP. These include (1) aging and outdated facilities;

(2) the need for adequate and appropriately designed space for research programs; (3) the need for adequate and appropriately designed space for education programs; (4) the need for adequate and appropriately designed space for clinical programs; (5) the need for co-location of instructional, research, and clinical spaces; (6) the need for affordable on-campus housing; (7) the need for expanded support space; and (8) the need for improved community space.

CEQA generally defines "feasible" to mean an alternative that is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, technological, and legal factors. In addition, the following may be taken into consideration when assessing the feasibility of alternatives: site suitability; economic viability; availability of infrastructure; general plan consistency; other plans or regulatory limitations; jurisdictional boundaries; and the ability of the proponent to attain site control (CEQA Guidelines Section 15126.6(f)(1)). The concept of "feasibility" also encompasses the question of whether a particular alternative or mitigation measure would feasibly attain most of the basic objectives of the project, even if those alternatives would impede to some degree the attainment of the project objectives or would be more costly (CEQA Guidelines Section 15126.6(a), (b)). See also *City of Del Mar v. City of San Diego* (1982) 133 Cal.App.3d 410; *Sierra Club v. County of Napa* (2004) 121 Cal.App.4th 1490; *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957.

Also, if the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR (CEQA Guidelines Section 15126.6(f)(2)(B). Reasons provided in Draft EIR Section 6.4 comply with this requirement and provide a foundation for, but are not equivalent to the written findings which are required for a lead agency to approve a project with significant and unavoidable impacts and reject alternatives as infeasible (CEQA Guidelines Section 15091(a)(3)). As described in Comment **O-LD2-13** and Comment **O-LD2-14**, these agency findings must explain the specific reasons for rejecting alternatives and support their findings with substantial evidence (CEQA Guidelines Section 15091(c) and (b)).

It's important to note that the description or evaluation of alternatives does not need to be exhaustive, and an EIR need not consider alternatives for which the effects cannot be reasonably determined and for which implementation is remote or speculative (CEQA Guidelines Section 15126.6(f)(3)). Also, an EIR need not consider multiple variations on the alternatives that have been presented. Instead, the relative advantages and disadvantages of other alternatives can be assessed from a review of the alternatives presented in the EIR as long as other alternatives fall within the range that has been evaluated. See *Village Laguna of Laguna Beach, Inc. v. Board of Supervisors* (1982) 134 Cal App. 3d 1022. For example, one comment (**O-LD2-46**) suggests that the alternatives should include "project proposals to conform to [City] land use and zoning requirements to the maximum extent feasible, including height limitations." Yet, by including the Reduced Project Alternative and alternatives that vary the height and phasing of the New Hospital, the Draft EIR presents a range of possible densities and building heights, allowing the reader to understand the relative impacts. (Also, as discussed in Draft EIR Section 4.10, UCSF is not subject to the City's land use and zoning requirements, although one of the 2014 LRDP campus-wide objectives is to "Acknowledge and respond to local zoning and height and bulk limitations to the extent possible.")

The "no project" alternative must be evaluated and is required to include a discussion of the continuation of existing conditions as well as what could be reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services (CEQA Guidelines Section 15126.6(e)(2)). Both approaches to the no project alternative are evaluated in the EIR, which appropriately considers impacts of implementing the 2014 LRDP as the existing plan for Parnassus Heights in keeping with this requirement (**I-Kessler-29**).

CEQA also requires that an environmentally superior alternative be selected from among the alternatives. The environmentally superior alternative is the alternative with the fewest or least severe adverse environmental impacts. As identified in Section 6.6.1 of the Draft EIR, from the alternatives evaluated, the EIR identified the environmentally superior alternative would be the No Project - No Development Alternative. However, this alternative would not achieve any of the proposed CPHP objectives. Of the remaining alternatives that are not the no project alternative, Section 6.6.2 of the Draft EIR indicates the Reduced Project Alternative is considered the environmentally superior alternative; this alternative is described and analyzed in Section 6.3.3 of the Draft EIR. In this section, a discussion of the alternative's relationship to UCSF's project objectives points out that this alternative would not fully meet the proposed CPHP objectives. The discussions for both alternatives are provided to inform the public and decision-makers, and are not intended to take the place of the written findings required for a lead agency to approve a project and reject alternatives as infeasible (CEQA Guidelines Section 15091(a)(3)).

Topic 2: Off-Site Alternatives

As noted above, the proposed project is a plan for the Parnassus Heights campus site, and for that reason alternatives appropriately focus on that campus site. However, consistent with CEQA Guidelines Section 15126.6(f)(2)(B), Section 6.4 of the EIR considers two off-site alternatives, and provides reasons for not analyzing these alternatives in detail. A number of commenters suggested that these two off-site alternatives warrant further analysis (for example Comments **O-LD2-15**, **I-Sandler-6**, **I-Goodman-23**, **I-Kessler-31**, **I-Leonard-13**, **I-Leonard-15**) and some suggested other off-site alternatives that UCSF should consider (for example Comments **O-LD2-16**, **O-LD2-74**, **O-LD2-76**, **O-YBNC-1**, **I-Robertson-6**, **I-Goodman-24**, **I-Leonard-12, I-Leonard-16**) or suggested that "reimagining Parnassus Heights" with the New Hospital "at an another more suitable location" would allow UCSF to reuse Langley Porter "to emphasize its education and research functions" (Comment **I-Leonard-11**). While most of these comments generally propose implementation of the CPHP with development of the New Hospital at another location, some suggested a smaller hospital at Parnassus Heights with another hospital at an alternative site (Comment **I-Kessler-32**) or specifically requested development at Parnassus Heights be limited to the square footage anticipated in the 2014 LRDP EIR, with the balance of needed space (including the New Hospital) being developed at another location (Comment **O-YBNC-1**). These comments and suggestions are addressed below.

New Hospital at Mission Bay

In Section 6.4, the Draft EIR considers an alternative called No New Hospital at Parnassus Heights Campus Site / Implement Phase 2 of Medical Center at Mission Bay Campus Site,

generally describing this alternative as adoption and implementation of the CPHP without construction of a New Hospital at Parnassus Heights. Instead, this alternative would advance development of "Phase 2" of the Medical Center at the Mission Bay campus site as analyzed in the 2008 Final EIR for the UCSF Medical Center at Mission Bay. As discussed in the Draft EIR and pointed out by the commenters, this alternative would reduce significant and unavoidable impacts at the Parnassus Height's campus such as the wind impact identified in the vicinity of the New Hospital site and Parnassus Heights, and with demolition of the LPPI, which is a historic resource. This alternative would also reduce or avoid other impacts associated with the CPHP such as temporary construction and operational impacts associated with the New Hospital. However, many construction and operational effects that were identified to occur at the Parnassus Heights campus site under the CPHP would be shifted to the Mission Bay campus site under this potential alternative. Also, while some transportation and air quality impacts experienced at Parnassus Heights would be reduced because of the smaller amount of development at the campus site, other transportation and air quality impacts could be greater overall due to increased cross-town traffic between the two campus sites, as students, faculty, staff, and patients travel between the facilities. As noted in the space needs assessment included in Appendix SNA to the Draft EIR (p. 10), co-location of clinical uses proposed with the CPHP project "would allow UCSF to operate more efficiently, allow the [Moffitt, Long, and New] hospitals to share resources, and also minimize intra-campus travel for patients and staff."

Commenters pointed out that the Mission Bay hospital was justified in part by the development cap at Parnassus Heights (Comment **O-LD2-15**), and suggested that because this alternative would reduce impacts of the proposed project and is feasible, it should be fully evaluated in the EIR and ultimately adopted in lieu of the proposed project. However, the Draft EIR does not conclude that this alternative is feasible, recognizing that "failure to meet most of the basic project objectives" is "among the factors that may be used to eliminate alternatives from detailed consideration" (CEQA Guidelines Section 15126.6(c)). In this instance, an alternative that would adopt and implement the CPHP without construction of a New Hospital at Parnassus Heights and build a new hospital at Mission Bay would not address one specific need identified in Section 3.5 of the EIR, which is the need for co-location of instructional, research, and clinical spaces, and would not achieve most of the basic project objectives as shown in **Table 8.3-1** below.

Also, as explained in Section 6.4.1 of the Draft EIR, this alternative would result in an estimated 284 fewer overall beds at the Parnassus Heights campus and UCSF campus-wide than with the proposed CPHP, thereby not fully addressing existing bed shortages in San Francisco and the region. This alternative would also not address growing demand for emergency, surgical, interventional radiology, and imaging services at Parnassus Heights and would not help achieve the benefits that can be realized through interdisciplinary collaboration by continued co-location clinical care, research, and education. Such interdisciplinary collaboration is a hallmark of UCSF and key to the many breakthrough scientific discoveries by the institution. As all five professional programs (Medicine, Nursing, Pharmacy, Dentistry, and Physical Therapy) are established at Parnassus Heights, this alternative would not foster collaboration to the extent proposed in the CPHP.

For all of the above reasons, the Draft EIR appropriately dismisses this suggested off-site alternative (for the new hospital) from further in-depth analysis.

TABLE 8.3-1
BASIC OBJECTIVES MET/NOT MET WITH THE
NEW HOSPITAL AT MISSION BAY CAMPUS SITE OR OTHER OFF-SITE LOCATIONS[a]

Basic Objective (Excerpted from Draft EIR Project Description)	Met/Not Met
Parnassus Heights (from the 2014 LRDP and FEIR)	
A. Continue to promote excellence and leadership in health science education, maintaining the Parnassus Heights campus site as the central location for classroom instruction.	**Met** – The Parnassus Heights campus would retain professional programs of medicine, dentistry, nursing, pharmacy, and physical therapy whether or not the new hospital is located on site.
B. Ensure that adequate space is provided to foster collaboration and to facilitate the inter-dependence and connectivity for operational efficiency and effectiveness of instruction, clinical, research and support uses in close physical proximity to each other.	**Not Met** – Collaboration, operational efficiency, and effectiveness would not be fostered between clinical uses and other uses if the new hospital is located elsewhere.
C. Ensure that Long Hospital and the New Hospital Addition have adequate clinical and administrative support and are aligned with education, research and specialized care programs and support that remain at the campus site.	**Not Met** – The new hospital would not be aligned with Parnassus Heights education, research and specialized care programs if it is located off-site.
D. Provide additional campus housing and improve campus life amenities including outdoor space.	**Met** – The Parnassus Heights campus would include additional housing and improvements to campus amenities such as outdoor space whether or not the new hospital is located on site.
E. ~~Strive to better achieve the remaining unfulfilled components of the 1976 Regents' Resolution by reducing space, minimizing population growth, and improving transportation-related programs.~~ Conform to the space limits and population estimates established in the Regents' Resolution Regarding the Parnassus Heights Campus Site, as amended.	**Met** – Proposed amendments to the Regents' Resolution would result in conformance with space limits and population estimates whether or not the new hospital is located on site.
F. Preserve the Mount Sutro Open Space Reserve as permanent open space, and serve as the steward of the Reserve by maintaining and expanding the trail system and by ensuring the safety of visitors and neighboring structures.	**Met** – The Sutro Open Space Reserve would be preserved, the trail system would be maintained and expanded, and safety would be ensured whether or not the new hospital is located on site.
Objectives for the CPHP - Space	
• Revitalize the aging Parnassus Heights campus to enhance its place as a premier educational, research, and clinical institution -- one that draws in research and clinical faculty, staff, students, and trainees.	**Not Met** – The campus' place as a premier educational, research, and clinical institution would not be enhanced if the new hospital is located off-site.
• Fulfill the need for contemporary research, educational, clinical, and support spaces that have been lacking at Parnassus Heights for decades.	**Not Met** – The need for contemporary research, educational, clinical, and support spaces would not be fulfilled if the new hospital is located off-site.
• Increase the quantity and improve the quality of research space, to enhance synergies between research and clinical activities at Parnassus Heights for UCSF to maintain its stature as a world-class hub of basic, translational, and clinical research.	**Not Met** – Synergies between research and clinical activities at Parnassus Heights would not be enhanced if the new hospital is located off-site.
• Connect buildings and spaces at multiple levels to foster collaboration that facilitates learning and scientific discoveries.	**Not Met** – The new hospital would not be connected to other Parnassus Heights buildings/spaces to foster collaboration that facilitates learning and scientific discoveries if the hospital is located off-site.
• Facilitate patient/pedestrian safety and functional efficiency by connecting campus buildings across and under Parnassus Avenue.	**Not Fully Met** – The new hospital would not be connected across and under Parnassus Avenue to facilitate patient/pedestrian safety and functional efficiency if the hospital is located off-site.
• Increase the on-campus supply of housing for students, faculty and staff, thereby minimizing the impact of UCSF-demand for housing on adjoining neighborhoods.	**Met** – The Parnassus Heights campus would include additional housing and improvements to campus amenities such as outdoor space whether or not the new hospital is located on site.

NOTES:

[a] In this context, "basic objectives" are those objectives established for the Parnassus Heights campus site in the 2014 LRDP as proposed for revision, and objectives of the CPHP related to space. Other objectives presented in Section 3.6 and 6.2.1 of the Draft EIR relate to urban design, mobility, and specific Initial Phase projects, including the New Hospital.

SOURCE: ESA, October 2020

New Hospital at Mount Zion Campus Site

In Section 6.4, the Draft EIR considers an alternative called New Hospital at Mount Zion Campus Site, generally describing this alternative as adoption and implementation of the CPHP without construction of a new hospital at Parnassus Heights. Instead, this alternative would construct a New Hospital at UCSF's Mount Zion campus site as previously studied in the 2002 UCSF Mount Zion Master Planning Study, either on the main block (bounded by Divisadero, Post, Scott, and Sutter Streets) or on the south block (bounded by Divisadero, Geary, Scott, and Post Streets).

As discussed in the Draft EIR and pointed out by the commenters, this alternative would reduce significant and unavoidable impacts at the Parnassus Height's campus site such as the wind impact identified in the vicinity of the New Hospital site, and demolition of the LPPI, which is a historic resource. This alternative would also reduce or avoid other impacts associated with the project such as temporary construction and operational impacts associated with the New Hospital, although many of these impacts would shift to the Mount Zion campus site. Also, while some transportation and air quality impacts experienced at Parnassus Heights would be reduced because of the smaller amount of development at the campus site, other transportation and air quality impacts could be somewhat greater due to increased traffic between the two campus sites, as students, faculty, staff, and patients travel between the facilities.

Commenters pointed out that outdated space at the Mount Zion campus site must be retrofitted or demolished due to seismic issues and new, and replacement space was discussed in the 2014 LRDP "as way to accommodate clinical programs at Parnassus" that may be relocated to Mount Zion (Comment **O-LD2-15**). Commenters also suggested that because this alternative would reduce impacts of the proposed project and is feasible, it should be fully evaluated in the EIR and potentially adopted in lieu of the proposed project. However, the Draft EIR does not conclude that this alternative is feasible, recognizing that "failure to meet most of the basic project objectives" is "among the factors that may be used to eliminate alternatives from detailed consideration" (CEQA Guidelines Section 15126.6(c)). In this instance, an alternative that would adopt and implement the CPHP without construction of a New Hospital at Parnassus Heights and build a New Hospital at Mount Zion would not address one specific need identified in Section 3.5 of the EIR, which is the need for co-location of instructional, research, and clinical spaces, and similar to the alternative that would place the new hospital at Mission Bay, would not achieve most of the basic project objectives as shown in **Table 8.3-1**. As explained above, interdisciplinary collaboration is a hallmark of UCSF and key to the many breakthrough scientific discoveries by the institution. As all four programs (Medicine, Nursing, Pharmacy, Dentistry, and Physical Therapy) are established at Parnassus Heights, this alternative would not foster collaboration to the extent proposed in the CPHP.

Also, as explained in Section 6.4.3 of the Draft EIR, UCSF does not own the Mount Zion south block sites, making it unclear whether UCSF can reasonably acquire or have access to that site (CEQA Guidelines Section 15126.6(f)(1)).

For all of the above reasons, the EIR appropriately dismisses this suggested off-site alternative (for the new hospital) from further in-depth analysis.

Two Hospital Alternative

One commenter suggested building two new hospitals: a smaller facility at Parnassus Heights and another facility at either the Mission Bay or Mount Zion campus site, locations which are both described above (Comment I-Kessler-33). The commenter's rationale included flexibility in strain/crisis scenarios, spreading out traffic, providing more beds to serve more patients, allowing for a smaller project with less impacts [at Parnassus Heights], and allowing construction to occur away from existing inpatient facilities, avoiding interruption in clinical services.

The proposal for a New Hospital at Parnassus Heights in fact would implement the second step in the two-hospital plan that has been decades in the making following the adoption by the State Legislature of Senate Bill 1953 establishing new seismic safety standards for inpatient facilities in California. A campus-wide assessment of inpatient facilities across UCSF's campus sites was undertaken in the early 2000s. In 2005, the Regents approved LRDP Amendment #2 to the 1996 LRDP, which envisioned a two-hospital plan with potential new inpatient facilities both at Mission Bay and at Parnassus Heights. The plan further envisioned that Mount Zion would be transitioned to primarily an outpatient hub. In 2008, the Regents approved LRDP Amendment #3 to the 1996 LRDP to provide an update to the two-hospital plan, as well as to share details regarding the plans for the new hospital at Mission Bay. LRDP Amendment #3 summarizes (p. 3) "The Initial Phase ('LRDP Phase') of those recommendations, which were adopted in LRDP Amendment #2, are to: 1) develop three integrated specialty hospitals with about 210 beds at Mission Bay by 2012; 2) maintain tertiary and quaternary care with about 600 beds at Parnassus Heights for a total of about 810 beds during the LRDP phase; 3) provide ambulatory care facilities at both Parnassus Heights and Mission Bay; and 4) populate both sites with basic and translational disease oriented research programs."[2] UCSF is implementing this plan, first with the opening of Phase I of the Mission Bay hospitals in 2015, followed by other clinical facilities to complete the Initial Phase of the Medical Center at Mission Bay. The proposed New Hospital at Parnassus Heights is the next step.

Regarding the CPHP Draft EIR, construction of a smaller, new hospital at the Parnassus Heights campus site was considered in several alternatives in the Draft EIR, as shown in **Table 8.3-2**, below. Specifically, Alternative 1B: No Project - Development under the 2014 LRDP analyzed in the Draft EIR would construct a New Hospital that would be 308,000 gsf, or less than one third the size of the New Hospital in the proposed project. Alternative 2: Reduced Project analyzed in the Draft EIR would construct a 629,000 gsf New Hospital, approximately two thirds the size of the New Hospital under the proposed CPHP, and Alternative 3: New Hospital – Phased Option analyzed in the Draft EIR would construct a 585,000 gsf New Hospital, about half the size of the New Hospital in the proposed project, along with demolition and replacement of Moffitt Hospital.

[2] UCSF, *Long Range Development Plan Amendment #2 – Hospital Replacement Program Final Environmental Impact Report*, certified March 2005.
UCSF, *UCSF Medical Center at Mission Bay Final Environmental Impact Report*, certified September, 2008.
UCSF, *UCSF Long Range Development Plan Amendment #2 and 2004 LRDP Update*, approved by the Regents March 17, 2005.
UCSF, *UCSF Long Range Development Plan Amendment #3 and 2008 LRDP Update*, approved by the Regents July 15, 2008 and September 17, 2008.

TABLE 8.3-2
PROPOSED NEW HOSPITAL AT PARNASSUS HEIGHTS CAMPUS SITE UNDER CPHP COMPARED TO EIR ALTERNATIVES WITH SMALLER HOSPITALS AT PARNASSUS HEIGHTS CAMPUS SITE

		New Hospital under Alternatives Analyzed in Chapter 6 of the Draft EIR		
	Proposed New Hospital under CPHP	**Alternative 1B: No Project – Development under the LRDP**	**Alternative 2: Reduced Project**	**Alternative 3: CPHP with New Hospital – Phased Option**
New Hospital Gross Square Feet (gsf)	955,000 gsf	308,000 gsf	629,000 gsf	585,000 gsf at LPPI 370,000 gsf at Moffitt Hospital
New Hospital Height	16 stories 294 feet	7 stories 110 feet	12 stories 212 feet	13 stories at LPPI 10 stories at Moffitt Hospital
New Hospital and Total Parnassus Heights Beds	384 New Hospital 291 Long Hospital 675 Total Beds	140 New Hospital 299 Long Hospital 439 Total Beds	288 New Hospital 96 Moffitt Hospital 291 Long Hospital 675 Total Beds	252 New Hospital 132 New Hospital 291 Long Hospital 675 Total Beds

SOURCE: ESA, October 2020.

As noted earlier, an EIR need not consider multiple variations on the alternatives that have been presented. Instead, the relative advantages and disadvantages of other alternatives can be assessed from a review of the alternatives presented in the EIR as long as other alternatives fall within the range that has been evaluated. See *Village Laguna of Laguna Beach, Inc. v. Board of Supervisors* (1982) 134 Cal App. 3d 1022. In this instance, the commenter's suggestion of a smaller hospital at Parnassus Heights falls within the range of alternatives that have been analyzed in the EIR and further analysis is not necessary.

New Hospital at Hunters Point

A number of commenters pointed out that UCSF owns 3.8 acres of land at the former Hunters Point Shipyard and suggested that the site should be considered for conversion from the current low-intensity uses, to include a New Hospital and other uses, suggesting that "healthcare, a hospital, and economic development would be greatly needed in this community" (Comment **O-LD2-16**) and "provide jobs and health care to a disadvantaged and underserved community" (Comment **O-LD2-76**).

This suggestion does not represent a feasible alternative for consideration in the CPHP EIR because similar to the off-site alternative at the Mission Bay campus site, it would not meet most of the basic objectives of the project as shown in **Table 8.3-1**. As explained above, interdisciplinary collaboration is a hallmark of UCSF and key to the many breakthrough scientific discoveries by the institution. As all five professional programs (Medicine, Nursing, Pharmacy, Dentistry, and Physical Therapy) are established at Parnassus Heights, this alternative would not foster collaboration given the distance of the Hunters Point site from UCSF's main facilities.

New Hospital at Seton Medical Center

A commenter suggested that the Draft EIR's omission of an alternative that would implement the New Hospital at the Seton Medical Center[3] was improper, given that the facility currently stands empty (Comments **O-LD2-76**) and another commenter suggested that UCSF should acquire the Seton Medical Center because it has 357 hospital beds and is well located with access to the Parnassus Heights and Mission Bay campus site, pointing out that it could serve "an important underserved community of color and would broaden the reach of UCSF beyond the city limits of San Francisco" (Comment **I-Leonard-16**).

This suggestion does not represent a feasible alternative for consideration in the CPHP EIR because similar to the off-site alternative at the Mission Bay campus site, it would not meet most of the basic objectives of the project as shown in **Table 8.3-1**, and because UCSF does not control the site of the facility, which is in Daly City. According to recent news reports, the new ownership, AHMC Healthcare, is obligated to keep Seton open for at least five and a half years.[4]

New Hospital at Laurel Heights

One commenter suggested that the EIR should discuss development of an additional campus site at Laurel Heights to accommodate the expansion proposed at Parnassus Heights (Comment **I-Robertson 6**). This suggestion does not represent a feasible alternative for consideration in the CPHP EIR because similar to the off-site alternative at the Mission Bay campus site, it would not meet most of the basic objectives of the project, as shown in **Table 8.3-1**, and because UCSF does not control the site, which was acquired by a private developer in 2018 and recently approved for development of residential and commercial uses and open space.

New Hospital and Other Development at Locations Along Third Street

One commenter suggested that the EIR evaluate alternatives that implement the 2014 LRDP with 400,000 sf of new development at the Parnassus Heights campus site plus additional development along the Third Street corridor at one or more of the sites currently proposed for development (Mission Rock, Pier 70, Potrero Power Station, or Candlestick Redevelopment) stating that all "could readily be modified to fully accommodate expanded UCSF development…" (Comment **O-YBNC-1**). This suggestion does not represent a feasible alternative for consideration in the CPHP EIR because similar to the off-site alternative at the Mission Bay campus site, it would not meet most of the basic objectives of the project, as shown in **Table 8.3-1**, and because UCSF does not control any of the sites referenced.

Topic 3: Other Suggested Alternatives

A number of commenters had suggestions for alternatives that should be considered in the EIR that did not relate to placing the New Hospital or other development at an off-site location. These included a suggestion that one or more alternatives be crafted to preserve the Toland Hall Zakheim murals and provide for their public display. This would include possible implementation

[3] Comment Letter O-LD2 refers to a "Seton Hall Hospital Facility." However, it is assumed the commenter meant to refer to the Seton Medical Center (in Daly City).

[4] Woo, Erin. "AHMC Healthcare finalizes purchase of Seton Medical Center," *San Jose Mercury News*, August 14, 2020.

of the CPHP without those elements requiring demolition of UC Hall, or a portion of UC Hall, so that the murals could remain intact at their current location; or identification of an alternate location at Parnassus Heights where the murals could be installed (Comment **I-Yap-1**). Another suggestion was to identify and analyze an alternative that would avoid displacement and loss of housing at the Aldea Housing complex during construction (Comment **O-SUT-10**).

Preservation of the murals in place was analyzed in the No Project Alternative, comprised of the Alternative 1A: No Project – No Development; and Alternative 1B: No Project – Development under the 2014 LRDP, in which UC Hall would be retained and adaptively reused for housing. This analysis would be adequate should UCSF ultimately opt to retain the murals in place, although that is not proposed. Retaining Toland Hall and the murals in place and development of the proposed research facility around it is not practical or feasible.

Retaining Toland Hall while constructing the new Research and Academic Building around it would be a complex endeavor essentially requiring that UC Hall be cut from Toland Hall and demolished around it.[5] Given Toland Hall's location within UC Hall and the steep slope underlying the site, the retention of Toland Hall and the murals in situ would require extensive shoring to keep the structure in place while excavating below it. Toland Hall would need to undergo a seismic retrofit with shotcrete walls added to the exterior of the existing walls, demolition of the existing seating bowl slab, and extensive temporary shoring of the building on beams and piles. The work would be extremely costly, increase the complexity of the construction of the new Research and Academic Building, extend the overall construction schedule, and result in sub-optimal seismic performance of the final building. Block outs in the Research and Academic Building structure, areas inaccessible by crane or other equipment, and added complications for lowering and incorporating Toland Hall would add to the overall cost and schedule of the Research and Academic Building.

It would also put the murals at risk of damage throughout the construction process due to vibrations from the demolition of UC Hall, demolition of the seating bowl slab, installation of piles, and construction of the new Research and Academic Building; differential settlement of the supporting piles; or potential water intrusion. While there are no CalTrans vibration standards specific to murals or frescoes, CalTrans' most stringent vibration standards are those related to vibration impacts on "extremely fragile historic buildings, ruins, and ancient monuments."[6] As these standards address maintenance of vulnerable historical structures, it is reasonable to assume that such stringent standards would also serve as an appropriate criterion for the plaster frescoes throughout the demolition and construction process. There are substantial measures that would need to be taken in protecting the murals that would require further review and analysis by art and preservation consultants: i.e., humidity control once the slab and roof of Toland Hall are removed, and vibration and stability control at the walls when the lateral supports are removed. The consultant concluded that there would be no stage in this complex process where the murals would not be at some level of risk for damage.

[5] Degenkolb Engineers, *University of California San Francisco Toland Hall Reuse Evaluation*, December 4, 2020.
[6] Caltrans, *Transportation and Construction Vibration Guidance Manual* (Table 19, p.38), September 2013.

For these reasons, and for the reason that the retention of Toland Hall would be an extremely limiting factor in the design, construction, and utility of the new Research and Academic Building, and because the cost of retaining Toland Hall is estimated to be $37.8 million, UCSF finds that the retention of Toland Hall would not be practical or feasible.

As discussed under Master Response 11: Toland Hall Murals, outside of the CEQA process, UCSF continues to assess how best to safety relocate the murals. UCSF has recently selected a historic preservation firm to design and implement the process of relocating the murals to a storage facility until a permanent home can be found. Assuming removal and relocation of the murals to a temporary storage facility is successful, UCSF will explore options to either return the murals to the Parnassus Heights campus in a future new building that can accommodate them, or to relocate them to a museum or other institution where they can be maintained by experts and made accessible to a broad public audience. Potential options for returning the murals to the Parnassus Heights campus site include one of the planned new building sites under the CPHP, provided public access and sufficient space are available and do not conflict with critical clinical, research, and educational needs. Potential options for off-site locations include a museum or similar institutional setting, which would expand accessibility to scholars and the public, possibly providing a greater opportunity for the public to learn about the murals' creation and the history they depict.

Regarding the Aldea Housing complex, as discussed in Draft EIR Chapter 3, Project Description, and Section 4.12, Population and Housing, the proposed CPHP proposes to add 762 new housing units to the Parnassus Heights campus, including 332 net new units achieved via densification of Aldea Housing complex and 430 new units on the campus west side. The densification of the Aldea Housing complex would be phased over time to minimize displacement of existing residents and loss of housing units as the current buildings are demolished and replaced. Specifically, this project would include removal of 42 units in the initial phase of the Aldea Housing Densification project, followed by replacement with 184 units (142 more than currently exist). This would temporarily displace 42 households and make new units available during development of future phases, limiting the potential for displacement in those future phases.

Draft EIR Impact POP-2 (see also Master Response 14: Population and Housing, below, for additional detail), showed that approximately 42 households, or about 100 residents, would be temporarily displaced for about 2 years as a result of the initial Aldea Housing Densification project. The displaced households would be provided UC-controlled housing for the 2-year duration and then would be able to return to housing at the Parnassus Heights campus site. Accordingly, this impact was determined to be less than significant, and no alternative analyzing West Side housing development first is needed.

8.3.3.6 Master Response 6: Public Resources Code 21099

A number of comments were received that asserted that Public Resources Code (PRC) Section 21099 did not apply to the proposed CPHP, and therefore, aesthetics and parking impacts should have been analyzed in the Draft EIR. Certain comments claim that the proposed CPHP did not meet the eligibility requirements for Section 21099 because the CPHP is a planning document and not a project; that the CPHP does not meet the definition of a residential, mixed-use

residential, or employment center project; and that the CPHP is not located on an infill site. Other comments assert that the Draft EIR improperly minimizes its aesthetics impacts by dissuading the public from commenting on this issue and misleads decision-makers. Other comments claim that because the Draft EIR was processed under PRC Section 21099, that the aesthetics impact analysis was not addressed seriously in the Draft EIR.

As explained in the Draft EIR, Section 4.0, Introduction to Environmental Analysis, pages 4.0-3 to 4.0-4, PRC Section 21099(d) states that "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment." Accordingly, aesthetics and parking are not considered in determining if a project has the potential to result in significant environmental effects for projects that meet all of the following three criteria:

a. The project is in a transit priority area
b. The project is on an infill site; and
c. The project is residential, mixed-use residential, or an employment center.

The Draft EIR explains that the proposed CPHP meets each of the above three criteria, and that, on this basis, the Draft EIR did not consider aesthetics and the adequacy of parking in determining the significance of project impacts under CEQA.

Comments **O-PARKIN-2** and **O-PARKIN-3** assert that the proposed CPHP does not meet the eligibility requirements for PRC Section 21099 because the CPHP is a planning document and not a project, and because it includes an amendment to the 2014 LRDP. The Draft EIR Project Description is clear in describing the various plan and project-level components of the CPHP, including its proposed land use development program, and amendment to the 2014 LRDP. However, PRC Section 21099 does not exclude the CPHP from being eligible for this section by virtue of it being a plan. Rather, as indicated above, the eligibility requirements of the CPHP are associated with meeting those criteria specified in PRC Section 21099 related to it being in a transit priority area, being on an infill site, and consisting of either a residential, mixed-use residential or an employment center.

Comments **O-LD2-27**, **O-PARKIN-6**, **I-Goodman-8**, and **I-Leonard-18** dispute the Draft EIR's determination of the CPHP meeting the definition in Section 21099 of being an employment center. As explained in Section 4.0 in the Draft EIR, PRC Section 21099(a)(1) defines an employment center as a project located on property zoned for commercial uses with a floor area ratio of no less than 0.75 and located within a transit priority area. The commenters assert that the reference to zoning refers to local zoning of the campus, and that the campus site is not zoned for commercial use by the City of San Francisco. The Draft EIR clearly specifies that pursuant to the University of California's constitutional autonomy, development and uses on property owned or leased by the University that are in furtherance of the University's educational purposes are not subject to local land use regulation, including those of the City of San Francisco. Furthermore, the Draft EIR Chapter 3, Project Description, and Section 4.10, Land Use and Planning are clear in distinguishing the zoning designated by the City for the campus site versus UCSF's classification of land use development on the campus site. The Draft EIR explains on page 4.0-4 that the CPHP

would include a variety of commercial uses. The campus core is also currently densely developed and density would be further increased under the CPHP. Lastly, as specified in the Draft EIR page 4.0-3, the campus site is located within a transit priority area, as it is located within one-half mile of the Irving Street and Arguello Boulevard stop on the N-Judah Muni line which has service of 15 minutes or less (among other transit services). Taken together, the CPHP substantially meets the definition of an employment center.

O-PARKIN-2, **O-PARKIN-4**, **O-PARKIN-5** and **I-Goodman-8** further assert that the CPHP does not meet the definition in Section 21099 of being a residential or mixed-use residential project. PRC Section 21099 does not require the CPHP to meet the definition of a residential, mixed-use residential *and* employment center; rather, it need only meet one of the three categories, and accordingly, the Draft EIR focuses on the CPHP substantially meeting the definition of an employment center. Nevertheless, despite the characterization by Comment **O-PARKIN-4** that housing would represent a "relatively small component of the CPHP," the CPHP in fact proposes substantial new on-campus housing, consisting of 772 net new housing units. This is consistent with the CPHP's objectives to increase the on-campus supply of housing for students, faculty and staff, and minimize the impact of UCSF-demand for housing in the City. As Comment **O-PARKIN-5** notes, "Section 21099 does not define 'mixed-use residential project.' " However, when considering the range of uses that would be provided under the CPHP, including clinical, research, instruction, housing and open space, the CPHP appears to substantially meet the residential and mixed-use categories in PRC Section 21099 as well.

O-PARKIN-2 and **I-Leonard-18** also claim the campus site does not meet the definition of an infill site given the project is adjacent to the Mount Sutro Open Space Reserve. However, as indicated in the Draft EIR Section 4.0, PRC Section 21099(a)(4) defines an "infill site" as a lot located within an urban area that has been previously developed. . ." The vast majority of new development under the CPHP would occur within the urbanized campus core and within Aldea Housing complex, both of which have been previously developed, and consequently, the CPHP meets this criterion.

O-PARKIN-7 asserts that the Draft EIR improperly minimizes its aesthetics impacts by dissuading the public from commenting on this issue, misleads decision-makers and that the aesthetics analysis was not addressed seriously in the Draft EIR. However, the Draft EIR notes on page 4.0-4 and 4.1-20 that notwithstanding the determination that the proposed CPHP substantially meets the criteria set forth in PRC Section 21099(d), the Draft EIR provides a complete assessment of potential aesthetic impacts. In fact, Section 4.1 in the Draft EIR includes a thorough and lengthy aesthetic impact analysis of the CPHP that analyzes all aesthetic issues listed in the CEQA Appendix G checklist, aided by visual simulations that show the changes to the campus site with the implementation of the CPHP as viewed from a number of important view points in the City. As demonstrated in Section 4.1 in the Draft EIR, the proposed CPHP would not have a substantial adverse effect on scenic vistas, nor conflict with applicable zoning and other regulations governing scenic quality, and accordingly, these impacts would be less than significant. In addition, the Draft EIR also determines that with implementation of mitigation measures identified in the Draft EIR to minimize light and glare associated with new buildings under the CPHP, potential lighting/glare impacts would be less than significant. As such, the Draft EIR provides full disclosure of potential

aesthetic impacts to the public and decision-makers, and where required, identifies enforceable mitigation to reduce aesthetic impacts to the extent feasible.

8.3.3.7 Master Response 7: Aesthetic Impacts

This master response responds to the following organization, individual and public hearing comments: **O-LD2-28, O-LD2-43, O-LD2-71, O-LD2-78, O-LD2-79, O-LD2-80, O-LD2-82, O-PARKIN-8** through **O-PARKIN-12, O-PARKIN-18, O-SFFA-3, I-Hanley-4, I-DeSnoo-4, I-DeSnoo-5, I-Goodman-9, I-Kessler-7** through **I-Kessler-12, I-Jones-4, I-Leonard-19, I-Lebus-6, I-Scatena-5, I-Scatena-7, PH-Kessler-17, PH-Kessler-18,** and **PH-Scatena-35**.

Comments state that the Draft EIR improperly determined aesthetic impacts of the proposed CPHP on scenic vistas and scenic quality to be less than significant. Notably, the two appellate court cases cited by one commenter for the proposition that a negative change in views or other aesthetic features necessarily rises to the level of significance (*Ocean View Estates* and *Quail Botanical Gardens*) involved instances in which the lead agency had prepared a negative declaration or mitigated negative declaration. In such an instance, a commenter need only present a fair argument that a project *could* result in a significant impact in order for a court to invalidate the CEQA document. Here, however, UCSF has already prepared an EIR, has fully evaluated the CPHP's aesthetic effects, and has determined, based on substantial evidence in the record that the aesthetic effects would be less than significant. One observer's conclusions regarding a project's effects differs from another does not invalidate the EIR's analysis. As stated in the State CEQA Guidelines, "Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts" (CEQA Guidelines Section 15151). The conclusions of the EIR authors are clearly explained in the Draft EIR, as summarized below.

The Draft EIR focused its analysis of effects on scenic vistas on well-known and well-used public vantage points that offer long-range panoramic views of scenic resources. Based on this analysis, the Draft EIR concluded that, while new development pursuant to the CPHP would be visible as part of the scenic vistas identified, "these scenic vistas would not be substantially or adversely impacted."

The Draft EIR found that the most visible project components, depending on viewpoint, would include the New Hospital, Research and Academic Building (RAB), Millberry Union improvements, West Side development, and patient/family hotel. The Draft EIR analyzed the effect on scenic views of these and other components from publicly accessible locations chosen for the long-range panoramic views, including Grandview Park, the Tank Hill natural area, Buena Vista Park, and Corona Heights Park.[7] From Grandview Park, the Draft EIR found that CPHP development would partially obstruct views of the lower portion of Mount Sutro's north slope. However, the vegetated hillside of the Mount Sutro Open Space Reserve "would continue to be a prominent scenic resource from this view due to its elevation and visibility from long distance" (see Draft EIR Figure 4.1-9, Draft EIR page 4.1-26). CPHP development would obscure a small portion of the view of downtown San Francisco but would not alter other scenic views from

[7] All four of these viewpoints are identified in the San Francisco General Plan Urban Design Element (Map 1) as being important vista points to be protected.

Grandview Park, including those of the Pacific Ocean, Golden Gate Park, the Marin Headlands, and the Presidio. From the other identified viewpoints, all of which are generally east of the campus site, the Draft EIR found that some CPHP development, particularly the New Hospital, would be visible; however, no scenic views would be obscured. This view is generally illustrated in Draft EIR Figure 4.1-17, Draft EIR page 4.1-39. From 17th and Clayton Streets, the proposed New Hospital would be clearly visible and would occupy a prominent place on the horizon. However, it would not obscure any scenic views. The Draft EIR found that other long-range views from these parks, including those of the Marin Headlands, downtown San Francisco, and the East Bay Hills would not be affected by CPHP development.

The Draft EIR acknowledged (page 4.1-35) that the proposed New Hospital would be visible from streets close to the New Hospital site, including Edgewood and Belmont Avenues and Willard Street. However, long-range views westward from these streets are generally obscured by Mount Sutro and by existing homes and vegetation.

The Draft EIR also found that CPHP development would change views from certain more distant streets in the vicinity of the campus site. However, even where the CPHP would make a noticeable change—such as from certain locations along Lincoln Way, from where the view of Sutro Tower would be partially or completely obscured (see Draft EIR Figures 4.1-12 and 4.1-14, Draft EIR pages 4.1-33 and 4.1-36)—comparable views would be available to an observer from locations a few blocks in either direction. In the context of an urban area, view changes of this magnitude would not be considered significant. One comment (**I-Kessler-11**) regarding these figures states that the views shown are on the route of San Francisco's 49-Mile Scenic Drive. The 49-Mile Scenic Drive "was created in 1938 by the Downtown Association to highlight the city's beauty and to promote it as a tourist destination … as a way for visitors to see San Francisco while they were here for the Golden Gate International Exposition from 1939-1940. Over the years, the route has changed many times."[8,9] Given the origins of the 49-Mile Scenic Drive, its length, and the fact that both the Drive and views from the Drive along its length and in the vicinity of Parnassus Heights have changed over time, a location on the Drive does not necessarily increase the visual sensitivity of that location or suggest that visual changes from the Drive are necessarily significant impacts. In addition, the Appendix G threshold addresses substantial damage to scenic resources within a state scenic highway, and 49-Mile Scenic Drive is not a state scenic highway.

One comment (**O-LD2-28**) states that the commenter's expert consultant reviewed the Draft EIR and "concluded that the Project will result in a significant change to public views and will change the visible skyline. *See* Exhibit D." Exhibit D (Comments **O-LD2-78** through **O-LD2-80**) offers no evidence, but instead offers conclusory statements such as, that the CPHP's "substantial increase in building area, mass, and height … will undoubtedly create significant visual impacts" and "In review of this plan and DEIR, it is apparent that the proposed building plan and particularly the new 16 story hospital would have significant visual impacts (see figures 1 and 2)."

8 SF Travel website. https://www.sftravel.com/article/49-mile-scenic-drive. Accessed October 18, 2020.

9 The Downtown Association of San Francisco, a business group, was "devoted to the betterment of San Francisco and its Downtown Business District from 1907 to approximately 2004." (Online Archive of California website. https://oac.cdlib.org/findaid/ark:/13030/c8k07905/. Accessed October 18, 2020).

Exhibit D explains, "The visual simulations shown here have been constructed within Google Earth and incorporate scale models of the building masses and heights identified in the EIR."

Figures 1 and 2 in Comment **O-LD2-72** purport to show the "Existing view west from adjacent neighborhood" and "View west with proposed new hospital." However, these images, as well as the other "visual simulations" presented in Exhibit D are not from ground level, but rather, from aerial vantage points—estimated to be at an altitude of at least 900 feet in Figures 1 and 2 and thus more than 500 feet above Parnassus Avenue. The distance that an observer can see from this height, without existing buildings and vegetation to block the line-of-sight, as occurs at ground level, is much greater and substantially unobstructed, compared to a ground-level view from the same horizontal coordinates (i.e., the same location, but at grade). This renders the aerial view substantially unrepresentative of what a ground-level observer would see.

Other "simulations" presented in Comments **O-LD2-79** and **O-LD2-80**—purportedly from the west end of Farnsworth Lane, Hill Point Way, Tank Hill natural area, Buena Vista Park, and Corona Heights Park—depict viewpoints between about 55 feet and 110 feet above the purported viewpoints. Therefore, the "simulations" presented in Exhibit D are generally inapplicable to an evaluation of public scenic vistas or, for that matter, views from any *publicly accessible viewpoint*. Rather, the "simulations" misrepresent the effect of the proposed New Hospital by making it appear as though the hospital building would block views that, in fact, do not exist from at-grade viewpoints. While the proposed New Hospital would certainly be visible from these locations, it would take up a small portion of the horizon and only from Tank Hill would the new building obscure any ocean view at all from publicly accessible viewpoints.

Regarding the change in views from the Farnsworth trailhead at the west end of Farnsworth Lane, the commenter is correct that the New Hospital, if developed at a mass comparable to that analyzed programmatically in the Draft EIR,[10] would block the view westward from the trailhead. However, this view is already partially obscured by vegetation and offers a relatively narrow field of view between the existing hospital buildings and the medical office building at 400 Parnassus Avenue. In addition, the medical office building at 350 Parnassus Avenue blocks the view to the northwest, views to the north and east are also largely obscured by vegetation, and views to the southeast are blocked by existing residences. The view to the south is primarily of a trail in a forest. As a result, the Farnsworth trailhead does not offer high-quality scenic views, nor panoramic views, but rather a somewhat limited view to the west through vegetation and between buildings. This location is therefore not considered a high-quality viewpoint and the potential visual change is not considered significant.

Farnsworth Trail, which begins at the Farnsworth trailhead, extends southward for about 400 feet to UCSF's Surge parking lot, from where a walker can descend to the UCSF campus via the Campus trailhead or can continue southward through the parking lot and its driveway and on

[10] As explained in the Draft EIR Project Description, on page 3-2, the analysis of the New Hospital is not based on an actual building design, but rather on a conceptual massing model: "Broad parameters for the New Hospital project (location, size, mass, height …) are accounted for in the CPHP and are analyzed at a program level in this Draft EIR. Further details of the New Hospital are being developed, including the specific design. Those elements of the New Hospital will be the subject of a subsequent project-specific environmental review when more details become available."

Medical Center Way to either the Historic Trail or the Edgewood Trail. Views westward from most of the Farnsworth Trail are obscured by the existing Moffitt and Long Hospitals, as well as by the Health Science and Medical Science Buildings. While the New Hospital would change the westward view from the Farnsworth trailhead, this represents a single location in the Mount Sutro Open Space Reserve, which includes an extensive trail network. Because the remainder of the trail network is considerably to the south of the Farnsworth Trail, neither the New Hospital nor other CPHP components would affect westward views from other trail locations on Mount Sutro. As explained in the Draft EIR, from some locations within the Reserve, the proposed New Hospital would be visible and would obstruct northward scenic views across the campus core. However, many existing views northward from within the Reserve are partially or substantially obstructed by dense vegetation and/or topography; in general, therefore, the Reserve does not provide long range scenic views that would be affected by proposed CPHP development.

Several comments (**O-LD2-28**, **O-LD2-43**, **O-LD2-71**, **O-LD2-80**, **O-PARKIN-9**, and **I-Kessler-10**) state that the Draft EIR fails to acknowledge alleged conflicts with the San Francisco General Plan Urban Design Element and/or the San Francisco Planning Code and that these conflicts would result in a significant aesthetic impact. The Draft EIR discusses the Urban Design Element (pages 4.1-17 – 4.1.18). The San Francisco Planning Code is also discussed (pages 4.1-18 – 4.1-19). As stated on page 4.1-17, "Although the University is constitutionally exempt from local land use regulation when using properties under its control in furtherance of its educational mission, the University strives to be substantially consistent with local policies where feasible."

Because UCSF is constitutionally exempt from local land use regulations, the San Francisco General Plan is not a plan that is "applicable" to the proposed CPHP, although it was taken into consideration during development of the CPHP. The same is true with respect to the San Francisco Planning Code, including the Zoning [use and height] Maps. The purpose of an EIR is "to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project" (CEQA Section 21061). CEQA defines a significant effect as "a substantial, or potentially substantial, adverse change in the environment," and the "environment" consists of "the physical conditions that exist within the area which will be affected by a proposed project" (CEQA Sections 21068 and 21060.5). Thus, even a conflict with a plan or policy that is applicable to the project does not, in and of itself, indicate a significant effect on the environment. Rather, that conflict is an indication that a potential physical effect could occur and serves as guidance to the EIR preparer that further investigation of such physical effect may be warranted. Here, despite the fact that neither the San Francisco General Plan nor the San Francisco Planning Code is applicable to the proposed CPHP, and notwithstanding the fact that the Draft EIR properly explains that this EIR is not required to consider aesthetics in determining the significance of CPHP impacts under CEQA in accordance with CEQA Section 21099(d) (see Master Response 6: Public Resources Section 21099), the Draft EIR nevertheless analyzes potential physical impacts related to aesthetics, and identifies, as feasible, mitigation measures to mitigate potential significant aesthetic impacts.

One comment (**O-LD2-80**) states that it is unclear whether the CPHP has undergone review by the San Francisco Planning Department's Urban Design Advisory Team. Because the University is not subject to Planning Department jurisdiction, the CPHP is not required to undergo such review.

One comment (**O-PARKIN-10**) states that the Draft EIR's analysis of aesthetics does not adequately account for the removal of existing trees pursuant to UCSF's adopted Mount Sutro Open Space Reserve Vegetation Management Plan. The Vegetation Management Plan was adopted in 2018 and is being implemented over a period of approximately 20 years. The Vegetation Management Plan has four goals:

- Protect the safety of users of the Mount Sutro Open Space Reserve and adjacent campus and residential properties;
- Improve and enhance the health and stability of the ecosystem;
- Enhance the visual design and aesthetic experience; and
- Maintain and ensure public access to the Reserve.

To this end, the initial years of Vegetation Management Plan implementation will include "1) removing dead, dying, unhealthy and structurally unsound trees, 2) controlling low-growing vines and shrubs that would compete with desired vegetation, 3) preventing sprouts from decayed stumps (these sprouts would also contain decay), and 4) planting new trees."[11] Based on review of the Vegetation Management Plan and the Final EIR[12] prepared for the Plan, the condition of the blue gum eucalyptus trees, the dominant tree species in the Reserve, has declined over the past decade due to overcrowded growing conditions, many years of drought, forest pathogen infestation, and the age of the stand. More than 25 percent of the standing trees in the Reserve are dead, and many of the remaining trees are declining in health with high risk of mortality or are structurally unsound. In the interest of public safety, tree removal efforts would focus on dead and dying trees near trails and buildings. Thinning of the Mount Sutro Reserve forest would be selective, based on the health of the forest across the mountain. The great majority of existing live trees— would remain following implementation of the plan. In general, the northernmost area of the Reserve, which is closest to the New Hospital site and the other principal campus buildings, would be less aggressively thinned than would other areas higher up on Mount Sutro. Therefore, while there would be some change in views from within the Reserve, such changes closest to development proposed pursuant to the CPHP, including the proposed New Hospital, would be limited. Furthermore, the majority of the Aldea Housing perimeter would only be subject to individual tree removal of specific dead or dying trees, and thus views of Aldea Housing would also not be dramatically affected by the Vegetation Management Plan. Therefore, the conclusions of the Draft EIR with respect to views from within the Reserve are valid.

11 University of California, San Francisco, *Vegetation Management Plan Mount Sutro Open Space Reserve*. 2018a. Available at: https://ucsf.app.box.com/s/h6f3cfzsznl1bl3kk0am5k9gtc5lila8/file/689475819773. Accessed October 17, 2020.

12 University of California, San Francisco, *Vegetation Management Plan for the Mount Sutro Open Space Reserve, Final Environmental Impact Report* (State Clearinghouse Number: 2017022021). March 2018b. Available at: http://campusplanning.ucsf.edu/sites/campusplanning.ucsf.edu/files/reports/UCSF_Mt_Sutro_DEIR_wAppendices.pdf. Accessed October 17, 2020.

Other comments (**O-PARKIN-11**, **I-Kessler-9**) object to the CPHP's proposed amendment to the UCSF LRDP to "clarify that sub-objectives 1B and 1C would not apply to the New Hospital project, in recognition of the substantial amount of space required for the New Hospital, although UCSF would make efforts during the design process to come as close as possible to meeting these objectives, if feasible." Sub-objective 1B states, "Acknowledge and respond to local zoning and height and bulk limitations to the extent possible" and sub-objective 1C states, "Design new buildings to be sensitive to the surrounding neighborhood and landscape, taking into account use, scale, potential noise generation, and density." This comment does not address the adequacy of the Draft EIR's analysis of aesthetics but instead is directed at the merits of the proposed project. The comment will be considered by the Regents in their deliberations concerning project approval. Moreover, as noted in the context of the San Francisco General Plan, above, a policy inconsistency does not necessarily indicate a significant effect under CEQA. Finally, the LRDP does not set forth EIR significance standards. Physical effects of the proposed CPHP with respect to aesthetics are fully analyzed in the Draft EIR, as explained above throughout this response.

One comment (**I-Leonard-19**) states that the proposed New Hospital would encroach into the Reserve. The Draft EIR acknowledges that the New Hospital may encroach into the Reserve in Chapter 3, Project Description, on page 3-26; and in Section 4.1, Aesthetics, on page 4.1-35.

Another comment (**O-SFFA-3**) states that redevelopment of the Aldea Housing complex would "certainly lose its charming woodsy character of wood-shingled low buildings." The comment does not address the adequacy or accuracy of the Draft EIR, but rather states an opinion regarding the proposed CPHP. The comment will be considered by the decision-makers in their deliberations on the proposed project and the Draft EIR fully analyzes aesthetics in keeping with the thresholds presented on page 4.1-19 of the Draft EIR.

In light of the foregoing, the Draft EIR reasonably concluded that the impact of the CPHP on scenic vistas and scenic quality would be less than significant. Because the effects related to scenic vistas and scenic quality were determined to be less than significant, no mitigation measures are required and none are identified in the Draft EIR. Likewise, no alternatives are required to address these aesthetic effects. However, it is noted that Alternative 1B, No Project—Development Under 2014 LRDP, and Alternative 2, Reduced Project, would both have lesser effects with respect to aesthetics than would the proposed CPHP, including effects on scenic vistas and scenic quality.

8.3.3.8 Master Response 8: Wind Impacts

This master response responds to the following organization and individual responses: **O-LD2-20, O-LD2-45, O-LD2-73**, **O-PARKIN-15,** and **I-Goodman-10**.

Comments **O-LD2-20** and **O-PARKIN-15** state that the Draft EIR, despite finding wind effects to be significant and unavoidable, "defers the formulation of actual mitigation measures to lessen the Project's wind impacts to an undetermined future time" (O-LD2-20). However, the proposed CPHP does not include approval of a specific design for any new building, including the CPHP Initial Phase components. As stated on Draft EIR page 3-20, "It is important to note that building

sizes, heights, and massing are conceptual and remain approximate as the buildings are not yet designed." Particularly as to the proposed New Hospital, as stated on page 3-2, "Broad parameters for the New Hospital project (location, size, mass, height …) are accounted for in the CPHP and are analyzed at a program level in this Draft EIR. Further details of the New Hospital are being developed, including the specific design. Those elements of the New Hospital will be the subject of a subsequent project-specific environmental review when more details become available." Because precise evaluation of a building's wind effects can only be undertaken in a wind-tunnel analysis, and because such an analysis provides useful information only when an actual specific building design is evaluated, it is not possible to provide more detail regarding potential wind impacts and potential mitigation measures, if required, at this time, absent the development of specific building designs. As explained on Draft EIR page 4.1-21, the Draft EIR's wind analysis was based on computational wind engineering, a computer simulation methodology. The analysis was based on a simple massing model of proposed CPHP development, and not on actual building designs, which, as noted, have not yet been prepared. As stated on page 4.1-21:

> The computational analysis provides information regarding wind flows over the entire site, unlike the individual point-based analysis undertaken in a wind tunnel, and thus is able to reliably predict wind comfort conditions across a relatively wide area, such as the Parnassus Heights campus site. Computational wind engineering does not, however, account for turbulence (variation in wind speed and direction) in the same manner as does wind-tunnel testing, which is more appropriate for evaluation of actual specific designs of tall buildings. Moreover, computational analysis cannot identify exceedances of the wind hazard criterion due to its inability to reliably simulate turbulence using currently accepted methods. Therefore, the analysis evaluates compliance with the pedestrian comfort criterion, which generally characterizes wind conditions, although inferences can be drawn concerning potential locations of hazardous wind conditions. However, at the planning level of the CPHP, computational wind engineering is a valid tool for generalized evaluation of potential wind effects.

Comment **O-PARKIN-15** requests what would essentially be a meaningless wind-tunnel analysis of a building that has yet to be designed. Such an analysis would not provide actionable information. That is, such an analysis would *not* answer the question as to whether the building massing that is ultimately proposed as the design for the New Hospital would result in exceedances of the 26-miles-per-hour significance threshold, nor would it allow for formulation of mitigation measures or alternatives should such exceedances(s) be revealed. This is because it is simply not possible to derive accurate wind speeds for individual test points—the approved methodology for wind tunnel testing in San Francisco—absent an actual specific building design, which, as noted above, is not yet available. The same holds true for other potential new, relatively tall buildings, including the Irving Street Arrival, Research and Academic Building, and Initial Aldea Housing Densification project. In the context of point-specific wind hazard evaluation, as is done in a wind tunnel analysis, the commenter's statement that "it is obvious that analysis of a structure without any features or articulation could be examined to determine how significant the environmental impact may be without any mitigations" is simply incorrect because changes in building height, shape, and massing do not produce changes in pedestrian-level winds in a linear fashion (unlike, for example, shadow, the length of which is entirely dependent on building location and massing).

Winds interact with a building, and with surrounding buildings, in ways that are not easily predictable and it is for this reason that wind-tunnel testing is specific to the design of an individual structure. Given the foregoing, the Draft EIR adequately analyzes wind effects of the proposed project in the context of the information available.

Draft EIR CPHP Mitigation Measure AES-4 explains in detail the wind-tunnel evaluation that would be required for any building 80 feet or more in height that is proposed for development pursuant to the CPHP. Specifically, Draft EIR CPHP Mitigation Measure AES-4 includes a precise performance standard—the City of San Francisco's 26-mph pedestrian wind hazard criterion—against which such buildings would be evaluated. The mitigation measure also requires that any such exceedances be eliminated or reduced "to the maximum feasible extent." Because it cannot be known in advance of wind-tunnel evaluation of specific building designs whether, and to what degree, the buildings would cause exceedances of the wind hazard criterion, Draft EIR CPHP Mitigation Measure AES-4 allows for UCSF to reject as infeasible wind reduction strategies if "they would unduly restrict the proposed building's space program, result in operational inefficiencies, and/or substantially higher costs." Accordingly, in the absence of certainty that all future wind hazard exceedances could be avoided or fully mitigated, the Draft EIR concludes that wind effects would be significant and unavoidable.

CEQA requires that a project not be approved unless the lead agency adopts mitigation measures or alternative(s) that would avoid a project's significant effects; the lead agency determines that such measures or alternative(s) are within the jurisdiction of another agency and can and should be adopted by that agency; or the lead agency adopts findings of overriding considerations that specific economic, legal, social, technological, or other considerations make infeasible such mitigation measures or alternative(s) (CEQA Section 21081). Here, the only project under consideration for approval is the CPHP via an amendment of the LRDP. The proposed New Hospital will undergo a separate environmental analysis in its own EIR. Other specific projects, such as the proposed RAB, Irving Street Arrival, and Initial Aldea Housing Densification will be subject to further evaluation to ensure that they fit within the parameters analyzed in this EIR and, where necessary, imposition of feasible mitigation strategies to reduce or avoid significant wind impacts, pursuant to Draft EIR CPHP Mitigation Measure AES-4.

Two comments (**O-LD2-45** and **O-LD2-73**) state that the fact that the project proposes an amendment to the Parnassus Heights campus site building space and population ceiling does not excuse the EIR from having to analyze physical effects of the amendment's allowance for increased scale of development, such as effects on pedestrian winds. As explained above, wind effects are fully analyzed in the Draft EIR to the extent feasible, given the programmatic nature of project design. The wind analysis is based on building sizes and mass that reflect the revised space program that is subject of the proposed amendment to the space ceiling. As also explained above, subsequent wind analysis will be required for any building 80 feet or more in height, pursuant to CPHP Mitigation Measure AES-4, as specific individual building designs are put forth.

One comment (**I-Goodman-10**) states that CPHP Mitigation Measure AES-4 does not provide "any meaningful discussion" of what the measure means by requiring buildings to "minimize wind impacts at pedestrian level." But the text of the mitigation measure does precisely what the

commenter requests: as explained above, CPHP Mitigation Measure AES-4 includes a precise performance standard—the City of San Francisco's 26-mph pedestrian wind hazard criterion—against which such buildings would be evaluated. The measure continues, "If the wind tunnel analysis determines that the building(s)' design or buildout conditions would increase the hours of wind hazard exceedance or the number of test points subject to hazardous winds, compared to then-existing conditions, UCSF shall work with the wind consultant to identify feasible mitigation strategies, including design changes (e.g., setbacks, rounded/chamfered building corners, stepped facades, etc.), to eliminate or reduce wind hazards to the maximum feasible extent." Thus, the direction of CPHP Mitigation Measure AES-4 is to design buildings to avoid exceedances of the 26-mph pedestrian wind hazard criterion. Only if UCSF finds that "these changes or other wind speed reduction strategies are not feasible as they would unduly restrict the proposed building's space program, result in operational inefficiencies, and/or substantially higher costs" may a new building nevertheless be approved. Because this condition would result in a significant, unavoidable project impact, UCSF would have to adopt a written statement of overriding considerations for such subsequent individual building, documenting the reasons that the individual building is nevertheless being approved, as is required by, and permitted under, CEQA Section 21081 and CEQA Guidelines Section 15191.

8.3.3.9 Master Response 9: Shadow Impacts

This master response responds to the following agency, organization, individual, and public hearing comments: **A-SFP-37, O-LD2-29, O-LD2-44, O-LD2-45**, **O-LD2-73, O-LD2-72, O-LD2-81, O-LD2-82, O-PARKIN-16, I-Anderson-1, I-DeSnoo-1, I-DeSnoo-3, I-Goodman-11, I-Zeff-5,** and **PH-Scatena-33**.

Comment **A-SFP-37** states that the Draft EIR fails to include a quantitative analysis of shadow on San Francisco Recreation and Park Department property and overlooks three open spaces: the Interior Greenbelt, a Recreation and Park Department property located between Edgewood Avenue and Stanyan Street, south of 17th Street, on the east slope of Mount Sutro and southeast of the UCSF campus site; and two open spaces not owned by the Recreation and Park Department—the Garden for the Environment and White Crane Springs, located north and south of Lawton Street, respectively, on the east side of Seventh Avenue, southwest of the campus.

Comments **O-LD2-29** and **O-PARKIN-16** state that the Draft EIR's shadow analysis is inadequate because it fails to discuss the San Francisco General Plan Urban Design Element, the uses of park areas that would be shaded, and compliance with San Francisco Planning Code Section 295. Comments **L-LD2-44** and **O-LD2-72** state that the Draft EIR incorrectly concludes that the proposed project would not result in adverse shadow impacts on public open spaces and streets and sidewalks and would therefore not comply with San Francisco Planning Code Section 101.1. Comments **O-LD2-29, O-PARKIN-16**, and **I-Goodman-11** state that the Draft EIR's shadow analysis fails to properly account for the uses of park areas that would be shaded. Comment **O-PARKIN-16** also states that the Draft EIR is inconsistent with respect to its discussion of rooftop mechanical features. Several comments (**O-LD2-81, I-DeSnoo-1, I-DeSnoo-3, I-Zeff-5**, and **PH-Scatena-33**) state that the Draft EIR should consider shadow effects on streets and sidewalks and/or the neighborhoods surrounding the UCSF campus, including changes in solar

radiation. Comment **PH-Scatena-33** requests that UCSF provide neighbors with video shadow animation to that "the neighbors can actually see the shadow impacts of putting the Salesforce Tower in Cole Valley and the Inner Sunset." Comment I-Anderson-1 points out a map labeling error on one of the Draft EIR shadow figures. Comments **O-LD2-29, O-LD2-81**, and **I-DeSnoo-1** state that the Draft EIR should include mitigation for shadow impacts.

The three open spaces referenced in Comment **A-SFP-37**—the Interior Greenbelt, the Garden for the Environment and White Crane Springs—are not discussed in Impact AES-5 (shadow) because these three open spaces are all too far south of the campus site for any CPHP development shadow to reach. That the Interior Greenbelt would not be shaded by the CPHP is stated on Draft EIR page 4.1-14: "As shown in the shade and shadow study prepared by Prevision Design, no portion of the Interior Greenbelt would be affected by shadowing associated with the CPHP, and therefore, this open space is not addressed further in this section as it relates to shadow." The other two open spaces are not explicitly referenced, but it can be seen in the Full-Year Shadow Fan (see Draft EIR page 1,632, first image in Appendix SHDW) that shadow from CPHP development would not extend south beyond Kirkham Street at Seventh Avenue, and thus would not reach either the Garden for the Environment or White Crane Springs.[13]

Regarding the San Francisco General Plan Urban Design Element and San Francisco Planning Code Section 295, as explained on page 4.1-17, "Although the University is constitutionally exempt from local land use regulation when using properties under its control in furtherance of its educational mission, the University strives to be substantially consistent with local policies where feasible." Therefore, neither the San Francisco General Plan nor Planning Code Section 295 are "applicable" to the proposed CPHP. It is also noted that the statement in Comment **O-LD2-29** that "San Francisco's Shadow Policy states that a project over 40 feet in height has a significant impact if it will cause shadows on a property under the jurisdiction of San Francisco's Department of Recreation and Parks" is incorrect. The condition noted by the commenter is cause for a project to be subject to shadow analysis. However, the City and County finds a significant shadow impact only if shadow cast by a project would "substantially and adversely affects the use and enjoyment of publicly accessible open spaces."

Although the proposed CPHP is not subject to San Francisco Planning Code Section 295, the shadow analysis in the Draft EIR follows the Planning Department's analysis methodology set forth for implementation of Section 295. A substantive difference with respect to determination of significance is that Section 4.1 of the Draft EIR does not rely on quantification of the amount of shadow on Recreation and Park Department properties, as is typically required for projects under the jurisdiction of the City and County of San Francisco. CEQA does not require this analysis; in fact, nothing in CEQA makes reference to analysis of shadow impacts, and many lead agencies do not even consider shadow as part of CEQA analysis. The City and County of San Francisco has a voter-approved Planning Code requirement for shadow analysis (Section 295), and also

[13] The Garden for the Environment, located on San Francisco Public Utilities Commission land, was created in 1990 as a location for gardening and composting education. It operates a community garden as a non-profit organization under the administrative aegis of the San Francisco Parks Alliance. White Crane Springs is located on property owned by the San Francisco Unified School District. Also a community garden, White Crane Springs is managed by the Recreation and Park Department.

incorporates the analysis into its CEQA documents; both the Section 295 analysis and the CEQA analysis present quantification of shadow, measured in square-foot-hours.[14] Although UCSF has elected to undertake a qualitative analysis of shadow effects, based on graphical representation of shadow on affected open spaces, for purposes of CEQA analysis, quantification of shadow on all open spaces that would be affected is included, for informational purposes, in Appendix SHDW. The results of that analysis are summarized in **Table 8.3-3** below. As can be seen in the table, none of the five spaces evaluated (three parks and two school play yards) would sustain an increase in net new shadow due to CPHP development of as much as one-third of one percent, and most would receive far less new shadow.

TABLE 8.3-3
QUANTIFICATION OF SHADOW EFFECTS

Open Space/Location	Size (sq. ft.)	Existing Shadow		Net New Project Shadow	
		Square-Foot Hours	Pct. TAAS[1]	Square-Foot Hours	Pct. TAAS[1]
Golden Gate Park	44,728,912	217,422,029	0.131	8,091,947	0.005
Grattan Playground	66,249	34,143,738	13.85	716,661	0.29
Gamble Park	26,245	14,872,388	15.227	801	0.001
Grattan Elementary Sch.	30,398	31,685,678	28.01	72,263	0.06
Independence High Sch.	20,211	20,691,122	27.51	71,604	0.10

NOTE:
[1] Percent of Theoretical Annual Available Sunlight which the CPHP would eliminate with net new shadow

SOURCE: Prevision Design

Regarding San Francisco Planning Code Section 101.1, as noted by commenters, this section was added to the Code through voter approval of Proposition M in 1986. The addition of Section 101.1 added eight priority policies to the Planning Code: (1) preservation and enhancement of neighborhood-serving retail uses; (2) protection of neighborhood character; (3) preservation and enhancement of affordable housing; (4) discouragement of commuter automobiles; (5) protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership; (6) maximization of earthquake preparedness; (7) landmark and historic building preservation; and (8) protection of open spaces and their access to sunlight and vistas. Prior to issuing a permit for any project that requires an Initial Study under CEQA, the City is required to find that the proposed project or legislation is consistent with the Priority Policies. However, as with the San Francisco General Plan and other San Francisco Planning Code sections discussed above, Section 101.1 is not applicable to the University, and no further discussion of Section 101.1 is required. Nevertheless, the priority policy applicable to shadow, Policy 8, is discussed on Draft EIR p. 4.1-18, and the Draft EIR contains a complete analysis of the physical effects of shadow on parks and other publicly accessible open spaces, as discussed both above and

[14] A square-foot-hour is one hour of sunlight on an area one square foot in size. The San Francisco Planning Department calculates the percentage of the Theoretical Annual Available Sunlight (TAAS) that would be eliminated by a project. TAAS for any given open space is 3,721.4 times the total area (square footage) of the park, 3,721.4 being the number of hours in the shadow year as defined by Section 295 (from one hour after sunrise to one hour before sunset).

below in this master response. (It is noted that the comments concerning Section 101.1 also make reference to shadows on streets and sidewalks, which are not covered under Section 101.1. Please see below for a discussion of the Draft EIR's treatment of shadow on streets and sidewalks.)

Concerning the Urban Design Element, what the commenters (**O-LD2-29, O-LD2-80, O-LD2-81**) refer to as "Urban Design Guidelines" ("plazas or parks located in the shadows cast by large buildings are unpleasant for users and large buildings can be oriented to minimize shadows falling on public or semi-public open space") are taken from the "Fundamental Principles for Major New Development" under Urban Design Element Objective 3, "Moderation of Major New Development to Complement the City Pattern, the Resources to be Conserved, and the Neighborhood Environment." As noted previously, the San Francisco General Plan is not applicable to the proposed CPHP. Nevertheless, for information, it would appear that the language in the Urban Design Element is intended to avoid placement of new tall buildings of substantial bulk so close to parks and plazas as to cast substantial amounts of shadow on these open spaces, as this is what is illustrated by the images that accompany the text in the Urban Design Element. Here, as explained in Draft EIR Section 4.1 and in this response, minimal new shadow, at limited times of the day and year, would fall on any of the three parks that would be newly shaded by CPHP development.

Usage of parks and other open spaces is relevant to the consideration of shadow effects. Comment **O-LD2-29** states that the area of Golden Gate Park that would be shaded by the proposed New Hospital—specifically, Big Rec ballfield—is used for many things other than baseball. The commenter indicates Big Rec ballfield is heavily used for soccer, tai-chi, frisbee, running and other activities at all hours of the day and at all times of the year. The commenter further indicates the shadowed area includes hiking/jogging trails which are very popular for dog walking, running, hiking and other activities at all hours; and that this is one of the most heavily used areas of the popular park. Comment **O-Parkin-16** notes that Big Rec "may be used for other activities [than baseball] in the morning, such as walking or exercise, and that shadow during the winter will cause an impact." Comment I-Goodman-11 makes a similar claim. As shown in Draft EIR Figure 4.1-35 on page 4.1-68, shadow from the proposed New Hospital would cover a relatively small area of the ballfield. Moreover, long shadows early in the morning are fast moving: as can be seen in the shadow diagrams in Draft EIR Appendix SHDW, shadow would leave the ballfields shortly after 8:30 a.m., and recede entirely from Golden Gate Park by a few minutes after 9:30 a.m. The relatively minimal area and duration of shading means that park users desiring sunlight could easily move a short distance to a non-shaded location. Therefore, the Draft EIR reasonably concluded that the effect of shadow cast on Golden Gate Park by the proposed New Hospital would not substantially and adversely affects the use and enjoyment of publicly accessible areas of Golden Gate Park, and therefore the impact would be less than significant.

Concerning rooftop mechanical equipment, the proposed New Hospital may have some rooftop mechanical equipment, although, as noted in footnote 3 on Draft EIR Chapter 3, Project Description on page 3-26; footnote 8 in Section 4.1, Aesthetics, Wind and Shadow on page 4.1-23; and Section 4.10, Land Use and Planning on page 4.10-16, it is anticipated that "the majority of mechanical equipment would be contained within various levels of the New Hospital to minimize the amount of equipment located on the roof." As also stated in the footnote, the New Hospital

may have a rooftop observation deck and elevator vestibule. It is noted that commenter identifies an inconsistency in footnote 11 on Draft EIR Section 4.1, Aesthetics, Wind and Shadow on page 4.1-67 that incorrectly states that the 294-foot height excludes potential rooftop observation deck and vestibule; and that no rooftop equipment/enclosures are proposed for the New Hospital. Please refer to Section 8.5 of this Comments and Responses document for proposed revisions to this footnote.

It is likely that most, if not all, rooftop equipment would be set back some distance from the building façades. As a result, these appurtenances would likely cast little or no additional shadow beyond that cast by the overall building mass except in the early morning and late afternoon, around the winter solstice. This is because the sun is too high in the sky during much of the day for shadow to be cast by, for example, a 20-foot-tall mechanical enclosure that is set back 25 feet from the building façade. Moreover, rooftop equipment and enclosures would likely cover a relatively small portion of the New Hospital roof, further reducing the amount of shadow that could potentially be cast by such structures. The net result would not substantially increase the amount of shadow in comparison to that cast by the 294-foot-tall building mass and, therefore, would not affect the conclusions of the Draft EIR's shadow analysis. It is noted that the actual building design that is eventually put forward for the proposed New Hospital will undergo its own detailed shadow analysis as part of the separate EIR for the New Hospital.

Regarding shadow on streets and sidewalks and other neighborhood locations, as explained on Draft EIR page 4.1-50, "The CEQA threshold of significance for shadow impacts used in this EIR is whether a project would create new shadow in a manner that would substantially and adversely affect the use and enjoyment of publicly accessible open spaces. Therefore, the significance of shadow cast on streets, sidewalks, and private properties is not used as the basis for determining shadow impacts." Nevertheless, the shadow diagrams in Draft EIR Section 4.1, and the more complete set of 116 shadow diagrams in Draft EIR Appendix SHDW, graphically portray the extent of net new shadow that would fall on all locations throughout the Parnassus campus vicinity. As can be seen from the Full-Year Shadow Fan (see Draft EIR page 1,632, first image in Appendix SHDW), for the most part, areas one block or more distant from the campus site would be subject to only occasional shadow during the course of a year. This means that these areas would be shaded only before about 7:30 a.m. and after about 6:00 p.m. around the summer solstice; before about 9:00 a.m. and after about 4:00 p.m. around the spring and fall equinoxes; and, around the winter solstice, before about 10:30 a.m., except that the proposed New Hospital would continue to cast small amounts of net new shadow farther than one block away throughout the remainder of the day on the winter solstice, as can also be seen on Draft EIR Figures 4.1-32, -33, and -34.

Because the Draft EIR identifies no significant effects resulting from shadow cast by development pursuant to the CPHP, no mitigation is required.

Regarding the request for video shadow animation, this is a comment on the merits of the proposed CPHP and not on the adequacy or accuracy of the Draft EIR. It is noted that an animation of sorts is available to the reader by scrolling (electronically) through a PDF version of Appendix SHDW. Appendix Shadow on pages 1,633 to 1,669 of the Draft EIR present hour-by-

hour shadow diagrams for the solstices and equinoxes. These diagrams generally bracket the shadow effects over the course of a year. For the record, it is noted that the proposed New Hospital, at 294 feet, would slightly over one-fourth as tall as Salesforce Tower.

Two comments (**O-LD2-45** and **O-LD2-73**) state that the fact that the project proposes an amendment to the Parnassus Heights campus site building space and population ceiling does not excuse the EIR from having to analyze physical effects of the amendment's allowance for increased scale of development, such as shadow effects. As explained above, shadow effects on parks and open spaces, as well as streets and sidewalks, are fully analyzed in the Draft EIR, based on building sizes and mass that reflect the revised space program that is subject of the proposed amendment to the space ceiling.

One comment (**I-Scatena-5**) states that the proposed New Hospital would increase shading on Sutro Forest. As can be seen in Draft EIR Figures 4.1-20 through 4.1-34, and in Draft EIR Appendix SHDW, the New Hospital would cast very little shadow on Sutro Forest because the forest is generally located due south of the hospital site. The proposed New Hospital would therefore shade only the narrow portion of the Sutro Forest Open Space Reserve that is west of Edgewood Avenue and north of approximately a line drawn west from the intersection of Belmont Avenue and Willard Street. Development pursuant to the CPHP would also add a small amount of shadow in a narrow band east of Koret Way. Project shading on both of these areas would occur in the late afternoon, year-round.

Regarding the incorrect street names noted in Comment **I-Anderson-1**, the comment is correct that two streets in the shadow figure for Grattan Elementary School are incorrectly labeled in Draft EIR Figure 4.1-38, page 4.1-73. Please refer to Section 8.5 of this Comments and Responses document for proposed revision. In addition, corresponding shadow figures for Grattan Elementary School included in Appendix SHDW are revised as well in Section 8.5. These figures are otherwise correct and this error does not alter the conclusions of the shadow analysis.

8.3.3.10 Master Response 10: Bird Strikes

This master response responds to Comments **O-LD2-32, O-LD2-33, O-LD2-36, O-LD2-37, O-LD2-86, O-LD2-88, O-LD2-89, O-LD2-90, O-LD2-93, O-LD2-94**, and **O-PARKIN-23**. Commenters expressed concern about an increase in bird strikes from the larger buildings proposed under the CPHP. These comments considered the Draft EIR analysis of bird strike impacts to be inadequate because it did not quantify the magnitude of this potential impact. Comment **O-LD2-89** includes California Academy of Sciences window strike data to emphasize the numbers and variety of birds impacted by window strikes. Comments **O-LD2-32** and **O-LD2-89** estimate that full buildout of the CPHP could result in 6,716 (3,208 – 8,823) bird deaths per year, assuming a certain amount of glass façade per foot of office space based on other buildings in San Francisco, and adding 20 percent to account for the "growing demand" for glass facades. Comment **O-LD2-89** further states the CPHP could result in a 100-year toll from this average annual fatality rate of more than half a million birds. The analysis of the potential for bird strikes to increase at the Parnassus Heights campus site under the CPHP is programmatic. Most buildings in the CPHP are not

immediately adjacent to the Reserve and would replace mid-rise buildings with more mid-rise buildings, which would not represent a substantial new barrier. The exception is the New Hospital, which will be analyzed in a later project-level EIR. Because the specific materials, size and massing of the buildings that would be built under the CPHP are not known at this time, it is not possible to quantify this impact.

The Draft EIR Section 4.3, Biological Resources, Impact BIO-2 discusses the potential for bird window collisions, noting the location of San Francisco along the Pacific Flyway, and citing that approximately 100 million to 1 billion birds die in North America as a result of collisions each year. The Draft EIR acknowledges that construction of taller development on the campus site under the CPHP, most notably the New Hospital, which would be developed adjacent to, and could require modification of, the Reserve boundary, would increase the likelihood of birds striking windows of that building during flight. The Draft EIR states that in addition, potential construction night lighting, and building night lighting associated with operation of the new development under the CPHP can attract migratory birds and increase the likelihood of strike injuries or mortality. The Draft EIR also notes potential indirect effects for migratory birds include delayed arrival at breeding or wintering grounds, and reduced energy stores necessary for migration, winter survival, or subsequent reproduction. Accordingly, the Draft EIR considers the impact of the CPHP to result in bird strikes as significant, and identifies implementation of CPHP Mitigation Measure BIO-2a to reduce construction-phase impacts to birds, by avoiding night construction in habitat areas and reducing lighting, and CPHP Mitigation Measure BIO-2b to design buildings using less reflecting glass, reduce lighting, and site them to reduce reflectivity. These measures are derived from San Francisco's *Standards for Bird-Safe Buildings* (2011), and would reduce impacts for bird strikes to a less than significant level.

Comment **O-LD2-93** supports the element of CPHP Mitigation Measure BIO-2b as it would minimize the use of glass facades. However, the commenter asserts that the mitigation measure is considered inadequate because building designs have not been determined. As stated in the Draft EIR, Section 1, Introduction, page 1-7, the CPHP EIR provides a program-level analysis of the environmental impacts that could result from the development of the entire space program under the CPHP, and identifies Plan-level mitigation measures to reduce potential significant effects of the CPHP. The CPHP does provide a project-level analysis for certain CPHP Initial Phase developments, including the Irving Street Arrival, RAB, and initial Aldea Housing Densification; and certain Initial Phase improvements. Regardless, the same mitigation measures (CPHP Mitigation Measures BIO-2a and -2b) would apply to both the Plan and these Initial Phase projects and improvements to adequately reduce the potentially significant impact from bird strikes to a less than significant level. As discussed in Chapter 1, Introduction, on pages 1-7 to 1-8 in the Draft EIR, the New Hospital will be the subject of a project level EIR when more details about this project, including building design become available. Similarly, when details of CPHP Future Phase projects are known, each Future Phase project would be reviewed in light of the CPHP Final EIR to determine the appropriate level of additional environmental review, if any, needed before approval and implementation of the particular project. The project level analysis will analyze the potential for bird strikes in more detail and incorporate CPHP mitigation measures to avoid and minimize impacts on birds.

Comments **O-LD2-33** and **O-LD2-93** also considered the taller buildings on the Flyway to pose a significant threat to bird and bat movement along the Pacific Flyway. It is acknowledged that taller buildings are more likely to cause collisions with migrating birds and bats, however, this potential impact is highly localized within the context of the Pacific Flyway, which encompasses the whole western United States. Comment **O-LD2-93** recommends surveys of the project area to characterize flight patterns and reactions to existing buildings and timing of bird and bat flights prior to development of mitigation measures for bird collisions, as well as detailed studies of siting to minimize collisions and energy expenditure during migration. It should be noted that UCSF will consider potential impacts to migratory birds in siting proposed buildings as part of CPHP Mitigation Measure BIO-2b. Siting of buildings in the CPHP will also be influenced by the needs of the campus, the limitations of available space, and other factors. The recommendation for more detailed flight pattern studies is noted, however, CPHP Mitigation Measures BIO-2a and -2b will reduce the potential bird strikes to occur under the CPHP to a less than significant level by siting buildings to limit collision and by designing buildings to limit light and reflectivity, thus minimizing bird strikes.

8.3.3.11 Master Response 11: Toland Hall Murals

This master response addresses the issues raised in Comments **A-SFHPC-2** through **A-SFHPC-4, A-SFP-2** through **A-SFP-9, O-LD2-21, O-TL1-1** through **O-TL1-5, O-NZA-2, O-NZA-4** through **O-NZA-6, O-NNDPA-2, O-NNDPA-4, O-NNDPA-6, O-SFPC-1** through **O-SFPC-4, O-NAACP-1, O-SFH-2** through **O-SFH-8, I-Calvin-1, I-Calvin-2, I-Cherny-2** through **I-Cherny-5, I-Kelly-2, I-Rothstein-2** through **I-Rothstein-4, I-McMorris-1** through **I-McMorris-3, I-Ungaretti-2** through **I-Ungaretti-7, I-Marcuse-1, I-Marcuse-3, I-Marcuse-4, I-Hutchinson-1** through **I-Hutchinson-3, I-Klein-2** through **I-Klein-4, I-Vernitsky-2** through **I-Vernitsky-5, I-Denney-2, I-Denney-3, I-Cohen-1, I-Horton-1, I-Rothman-2** through **I-Rothman-4, I-Rothman-6, I-Rothman-7, I-Yap-1, I-Yap-3** through **I-Yap-9, I-Cater-1, I-Plane-2** through **I-Plane-7, I-Wrynn-3** through **I-Wrynn-6, I-George-2** through **I-George-4, I-Starn-1** through **I-Starn-4, I-Scatena-8, I-Brown2-1, I-Yang-1, PH-Quick-6, PH-Quick-7, PH-Ungaretti-11, PH-Rothman-12, PH-Rothman-13, PH-Yap-14** through **PH-Yap-16, PH-Semler-30,** and **PH-Zakheim-37**.

The University is currently assessing how best to relocate the large 10-panel set of murals, the "History of Medicine in California," painted on the walls of Toland Hall auditorium in the century-old UC Hall. UC Hall is seismically deficient and functionally obsolescent, and is proposed to be replaced by a new facility that meets California's seismic codes.

The Draft EIR discusses that two historical preservation firms retained by the University independently concluded that the murals' fragile condition, large size, the curved walls on which most of them are painted, ground movements, and the aging of UC Hall make it likely that any attempt to relocate them could result in irreparable damage to at least some of the panels such that the integrity of the entire series could be destroyed. Based on these independent evaluations, UCSF has determined that it may be infeasible to remove and relocate the murals as there is no guarantee that any effort to remove them would be successful.

For reasons discussed in the Draft EIR, UC Hall and the murals are considered historical resources for CEQA purposes. To provide a conservative analysis, the Draft EIR described the potential worst-case scenario that the murals may be damaged or destroyed in the process of removing them, potentially resulting in a significant impact on historical resources. The Draft EIR identified a mitigation measure to address the impact on the murals, requiring the implementation of a digital imaging and virtual preservation program. Assuming the project to remove the murals would be implemented, the Draft EIR conservatively assumes the impact on historical resources would be unavoidable, given their fragile condition and other considerations discussed above, even with the implementation of the identified mitigation measure.

Nonetheless, outside of the CEQA process, the University continues to assess how best to safely relocate the murals, given that UC Hall is proposed to be demolished. UCSF has recently selected a historic preservation firm to design and implement the process of relocating the murals to a storage facility until a permanent home can be found. Assuming removal of the murals to a temporary storage facility is successful, UCSF will explore options to either return the murals to the Parnassus Heights campus site to be incorporated in a future new building that can accommodate them, or to relocate them to a museum or other institution where they can be maintained by experts and made accessible to a broad public audience. Potential options for returning the murals to the Parnassus Heights campus site include one of the planned new building sites under the CPHP, provided public access and sufficient space are available in the proposed building and do not conflict with critical clinical, research, and educational needs outlined in the CPHP. Potential options for off-site locations include a museum or similar institutional setting, which would expand accessibility to scholars and the public possibly providing a greater opportunity for the public to learn about the murals' creation and the history they depict.

Throughout the planning process for the murals, UCSF has reached out to a number of stakeholders, including Bernard Zakheim's family, historic preservationists, conservation groups, and the U.S. General Services Administration (GSA) —which is responsible for stewardship of artworks created under the New Deal art programs of the 1930s and '40s. Furthermore, the murals contain a portrayal of Bridget "Biddy" Mason, a formerly enslaved woman who rose to become a pioneering midwife, entrepreneur, and philanthropist in Los Angeles, and who is depicted in the murals as a medical authority. UCSF learned about Ms. Mason's extraordinary life story and achievements from the Biddy Mason Charitable Foundation and is in dialogue with them. Separately, Ms. Mason's descendants have reached out to UCSF and are involved in the discussion about the options being explored for the murals.

8.3.3.12 Master Response 12: Stormwater, Wastewater, and Water Quality[15]

Comments submitted by the San Francisco Planning Department (**A-SFP-31** through **A-SFP-36**), and the Law Offices of Thomas N. Lippe on behalf of San Franciscans for Balanced and Livable Communities (**O-TL3-1** through **O-TL3-14**) raised issues related to anticipated increases in

[15] Information in this master response in based in part on a *Wastewater/Stormwater Performance Standards Technical Memorandum* prepared by Hydroconsult Engineers, Inc., December 10, 2020. See **Appendix PS** in this Comments and Responses document.

stormwater and wastewater flows as a result of the CPHP. Among other things, comment letter O-TL3 objected to the Draft EIR's conclusion that impacts from increases in flows under the CPHP would be less than significant on the bases of the relatively small volume of the flows, the available excess dry weather capacity of the City's treatment plants that would receive the flows, and the applicable regulatory requirements governing those treatment plants. The comments also addressed City requirements that might apply to the CPHP, requested modeling of flows in cooperation with the San Francisco Public Utilities Commission (SFPUC), and proposed a number of possible mitigation measures, including stormwater detention, wastewater recycling and reuse, payment for necessary downstream improvements, and payment of a wastewater capacity charge and water capacity charge to offset impacts to the City's infrastructure. These comments are responded to under several topic headings below.

Topic 1: CEQA Baseline, Regulatory Setting, and UCSF Practice

As noted in the Draft EIR Section 4.9, Hydrology and Water Quality, and Section 4.16, Utilities and Service System (pages 4.9-1 and 4.16-5), the Parnassus Heights campus site is served by the City of San Francisco's combined sewer system (CSS), which conveys stormwater and sanitary sewage flows to two of the City's treatment plants for treatment. Depending on the drainage basin on the campus site that UCSF's wastewater and stormwater are generated within, these flows are directed to the City's CSS and conveyed either east to the Southeast Treatment Plant (SEP) or west to the Oceanside Treatment Plant (OSP). The SEP discharges treated effluent to the San Francisco Bay and the OSP discharges treated effluent to the Pacific Ocean. The Draft EIR (pages 4.9-1 to 4.9-3, and pages 4.16-5 to 4.16-6) indicates the capacity of each treatment plant in dry and wet weather, and also notes that "depending on individual storm characteristics and timing, the treatment plants can be overwhelmed, which results in discharge of minimally treated flows to the Bay and/or Ocean." Discharges to receiving waters are subject to requirements and limitations included in permits issued by the Regional Water Quality Control Board (RWQCB). Comment letter O-TL3 provided data regarding observed non-compliance, permit violations, and past, present, and likely future enforcement actions. While UCSF is not in a position to verify observed non-compliance or opine on potential future enforcement actions, the commenter makes the valid point that existing water quality in the Bay and the Ocean is negatively affected by wet weather discharges, and that condition is part of the CEQA baseline for evaluation of impacts.

As noted on page 4.9-3 of the Draft EIR, UCSF owns and maintains the stormwater collection system internal to the Parnassus Heights campus site, which discharges to the City's CSS at points of connection along Parnassus Avenue, Kirkham Street, Irving Street, and Clarendon Avenue. The Draft EIR explains (page 4.9-6) that UCSF's stormwater system is subject to the State Water Resources Control Board (SWRCB) General Permit from Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) permit (Order No. 2003-0005-DWQ, as revised by 2013-0001-DWQ in 2013). The revised Phase II General Stormwater Permit requires UCSF to develop, implement and enforce a Stormwater Management Plan with certain required measures for projects which create or replace more than 5,000 square feet of impervious surfaces. These requirements include, among other things, site design measures aimed at reducing the volume of runoff, and low impact design (LID) features aimed at reducing runoff volume and pollutants.

While UCSF is (contrary to a commenter's assertion) not subject to the City's Stormwater Management Ordinance, in practice, UCSF has a long history of cooperative engineering and design interactions with the SFPUC regarding infrastructure connections associated with planned development wherever necessary. Most recently, more than 4 million square feet of UCSF developments at the Mission Bay campus site over the past 15 years have involved UCSF working intensively to ensure SFPUC can successfully transition from San Francisco's CSS to a separated system district at Mission Bay, where stormwater and wastewater are handled in separate collection systems, thereby reducing polluted runoff into the Bay. Other recent and past UCSF projects at its Mount Zion, Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG), and other campus sites have conformed with City standards and infrastructure plans in the context of the City's CSS. UCSF will continue to work with SFPUC during implementation of the CPHP. Specifically, UCSF anticipates modeling increased sewer demand for proposed development projects under the CPHP that have the potential to affect the City's CSS capacity, and providing the SFPUC with documentation that the capacity of the City's adjoining CSS system will not be exceeded. If the modeling determines that the CSS capacity would be exceeded, the University would pay its proportional share of the costs of expanding the sewer system to accommodate the increased flows from the campus site. UCSF pays all of the applicable SFPUC capital facilities fees per Government Code Section 54999.

As discussed on Draft EIR page 4.9-7, UCSF is also subject to the UCOP Sustainable Practices Policy, which requires that UCSF prepare and maintain a Water Action Plan for each campus, identifying long-term strategies for achieving sustainable water systems. Consistent with this Water Action Plan, UCSF has reduced its use of potable water at the Parnassus Heights campus site by an estimated 40 percent over the last 10 years.[16]

Topic 2: Anticipated Stormwater and Wastewater Flow Increases

As indicated in Impacts HYD-1 and HYD-2 in the Draft EIR, development under the CPHP is anticipated to increase impervious surfaces on the Parnassus Heights campus site by about one acre, thereby incrementally increasing stormwater flows over existing conditions.[17] Under the CPHP, these flows would be directed to the City's CSS and hence, to either the City's OSP and/or SEP, depending on the location of the point(s) of discharge. UCSF would implement measures included in its Stormwater Management Program, including LID measures such as green roofs, permeable paving, and/or other infiltration-based stormwater features, to effectively reduce expected offsite volume of discharges and pollutants, and make the necessary upgrades to its sewer collection facilities, where needed, on the campus site (Draft EIR Impact HYD-1 on page 4.9-10 to 4.2-12, Impact HYD-2 on pages 4.9-13 to 4.9-15, and Impact UTIL-1 on pages 4.16-4 to 4.16-15).

16 UCSF, *University of California San Francisco Water Action Plan 2018*.

17 As part of this Comments and Responses document, preliminary estimates of the increase in peak stormwater flow rates and volumes generated at the campus site under the CPHP as a result of increases in impervious surfaces were calculated for several design storms (including 1-, 2-and 5-year, 24-hour storms) using the U.S. Army Corps of Engineers HEC-HMS v4.4.1 program (see **Appendix HMA** in this Comments and Responses document.). In each of these scenarios, the increase in peak stormwater flow rates generated within the campus core under the CPHP was less than or equal to 0.3 cubic feet per second (a 0.8 percent or less increase over existing conditions), and the estimated increase in volume was 0.1 acre-feet (a 1.2 percent or less increase over existing conditions).

As indicated in Impact UTIL-2 in the Draft EIR (page 4.16-22), development under the CPHP is anticipated to increase wastewater flows by 0.18 mgd (90 percent of the increased water use) by CPHP buildout. This is likely an over-estimate given UCSF's commitment to water conservation and its continued investigation of a variety of strategies that will be implemented at the Parnassus Heights campus site, including replacing or retrofitting equipment, capturing roof drainage for irrigation purposes, connecting sump pumps to the Institute for Regeneration Medicine (IRM) rainwater water tanks and connecting the tanks to the central plant or irrigation.[18] It should be noted that UCSF investigated potential use of non-potable (recycled) water distribution lines within medical facilities at Mission Bay, and concluded that dual plumbing requirements would be infeasible in an outpatient medical setting because of the cost and concerns about cross connections and monitoring requirements. These conclusions would be applicable to medical facilities at the Parnassus Heights campus site as well.

Topic 3: CEQA Significance and Mitigation

As indicated by comment letter O-TL3, increases in stormwater or wastewater flows could contribute to degraded water quality if they would increase the volume or frequency of combined sewer overflows (CSOs). This has been acknowledged in a text change on page 4.9-12 of the Draft EIR (please refer to Section 8.5 of this Comments and Responses document for the proposed revision). As noted in Impact UTIL-1 on page 4.16-15 of the Draft EIR, increases in stormwater or wastewater flows could also result in significant impacts if infrastructure improvements are required, the construction of which would result in significant impacts.

To help address the potential for increased CSOs, under the CPHP, UCSF would have the ability to control where it makes sewer connections for the campus site to the City's CSS system, and therefore, control the flows it would send to either the OSP or the SEP, whichever the SFPUC deems to be better in terms of reducing the potential contribution to CSO occurrences. This ability to select the drainage basin has been reflected in a text change on page 4.16-22 of the Draft EIR (please refer to Section 8.5 of this Comments and Responses document for the proposed revision). In addition, UCSF plans to undertake the water conservation and reuse strategies identified above in the near term, with more in the future. UCSF is also aware that there may be improvements to the City's CSS periodically that increase the capacity of storage, pumping, or treatment, reducing the potential for CSO discharges into receiving waters.

Nonetheless, the increases in stormwater and wastewater flows to the City's system under the CPHP could impact water quality if they were to increase the volume or frequency of wet weather overflows from the CSS. To address this potential, UCSF has agreed to implement a mitigation measure that would commit the Parnassus Heights campus site to reduce stormwater flows into the CSS sufficiently to offset any increases in wastewater flows resulting from development under the CPHP and/or to demonstrate via use of the SFPUC's citywide Integrated Catchment Model (ICM) model that flows into the CSS would not cause or contribute to any increase in overflow volumes. This performance standard would effectively eliminate the potential that increased stormwater and/or wastewater discharges to the City's CSS due to the CPHP could

[18] List of future water conservation projects provided by UCSF staff on November 2, 2020, with a total projected annual water savings of over 15 million gallons per year.

contribute to overflows. The Parnassus Heights campus site would meet this standard by continuing to implement water conservation measures, by reducing stormwater flows via stormwater retention and/or reuse on the campus site, by reducing stormwater peak flows via stormwater detention, and could utilize off-campus capacity in the City's CSS if available.

UCSF would establish a baseline by using the SFPUC's model to estimate flows to the City's CSS prior to development of the CPHP, and would ensure compliance by repeating the modeling effort at every major phase of the CPHP (starting with the Initial Phase) or every five years, whichever is more frequent, through CPHP buildout. UCSF may choose to conduct the modeling analysis on its own and submit the analysis to the SFPUC for review, or request that the SFPUC conduct the analysis on UCSF's behalf, subject to reimbursement of the SFPUC's costs by UCSF. If, based on such analysis, UCSF determines that increased flows will not meet the specified hydraulic performance standards, UCSF will pay its proportional share of the costs of expanding the CSS to accommodate the increased flows from the Parnassus Heights campus site. If, based on the analysis, UCSF determines that flows will not meet the specified hydrologic performance standard, UCSF will modify its designs to incorporate additional retention/detention features until the performance standard is met.

There are several indicators that the performance standards can be feasibly met. First, as discussed in the Draft EIR Project Description, the proposed CPHP includes a 0.11 million gallon on-site emergency sewer effluent storage tank. This alone would represents over 60 percent of the CPHP's estimated average daily wastewater production at full buildout. This also indicates that construction of additional storage is an option (given ground conditions, available area, etc.).

Secondly, a cumulative analysis performed in support of the 19th Avenue Corridor Study in conjunction with the Parkmerced Project Final EIR, determined that overall flows to the CSS on the City's Westside will decrease over time due to the construction of several major projects that will include separation of sewers (from combined to separate system).[19] Furthermore, the City has enacted several ordinances (e.g., Non-potable Ordinance, Water Efficient Irrigation Ordinance, Residential Water Conservation and Commercial Water Conservation Ordinance), requiring new and redevelopment projects City-wide reduce potable water use, and secondarily decrease wastewater flow to the CSS.

Finally, the CPHP is located along the north-south ridge that separates the City's Western and Eastern drainage basins. Being at the upstream end of each basin increases the likelihood that the increased flows will have less of a volumetric impact than at the downstream end as there is more opportunity for balancing of available storage. It also allows for UCSF to allocate flow by basin to minimize overall impact.

UCSF would also construct and implement stormwater management controls consistent with the requirement of the City's Stormwater Management Ordinance (Article 4.2 of the San Francisco Public Works Code) and consult with SFPUC to ensure the capacity of the adjoining sewer system will not be exceeded. See Section 8.5 of this Comments and Responses document for the

[19] Hydroconsult Engineers, Inc., *Technical Memorandum, 19th Avenue Corridor Study Area – Cumulative Utilities Analysis*, January 14, 2010, Table 4.2.

agreed upon new mitigation measure (CPHP Mitigation Measure HYD-1). This mitigation measure would also address potential increases in impervious surfaces and stormwater flows due to improvements off-campus, which the Draft EIR notes would be subject to City requirements (Draft EIR p. 4.9-12).

Please also see Section 8.5 of this Comments and Responses document for corresponding edits made to Draft EIR for Impact HYD-1, Impact HYD-2, Cumulative Impacts C-HYD-1 and C-HYD-2; Impact UTIL-3; and for references to the hydrology and water quality impacts in the Alternatives chapter of Draft EIR.

As noted on page 4.16-15 of the Draft EIR, construction activities associated with utility improvements such as those necessitated by this mitigation measure would have the potential to result in significant or potentially significant impacts. However, compliance with mitigation measures and other construction-related regulatory requirements discussed in the EIR, including Section 4.2, *Air Quality*; Section 4.3, *Biological Resources*; Section 4.4, *Cultural Resources*; Section 4.6, *Geology and Soils*; Section 4.8, *Hazards and Hazardous Materials*; Section 4.9, *Hydrology and Water Quality*; Section 4.11, *Noise and Vibration*; and Section 4.15, *Transportation*, would reduce construction-related effects associated with utility improvements to a less than significant level.

With implementation of new CPHP Mitigation Measure HYD-1 presented above, and because construction of any related infrastructure improvements would not result in a significant environmental impact for the reasons cited here, the revisions to the text of the Draft EIR to address Comments A-SFP-31 through A-SFP-36 and O-TL3-1 through O-TL3-14 do not constitute significant new information per CEQA Section 15088.5 and do not necessitate recirculation.

8.3.3.13 Master Response 13: Land Use Impacts

This master response addresses the issues raised in Comments **O-LD2-41** through **O-LD2-43, O-LD2-68** through **O-LD2-71,** and **O-PARKIN-17** and **O-PARKIN-18, I-Craig-3,** and **I-Goodman-15** which assert that the Draft EIR fails to adequately analyze the CPHP's land use impacts in different respects.

Comments **O-LD2-41** and **O-LD2-69** reference the 1987 Memorandum of Understanding (MOU) entered into between UCSF and the City of San Francisco. As discussed on Draft EIR, Section 4.10, Land Use and Planning, page 4.10-6, the intent of the 1987 MOU is to foster harmonious relations between the City and UCSF regarding the growth and development of UCSF facilities within the City. UCSF has included those policies that are germane to the analysis of land use impacts in the Draft EIR. It is UCSF's intent to adhere to the extent practicable to City zoning codes, including building use, height, and bulk limitations; floor area ratios; and parking requirements or restrictions for the purpose of ensuring compatibility with the surrounding uses.

However, the 1987 MOU does not provide the City with approval authority over the 2014 LRDP, the proposed CPHP, or future projects proposed under the CPHP. Further, the 1987 MOU does

not require that the 2014 LRDP, the proposed CPHP, or future projects proposed under the CPHP comply with City land use and General Plan policies or City zoning codes. As plainly stated on Draft EIR, page 4.10-9, pursuant to the University of California's constitutional autonomy, development and uses on property under the control of the University that are in furtherance of the University's educational purposes are not subject to local land use regulation. Consequently, the controlling UC land use documents at the Parnassus Heights campus site are the 2014 LRDP and the 1976 Regents' Resolution. The exception to this would be for work to be implemented within the City's right-of-way, such as the Parnassus Streetscape Plan.

Impact LU-1 in the Draft EIR addresses the significance criteria of whether the CPHP would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Accordingly, Draft EIR Impact LU-1 appropriately focuses on consistency of the CPHP with the 2014 LRDP and the 1976 Regents' Resolution. A consistency discussion of the CPHP with the 2014 LRDP provided on Draft EIR pages 4.10-10 to 4.10-11 shows that the proposed CPHP would be generally consistent with the planning principles and concepts set forth in the 2014 LRDP. The Draft EIR explains that UCSF's functional zone changes proposed under the CPHP are all internal to the campus site and do not involve a functional zone change that would place a new use adjacent to existing developed land uses outside of the campus site boundaries in such a way to create a land use conflict. Further, the zone changes would not result in land use conflicts with adjacent existing land uses on the campus site, because compatibility between adjacent existing and proposed functional zones was taken into consideration in developing the proposed zones in the CPHP. Existing land use patterns reflect campus development guided by the planning principles embodied in the previous LRDPs. The CPHP remains consistent with the same planning principles. On these bases, the Draft EIR concluded that implementation of the CPHP would have a less-than-significant impact regarding conflict with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.

The Draft EIR also discusses the consistency of the CPHP with the space ceiling limit set forth in the 1976 Regents' Resolution. The Draft EIR explains that to accommodate the proposed CPHP, the space ceiling in the resolution would need to be revised, and it reaffirms the University's continuing commitments in the Resolution by 1) maintaining the designation of the Mount Sutro Open Space Reserve as permanent open space; 2) continuing to respect the Parnassus Heights campus site boundary established in 1976; and 3) continuing to adhere to the expansion restriction area within which UCSF would not acquire property or lease residential property (Draft EIR p. 4.10-12).

Amendment of the Regents' Resolution would be required for the CPHP to proceed, resolving any policy conflict, and the Draft EIR acknowledges that the CPHP would increase both the space ceiling and population commitments, which in turn would result in environmental impacts. All potential environmental impacts associated with these policy changes are adequately disclosed in the CPHP Draft EIR, and mitigated to the maximum extent feasible. This is consistent with CEQA Guidelines Appendix G, which indicates that a policy conflict in and of itself is not a significant impact, rather, the question is whether the conflict would result in a significant environmental impact (Checklist Item XI, b). In this instance, there would be significant impacts which are

disclosed under other topic headings throughout the Draft EIR, and no significant environmental impacts were identified having to do with a land use policy conflict because the project could not proceed if it conflicted with governing policies adopted by the Regents. The CPHP Draft EIR concluded that the proposed CPHP would be consistent with the space and population commitments for the Parnassus Heights campus site, as amended, and the land use impact would therefore be less than significant. The Draft EIR also notes that with the open space swap proposed under the CPHP, there would be no decrease in the size of the Reserve.

It should be noted that it is not uncommon for agencies and local jurisdictions to consider amendments to their policy documents and regulations (e.g. general plans and zoning ordinances) in conjunction with and to accommodate major developments, such as is proposed in the case of the CPHP and the Regents' Resolution. This provides decision-makers and the public an opportunity to consider the potential impacts and objectives of policy changes with a specific project in front of them, rather than in the abstract.

Comment **O-LD2-41** incorrectly states that the Draft EIR ignores City land use and general plan policies, suggesting that compliance with these policies "are a key indicator of whether the Project is or is not compatible with the surrounding neighborhood." Comments **O-LD2-42** and **O-LD2-70** incorrectly list a number of UCSF 2014 LRDP Community Planning Principles (i.e., Land Use Principles LU2, LU3, and LU10) within a table labeled "General Plan/Zoning Changes" and "San Francisco General Plan and Zoning Code Excerpts," respectively. However, Community Planning Principles (included in Appendix D of the 2014 LRDP) are not City General Plan policies. Further, as correctly noted on Draft EIR pages 4.10-3 to 4.10-4, these Community Planning Principles are also not formal objectives or regulations of UCSF or its 2014 LRDP. Similarly Comment **O-PARKIN-17** lists Community Planning Principles LU1 and LU3. These Community Planning Principles were developed in collaboration with the UCSF Community Advisory Group, and accordingly, are advisory in nature only, and not used for judging significance of impacts.

In the same table, Comments **O-LD2-42, O-LD2-43, O-LD2-70,** and **O-LD2-71** list certain San Francisco General Plan Urban Design Element policies (Policy 3.5 and 3.6), and City zoning and height and bulk districts (RH-2, 25-X, 40-X, 65-X, 80-D, 130-D and 220-F), and dispute the consistency discussion in Impact LU-2. **I-Craig-3** indicates the New Hospital would be in violation of prescribed height and bulk restrictions and in direct conflict with the Planning Code. **I-Goodman-15** indicates the New Hospital is inconsistent with applicable zoning requirements.

As noted above, given that development and uses on property under the control of the University that are in furtherance of the University's educational purposes are not subject to local land use regulation, there is no requirement that the 2014 LRDP, the proposed CPHP, or future projects proposed under the CPHP, comply with City land use and General Plan policies or City zoning codes. As plainly stated on Draft EIR, page 4.10-9, pursuant to the University of California's constitutional autonomy, development and uses on property under the control of the University that are in furtherance of the University's educational purposes are not subject to local land use regulation. The Draft EIR cites and does not ignore City land use and General Plan policies. Draft EIR pp. 4.10-6 through 4.10-8, and Impact LU-1 on pages 4.10-13 to 4.10-15 provide a consistency discussion of the CPHP's proposed off-campus improvements within the City right-

of-way with those City General Plan and Better Streets Plan policies governing City streets. The Draft EIR concludes that the planned off-campus improvements along Parnassus Avenue would be consistent with the City of San Francisco policies for streets found in the General Plan and the Better Streets Plan.

Impact LU-2 in the Draft EIR addresses the 2014 LRDP Final EIR significance criteria of whether the CPHP would conflict with local land use regulations such that a significant incompatibility is created with adjacent land uses. Toward that end, the Draft EIR uses the City's height and bulk zoning regulations to assist in evaluating the CPHP's compatibility with adjacent land uses. Impact LU-2 discloses where development proposed under the CPHP would exceed the City height and/or bulk limits; this includes the proposed New Hospital (also noted by Comments **O-LD2-42**, **O-LD2-70** and **I-Craig-3**); as well as the Aldea Housing Densification project; and portions of the Millberry Union Towers project, Irving Street Arrival, and West Side Development.

With respect to the New Hospital, Impact LU-2 notes that due to the SB 1953 mandate at the Parnassus Heights campus site, inpatient uses currently at Moffitt Hospital must be relocated prior to 2030, necessitating the construction of the New Hospital. Impact LU-2 also describes the modern clinical, space and code requirements that necessitate the New Hospital to be of the size and location proposed under the CPHP (as further described in Draft Chapter 3, Project Description, Project Needs; and in Draft EIR Appendix SNA – Space Needs Assessment). Impact LU-2 affirms that while the University is exempt from local zoning whenever using property under its control in furtherance of its educational mission, UCSF strives to adhere to City zoning codes to the extent possible in accordance with 2014 LRDP objectives. Impact LU-2 also states that UCSF would design the New Hospital to avoid or minimize the effects of the conflict with the City's Planning Code, to the extent feasible. For these reasons, and because the CPHP would redevelop sites that are already built-out with buildings that provide educational, research, and clinical land uses in large, non-residential structures, the Draft EIR concludes that, on balance, the proposed New Hospital would be compatible with adjacent land uses.

Impact LU-2 acknowledges that the New Hospital would result in certain aesthetic, wind and noise effects at nearby residential land uses. Comments **O-LD2-42** and **O-LD2-70** also note these impacts, and also make reference to an analysis conducted by Jared Ikeda included in Comment Letter O-LD2, Exhibit D. These comments, and Comment **O-PARKIN-17** also take issue with the proposed LRDP amendment to LRDP sub-objectives 1B and/or 1C. As explained in Impact LU-2, Sections 4.1 and 4.11 in the Draft EIR address the aesthetic, wind and noise impacts of the New Hospital, and demonstrate that with incorporation of the amendments to the 2014 LRDP proposed under the CPHP; implementation of identified mitigation measures identified in the Draft EIR [CPHP Mitigation Measure AES-3 (to reduce light and glare effects), CPHP Mitigation Measure AES-4 (to reduce wind effects), and CPHP Mitigation Measure NOI-2 (to reduce operational noise effects)]; along with compliance with applicable codes, these effects would be mitigated to the extent feasible. With respect to the proposed LRDP amendment, it would clarify that sub-objectives 1B and 1C would not apply to the New Hospital project, in recognition of the substantial amount of space required for the New Hospital, although UCSF would make efforts during the design process to come as close as possible to meeting these objectives, if feasible. Please also refer to Master Response 7: Aesthetics, Master Response 8: Wind Impacts.

With respect to other development proposed under the CPHP, Impact LU-2 indicates that the proposed Irving Street Arrival and Millberry Union towers exceedance of the City height limits along Irving Street would be relatively small, and when considered in conjunction with the access benefits provided, these developments would be generally compatible with adjacent land uses. Impact LU-2 also finds that with respect to the West Side development, when considering the proposed buffering and stepped back design of the proposed structures from Fifth Avenue, the West Side development also would be compatible with adjacent land uses. Lastly, Impact LU-2 finds that when considering the proposed new Aldea Housing structures would be located in generally the same location as the existing housing structures, and given the setbacks and presence of substantial intervening vegetation, the Aldea Housing Densification project would be generally compatible with adjacent land uses.

Lastly, Impact LU-2 notes that for any potential CPHP encroachment into the Reserve, the CPHP-proposed Reserve land swap would ensure there would be no reduction in protected open space at the campus site. In consideration of all the above reasons, Impact LU-2 concludes that development under the proposed CPHP would not conflict with local land use regulations such that a significant incompatibility with adjacent land uses would be created.

8.3.3.14 Master Response 14: Population and Housing Impacts

This master response addresses the issues raised in Comments **A-SFP-29, O-LD2-47** and **O-LD2-48, O-LD2-58** through **O-LD2-67, O-Parkin-20, I-Welch-1, I-Goodman-17** and **I-Goodman-18**, and **I-Liederman-3** through **I-Liederman-5**. The commenters assert that the CPHP would create more jobs than housing, and would exacerbate the existing shortfall in housing in San Francisco and the broader Bay Area, and that the Draft EIR does not address how the demand for housing would be fully met and/or mitigated. Several comments misinterpret the CEQA requirements with respect to impacts on population and housing. Some of the comments (**O-LD2-47** and **O-LD2-48**, **O-LD2-58** through **O-LD2-67**) conflate the CPHP's impacts on population and housing with the issue of the CPHP's growth inducing effects. These are two separate areas of impact analysis under CEQA and are subject to different types of review and evaluations.

The master response below first explains the scope of population and housing impacts under CEQA and demonstrates that the Draft EIR's analysis is consistent with the CEQA requirements. The master response then sets forth the scope of growth inducing effects under CEQA and demonstrates that the analysis in the Draft EIR is consistent with the CEQA requirements.

Topic 1: CPHP Population and Housing Impacts

As stated on page 4.12-6, the Draft EIR analyzes the impacts of the CPHP on population and housing by addressing the following three questions. As indicated below (emphasis added), would the project:

a) Induce **substantial unplanned population growth** in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b) Displace **substantial numbers of existing people or housing**, necessitating the construction of replacement housing elsewhere?

c) Exceed the LRDP EIR standard of significance by creating **a demand for housing outside the market area** where the facilities or site are located?

Note that the first two criteria are taken directly from Appendix G of the State CEQA Guidelines and reflect the State's guidance relative to what types of impacts related to population and housing would constitute significant environmental impacts. The third criterion was developed by UCSF during the preparation of the 2014 LRDP EIR, and is not derived from the State CEQA Guidelines. As stated in the Draft EIR, criteria a) and c) are addressed in Impact POP-1, and criterion b) is addressed in Impact POP-2.

Impact POP-1 analyzes whether the employment created by the CPHP would (1) cause substantial unplanned population growth, and (2) create a demand for housing outside the market area. To determine whether the CPHP would cause substantial unplanned population growth, the Draft EIR estimates and reports the total increase in the population at the Parnassus Heights campus site, which is about 5,184 additional students, faculty and staff by CPHP buildout in 2050. Note that the growth in the campus site population would not occur immediately upon plan approval, but incrementally over a period of 30 years (2021 through 2050) as new facilities are built on the campus site, existing educational, clinical and research programs are expanded, and new programs are implemented. Further, the Draft EIR conservatively assumes that all of the 5,184-person increase (plus their estimated 2,146 dependents associated with new on-campus housing) added to the campus site would be "new" to the 5-county study area and would represent additional population; it does not deduct from this number students and employees who could be already living in the study area at the time that they first enroll at UCSF as graduate students or are hired by UCSF to fill the new jobs. Further, the Draft EIR states that although the employment growth at Parnassus Heights campus site is potentially accounted for in the *Plan Bay Area 2040* projections, conservatively for purposes of analysis, it assumes that the increase under the CPHP is not included in the projections. Next, the Draft EIR analyzes the distribution of this new population under two scenarios. Under the first scenario, the Draft EIR analysis assumes that this new population would reside in a manner similar to that of the existing UCSF employees, with about 60 percent living within the City and County of San Francisco (City), and about 40 percent in the communities in Alameda, San Mateo, Marin, and Contra Costa Counties. Using this distribution, the Draft EIR demonstrates that the CPHP-related new population (through buildout in 2050) would make a small fraction of the projected population increase[20] in the City (about 2 percent) and the surrounding counties (less than 1 percent) through 2040[21], and therefore would not represent substantial unplanned population growth in the City and the four surrounding counties. Under the second scenario, the Draft EIR analysis conservatively assumes that all of the CPHP-related new population would live in San Francisco and demonstrates that the new

[20] This projected population increase is derived from *Plan Bay Area 2040*, a regional plan developed by ABAG and MTC which is based on an analysis of regional economic trends likely to affect the amount of development and population/employment increases over the life of the plan and input from local jurisdictions.

[21] As noted in the Draft EIR on page 4.12-8, while the proposed CPHP has a horizon year of 2050, growth projections provided by ABAG are only available to 2040, so as a conservative approach, the analysis assumed the full CPHP population increase expected by 2050 would occur in 2040.

population would still make a small fraction of the projected population increase (about 3 percent) through 2040, and similarly, would not represent substantial unplanned population growth.

Impact POP-1 also analyzes whether the CPHP-related population increase would create a demand for housing outside the market area. The Draft EIR analysis compares the housing needs of the CPHP-related new population to the projected growth in households in the City and the four surrounding counties through 2040 and finds that the housing demand associated with population growth under the proposed CPHP would be satisfied by the housing that could be added in San Francisco and in other parts of the study area. As stated in the Draft EIR, between 2010 and 2040, San Francisco is expected to add about 137,900 new households, which would represent a 40 percent increase over its 2010 household levels. Assuming the current pattern of residential location preferences, the housing demand in San Francisco associated with UCSF student and employment growth under the CPHP by 2030 would represent approximately 1.8 percent of the projected household growth, and by 2050 would represent about 2.3 percent of the projected household growth — shares that would not be anticipated to trigger shifts of demand to other parts of the study area or beyond the regional housing market area. As noted above, the analysis is based on a conservative assumption that all of the CPHP-related population would be new to the study area and require housing; in reality some of the students and employees would likely be living in the area at the time of enrollment or hire. Further, these percentages are conservative as they do not take into account the increase in on-campus housing proposed under the CPHP as well as other housing that UCSF is developing or leasing in other locations within the City. If the 762 housing units added under the CPHP by 2050 are taken into account, the CPHP's off-campus housing needs would equal about 4,422 housing units. If 60 percent of this need is met within San Francisco and the rest in the surrounding four counties, the CPHP-related housing demand would represent about 1.9 percent of the projected household growth in the City by 2040.

Impact POP-2 analyzes whether the implementation of the CPHP would result in the displacement of a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere. That analysis conservatively assumes that approximately 42 households in UCSF campus housing at the Aldea Housing complex, or about 100 residents, would be temporarily displaced for about 2 years as a result of the initial Aldea Housing Densification project. The displaced households would be provided UC-controlled housing. For concerns related to potential indirect displacement and gentrification impacts, please see Master Response 15: Indirect Displacement and Gentrification Impacts.

Impact C-POP-1 analyzes the cumulative impact of the CPHP to assess whether the new population added to the City and the five-county study area would be considerable relative to the projected population of the City and the five-county study area. The analysis concludes that the CPHP-related new population would be relatively small and therefore not "considerable" compared to the 2040 population projections for the study area included in the *Plan Bay Area 2040*, and therefore the CPHP would not contribute considerably to a cumulative impact related to unplanned population growth.

All of the impact analysis in the Draft EIR is conservative as it assumes that the employment growth and the related population growth at the campus site under the CPHP, and the corollary

demand for housing are not accounted for in the *Plan Bay Area 2040* projections and are incremental. However, review of the methodology used in *Plan Bay Area 2040* to develop employment, population, household, and housing projections for the nine-county region as well as for the individual local jurisdictions suggests that the CPHP-related employment and population growth is accounted for in the plan projections. As stated by ABAG in the Regional Forecast Supplemental Report, "To better understand growth dynamics in the nine-county Bay Area region, the Association of Bay Area Governments (ABAG) tracks and projects the region's demographic and economic trends. The regional forecast is an important component of the *Plan Bay Area 2040*, the Bay Area Sustainable Communities Strategy (SCS), and provides a set of common regional assumptions informing the discussion among regional and local jurisdictions and organizations of how the region might grow. The forecast describes changes in employment, population, households, and income distribution over three decades for the region, focusing on long-term trends, rather than cyclical variations. The regional forecast also serves as the control totals for the scenario analysis in which the estimated increment of growth is econometrically distributed to jurisdictions and smaller geographic areas within the region according to a set of policy assumptions."

As a first step, ABAG used a suite of customized and in-house models, including a population model (Pitkin Myers model) and an economic model (REMI) to project economic activity, including changes in employment, population growth and composition, household growth, income distribution, and the regional housing control total at the regional level. Regarding employment projections, both national and Bay Area data were input into the economic model to develop regional projections of employment by major sector, including health and education services sector. Once regional projections were developed, in a second step, they were used as control to develop small area projections (i.e., at the local jurisdiction level such as the City of San Francisco). Due to the top down approach used by ABAG to develop the regional and local area projections, it is reasonable to conclude that the projected employment growth at the Parnassus Heights campus site and the related population growth and housing demand are accounted for in the ABAG projections that form the basis of *Plan Bay Area 2040*, and the CPHP-related population growth does not represent unplanned population growth.

All of the criteria provided in the State CEQA Guidelines related to population and housing impacts are fully addressed by the analysis in the Draft EIR. As the Appendix G CEQA Checklist questions listed above show, CEQA does not require a CEQA document to analyze how a project's demand for housing would be met. CEQA also does not require an environmental document to analyze whether affordable housing would be available to the project-related population.

Topic 2: CPHP Growth Inducing Effects

CEQA Guidelines Section 15126.2(e) sets forth guidance with respect to the evaluation of a project's growth inducing effects. The section includes the following key points (emphasis added).[22]

[22] Please note the Draft EIR Section 5.4 inadvertently referred to "CEQA Guidelines Section 15126.2(d)" instead of "CEQA Guidelines Section 15126.2(e)." Please refer to Section 8.5 in this Comments and Responses document for a staff-initiated change to the Draft EIR correcting that error.

1) "Discuss the ways in which the proposed project could foster **economic or population growth, or the construction of additional housing**, either **directly or indirectly**, in the surrounding environment.

2) Included in this are projects which would **remove obstacles to population growth** (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas)."

The analysis in Section 5.4, Growth Inducing Effects in the Draft EIR addresses the above points. In Section 5.4.1, it sets forth the **direct employment and population growth** that would be supported by the CPHP, and finds that the new households would create a demand for housing that would not be entirely accommodated by the existing and new housing on the Parnassus Heights campus site, and would result in a housing demand (and associated population growth) beyond the campus site. The Draft EIR explains that while the City and County of San Francisco is the primary area that would be affected directly by CPHP-related population and housing effects, effects would extend beyond San Francisco to neighboring counties in the Bay Area. The Draft EIR explains that it would be speculative to characterize the site-specific environmental effects resulting from the development of such off-site housing as the development would occur over a large five-county area and over a period of time (note that the CPHP covers a period of 30 years), and then describes the general types of environmental impacts that would be associated with the development of new housing in the City and the broader study area. The Draft EIR further states that the General Plans of the jurisdictions where new off-site housing would be developed contain policies and other measures that address the environmental effects of new housing development. Specific housing development projects also would be subject to the environmental review process of affected jurisdictions. Similarly, in Sections 5.4.2 and 5.4.3, the Draft EIR presents an analysis of the **indirect and induced employment and population growth** that could occur due to the CPHP and the general effects of that growth on housing and services and the environmental effects related to the development of housing and services. Finally, in Section 5.4.4, the Draft EIR explains why the CPHP would not **induce growth by removing any existing obstacles to growth**.

Note that CEQA does not require an EIR to evaluate the significance of a project's growth inducing impacts. Further, as borne out by the guidance in CEQA Guidelines Section 15126.2(e), it does not require an EIR to evaluate the effects of the project's direct or indirect employment or population growth on affordable housing.

Comments **O-LD2-48**, **O-LD2-65**, and **O-LD2-65** conflate the conclusions of the population and housing analysis in Draft EIR Section 4.12 with the CPHP's growth inducing effects analyzed in Section 5.4, to assert that the Draft EIR is seeking to diminish the significance of the effects of the project on housing. As the response above shows, even though both analyses focus on the employment and/or population added to a community by a project, the two analyses are distinctly different in the impacts that they address. The population and housing impacts are accurately analyzed in Section 4.12 consistent with the CEQA Guidelines Appendix G, and the growth inducing impacts are accurately analyzed in Section 5.4 consistent with CEQA Guidelines Section 15126.2(e).

8.3.3.15 Master Response 15: Indirect Displacement and Gentrification Impacts

This master response addresses the issues raised in Comments **O-LD2-58** through **O-LD2-60, O-LD2-62, O-LD2-64** through **O-LD2-66, I-Goodman-17, I-Goodman-18,** and **I-Liederman-5**. The commenters assert that the Draft EIR is deficient in its analysis of population and housing impacts because it does not analyze the indirect displacement impacts on residents living in the vicinity of the Parnassus Heights campus site. Commenters assert that through their demand for nearby housing, the CPHP-related new population would increase housing prices, displace households in the surrounding neighborhoods, and result in the gentrification of the surrounding neighborhoods. Commenters state that the Draft EIR must include an analysis of loss of affordable housing through gentrification. The response provided here first explains the concepts of gentrification and indirect displacement and then provides an explanation as to why it would be speculative to conclude that there would be indirect displacement attributable to the CPHP as well as any physical impacts from indirect displacement.

"Gentrification" is a shift in an urban community/neighborhood toward higher income residents and/or businesses and increasing property values, often at the expense of the lower income residents of the community. Gentrification is often associated with increases in educational attainment and household incomes, as well as higher housing prices. It is also often associated with, but not directly linked to, an overall change in the racial or ethnic makeup of a community. Gentrification often raises property values and rents, making the housing less affordable to lower income groups, and while it does not necessarily include any level of displacement, it can occur as a result of or in conjunction with indirect displacement.

"Indirect displacement" refers to the potential displacement of residents or businesses due to economic reasons such as higher and unaffordable rents and housing prices that are driven up by the advent of investors and higher income households. As housing or business costs become increasingly unaffordable, existing tenants may be forced to find more affordable housing or business locations elsewhere, if available. By comparison, direct displacement is that associated with planned changes in land use or redevelopment of existing homes or business properties. Direct displacement is discussed under Impact POP-2 in the Draft EIR. Also see Master Response 14, Population and Housing.

CEQA requires an EIR to "identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided." (Public Resources Code Section 21002.1). CEQA Guidelines Section 15382 defines a significant effect as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant."

CEQA Guidelines define the parameters under which consideration of socio-economic impacts is included in an EIR. Section 15131(a) of the Guidelines states that "Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project, through anticipated economic or social changes resulting from the project, to physical changes caused in turn by the economic or social changes…. The focus of the analysis shall be on the physical changes." Similarly, CEQA Guidelines Section 15064(e) states that a CEQA document must consider the reasonably foreseeable environmental consequences of physical changes resulting from a project's economic or social changes. In other words, social and economic effects are only relevant under CEQA if they would result in, or are caused by, an adverse physical impact to the environment that is reasonably foreseeable. An impact that is speculative or unlikely to occur as a result of a project is not reasonably foreseeable (CEQA Guidelines Section 15046(d)(3)).

The courts have ruled affirmatively in a number of cases that social or economic changes that do not relate to an adverse physical change are not subject to CEQA analysis [Joshua Tree Downtown Business Alliance v. County of San Bernardino (2016) 1 Cal.App.5th 677, 685 (the fact that new big-box retail may drive other retailers out of business, absent evidence that any urban decay would occur, is not an environmental impact covered by CEQA); Maintain Our Desert Environment v. Town of Apple Valley(2004) 124 Cal.App.4th 430, 446 ("social, economic and business competition concerns are not relevant to CEQA analysis unless it is demonstrated that those concerns will have a significant effect on the physical environment"); and Goleta Union School District v. Regents of U.C.(1995) 37 Cal.App.4th 1025 (increased K–12 school enrollment that may lead to classroom crowding is a social effect, not a significant effect that must be addressed in the university's long range master plan EIR)]. In Preserve Poway v. City of Poway (2016) 245 Cal.App.5th 560, the Court of Appeal found that there was no substantial evidence to support a fair argument that the residential project would have any adverse effects on environmental resources. Although there was substantial evidence of the project resulting in a change in community character, that was a social issue not an environmental issue subject to CEQA.

Gentrification is a social and economic phenomenon that falls outside the purview of a CEQA document and the Draft EIR appropriately focuses instead on whether there would be physical impacts on the environment as a result of the project. As the commenters suggest [see for example, **O-LD2-66**], indirect displacement could occur if the new students, faculty, and staff who come to Parnassus Heights because of the CPHP (see Table 4.12-2 in the Draft EIR) seek to live in the vicinity of the campus site and are able to displace existing residents in the surrounding neighborhood, or if there is redevelopment in the area to meet the demands of these individuals, which results in displacement. However, the extent of any such displacement that would be attributable to the project, the locations of the displacement or redevelopment, and the locations to which any displaced residents may move are not known.

As reported on Draft EIR pages 4.12-1 and 4.12-2, San Francisco and the Bay Area witnessed much faster employment growth (22 percent and 15 percent) than housing growth (5.5 percent and 3.6 percent) between 2010 and 2018, a trend that partially explains the dramatic increases in housing costs in recent years. The increased demand for housing and the increased cost has in turn lead to economic insecurities for many in the region, and longer commutes as households

seek housing they can afford.[23] While the CPHP would add to the number of students and employees on site (as well as add some housing to the campus site), the extent to which the project might contribute to these larger, ongoing, and regional challenges would be impossible to discern. As noted in Master Response 14, Population and Housing Impacts, and as suggested in the analysis of Impact POP-1 on p. 4.12-8 of the Draft EIR, some of the new students, faculty, and staff would already have homes in the Bay Area, and are therefore unlikely to seek housing in the Parnassus Heights vicinity. Others who might seek to relocate to the surrounding neighborhoods are likely to find housing too costly or simply unavailable. Should an analysis attempt to examine the potential for indirect displacement due to increased housing demand in proximity to the campus site, it would require extensive data regarding existing residents and residential tenancies in the campus vicinity, including the number of homeowners vs. renters, the prevalence of rent control, the vacancy rate, and the average duration of tenancies, as well as speculation regarding the potential for new employees or students to have the income, opportunity, and desire to acquire or lease existing units. While proximity to place of work is an important consideration, a number of other variables play a role in a household's place of residence decision, including the type of housing, access to good schools, preference for urban or suburban living, and a desire to be close to family and friends. These considerations, variables, and data points are either not knowable or not available and it would be speculative either to determine the number of new employees and students at the Parnassus Heights campus site who would choose to live in the surrounding neighborhoods or to determine the number of households that might be indirectly displaced due to the project. CEQA advises against such speculative analyses (CEQA Guidelines Section 15145).

Some commenters noted that gentrification and indirect displacement have the potential to result in increased vehicle miles traveled (VMT), congestion, air pollutant and greenhouse gas emissions as displaced residents may have to commute farther. However, any change in VMT or traffic-related emissions due to indirect displacement and gentrification cannot be reasonably estimated for two reasons: first, for reasons presented above, the EIR cannot develop a reasonable estimate of the magnitude of indirect displacements (if any) that could result due to the CPHP, and second, even if the number of displaced households could be estimated, it cannot be known with any certainty whether displacement would translate into increased VMT. Displaced residents could already be commuting long distances and may not be working in or near the neighborhood. The effects on VMT or traffic-related emissions from potential indirect displacement or gentrification cannot be modeled or otherwise determined with specificity, and an EIR is not required to speculate about possible outcomes that are not reasonably foreseeable.

The University does, however, understand the community concerns and will continue to work with the neighboring communities and invest in neighborhood improvements that benefit the area. Further, UCSF, as an anchor institution in San Francisco, will continue to leverage its economic power alongside its human and intellectual resources to improve the long-term health and social welfare of San Francisco. Over the decades, UCSF has led a broad spectrum of public service programs. UCSF collaborated with San Francisco Unified School District to establish the

[23] Sarah Truehaft with Jessica Pizarek, Angel Ross, and Justin Scoggins, Solving the Housing Crisis is Key to Inclusive Prosperity in the Bay Area, a report prepared as part of the Bay Area Equity Atlas, a partnership between the San Francisco Foundation, PolicyLink, and the Program for Environmental and Regional Equity at the University of Southern California, 2018.

Science & Health Education Partnership (SEP), which enables UCSF scientists and educators to work with the SFUSD to support quality science education. Under the Excellence through Community Engagement & Learning (EXCEL) Program, UCSF has trained more than 280 people for jobs at UCSF since 1998, and in 2011, UCSF voluntarily implemented a local hiring goal similar to those of the City and County of San Francisco. In 2017, UCSF teamed with the City and other groups to launch SF CAN, an initiative that aims to fight against cancers affecting certain racial and ethnic minorities by reducing inequities in prevention, screening rates, access to quality health care and outcomes. UCSF continues to evaluate the potential to increase its capacity to train, hire, and promote people from under-resourced populations; analyze UCSF's purchasing power so that more spending can be sourced from small, local businesses that are owned by or employ under-resourced populations; and explore social impact investment options. UCSF will continue with the existing and new programs for the benefit of San Francisco residents.

8.3.3.16 Master Response 16: Transportation Significance Criteria

This response addresses issues raised in Comments O-**SM-20, A-SFP-15, A-SFP-16, A-SFP-20, A-SFP-22, A-SFP-26, I-Kessler-28, I-Jones-5**, and **I-Wellborn-3**. These comments assert that the Draft EIR does not use significance criteria set forth by other agencies or in state guidance, particularly with respect to evaluating the CPHP's compliance with plans, ordinances, and policies and evaluating the CPHP's VMT impacts.

CEQA provides for lead agencies to adopt their own thresholds of significance and to evaluate the significance of a project's impact based on substantial evidence. The Regents of the University of California (UC or University) is unique among public agencies because it is a constitutionally created entity of the State of California with "full powers of organization and government" (Cal. Const. Art. IX, Section 9), and typically acts as both the project proponent and lead agency under CEQA. Under UC's significance thresholds, the CPHP would have a significant effect on the environment if the CPHP would:

- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access
- Adversely affect travel conditions along sidewalks and roadways serving the project site due to construction activities

The first four of these criteria are based on those set forth in *State CEQA Guidelines* Appendix G, and are presented in the Draft EIR on page 4.15-27. With respect to analysis of potential impacts relative to each of these criteria, the Draft EIR discusses relevant programs, plans, ordinances and policies in Section 4.15.2 of the Draft EIR, on pages 4.15-24 through 4.15-27. The CPHP's compliance with each of these programs, plans, ordinances and policies is discussed in Impact

TRANS-1 on pages 4.15-37 through 4.15-41. While this section discusses local plans and policies, including the City of San Francisco's Transit First Policy and Better Streets Plan, the University of California is constitutionally exempt from local land use control and other local plans, policies, and ordinances whenever using property under its control in furtherance of its educational mission. City plans, ordinances and policies are not applicable to UCSF; however, certain policies are discussed in the Draft EIR as a means of presenting information and analysis that may be of value to the City in its planning processes.

The Draft EIR discusses the project's consistency with CEQA Guidelines section 15064.3, subdivision (b) in Impact TRANS-2 on pages 4.15-41 to 4.15-46. Some comments assert that the increase in project VMT per capita from Existing conditions to 2040 Cumulative conditions should represent a significant VMT impact. This suggested approach to evaluating a project's VMT impact is not consistent with the State's guidance regarding the analysis of VMT impacts as well as the approach used by the City and County of San Francisco. The Draft EIR assesses VMT impacts based on the recommendations presented in the Office of Planning and Research's *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which states that a project would "generate substantial additional VMT" if it would exceed regional household VMT per capita minus 15 percent or regional work-based VMT per employee minus 15 percent. The City also uses these thresholds to evaluate a project's VMT impacts. As discussed on page 4.15-41 in the Draft EIR, this threshold is based on statewide air quality and greenhouse gas emissions targets and is therefore reasonable for assessing project VMT. As presented in Tables 4.15-16 and 4.15-17 on pages 4.15-42 and 4.15-45, respectively, the Parnassus Heights campus site at full development under the proposed CPHP would generate VMT at rates substantially below the regional averages. Therefore, the Draft EIR appropriately finds the impact related to VMT to be less than significant.

8.3.3.17 Master Response 17: Mode Share Assumptions & Methodology

This response addresses issues raised in Comments **A-SFP-16, A-SFP-18, O-SM-11, I-Goodman-21, I-Kessler-25, I-Kessler-26, I-Welborn-4,** and **I-Welborn-8**.

Several comments express concern about the validity of the sources used to establish the share of travel by various modes, as presented in the Draft EIR. As indicated on page 4.15-30 of the Draft EIR, the existing mode choice data was derived from the UCSF employee commute survey conducted in 2018; a survey of patients and visitors at the Parnassus Heights campus site conducted in 2017 and 2018; and a survey of UCSF residential tenants conducted in 2013. UCSF regularly conducts transportation surveys of employees, visitors and patients at its San Francisco locations, as a way to monitor, and adjust if necessary, its robust TDM program. In addition, UCSF uses this information to conduct short-, mid- and long-term planning for its various campus sites, such as that done in the 2014 LRDP, and any subsequent amendments. As such, the use of recent employee, patients, and visitor transportation surveys, such as these, is considered a valid approach for EIR purposes. (Travel demand associated with proposed market-rate housing and hotel uses were based on San Francisco's *Transportation Impact Analysis Guidelines for Environmental Review*.) A summary of the inputs to the transportation analysis, based on survey

results is included in **Appendix TR** in this Comments and Responses document.[24] The transportation analysis estimates presented in Appendix TR reflect population estimates presented in Table 4.12-2, and correct a minor error in the Draft EIR whereby the population inputs to the transportation analysis diverged slightly from those presented in Table 4.12-2.[25] Therefore, the results presented in Appendix TR differ slightly from what is presented in the Draft EIR. However, these minor corrections would not change any transportation impact determinations or conclusions reached in the Draft EIR. As shown in Appendix TR, in the Initial Phase, the average VMT per employee estimates have been adjusted from 10.0 to 9.6 miles and average VMT per resident estimates have been adjusted from 5.4 to 6.8 miles; these minor adjustments reflect a slightly smaller employee population and updated resident travel assumptions (that reflect leaseholder and spouse travel patterns consistent with the Future Phase scenario analysis), as compared to the results presented in the Draft EIR. In the Future Phase scenario, the average VMT per employee and average VMT per resident are consistent with the Draft EIR – 10.9 and 8.5 miles, respectively – with minor population corrections incorporated. The VMT per capita estimates presented in both the Draft EIR and Appendix TR for both the Initial Phase and Future Phase are below the project significance threshold of 15 percent below the regional average VMT per capita, as presented in Table 4.15-16.

Similarly, these minor corrections would not change any impact determinations or conclusions reached in any other technical sections in the Draft EIR that relied in part on the transportation analysis, such as air quality and greenhouse gas emissions. Accordingly, these minor corrections are presented in Comments and Responses document for informational purposes, but do not merit being included in Section 8.5, Revisions to the Draft EIR.

Multiple comments express concern about the process used to develop future mode of travel assumptions. As described on pages 4-15-30 and 4.15-31, a methodology was developed to estimate future modes of travel using the existing mode split as a pivot point. The methodology accounted for an observed reduction over the years in drive alone travel by faculty and staff, as well as a trending increase in taxi, TNC and drop-off trips associated with both faculty/staff and patients/visitors. In addition, the methodology took into account the 400 space reduction in total parking supply at the Parnassus Heights campus site that is expected to result from the implementation of the CPHP, and the potential for employees and visitors to change their mode of travel given the reduction in parking supply. Through an iterative process, the expected increase in drive alone trips resulting from the CPHP was progressively allocated to taxi, TNC

[24] Detailed survey results by sub-populations and the most up-to-date (2018) campus population estimates were used to estimate existing mode split and inform the transportation analyses. Since the transportation analyses employed the most up-to-date population estimates to weight survey results by population, existing mode split estimates used in the DEIR may differ slightly from published survey results which were weighted using previous population estimates.

[25] Table 4.12-2 presents the Parnassus Heights campus site existing and projected average daily population for students, faculty and staff, patients, and visitors. The transportation analysis also includes resident populations based on the Draft EIR Chapter 3, Project Description (see Initial Aldea Housing Densification, Future Phase of Aldea Housing, and West Side Housing sections). The Initial Phase transportation analyses includes populations associated with the Irving Street Arrival, Research and Academic Building, and initial Aldea Housing Densification projects and other Initial Phase improvements. As described in Chapter 3, the New Hospital is also an Initial Phase project, but is analyzed at a program level in this EIR. The New Hospital will be analyzed in more detail – at a project level – in a future, separate EIR. Therefore, the population estimates for the Initial Phase transportation analysis exclude populations associated with the New Hospital, and differ from the Projected 2030 population presented in Table 4.12-2, which includes population associated with the New Hospital.

and drop off modes (i.e. vehicle modes that do not result in a demand for parking), until an equilibrium was reached where the expected number of vehicle trips that result in parking demand matched the projected availability of parking at the campus site. This was informed by parking characteristic data (e.g. average turnover, average length of stay, average ins and outs by time of day) from the two campus site parking garages collected by UCSF in October 2019. This is a valid approach given the constrained on- and off-street parking environment both currently and as the CPHP is implemented. Specifically, it accounts for the fact that people who desire to travel to/from the campus in a vehicle both now and in the future arrive at their decision of whether to drive or be driven in a privately-owned vehicle and try to park or be dropped off from a privately-owned or for-hire vehicle by taking into account that there is not enough parking to accommodate everyone to drive and park a vehicle who desire to. People take this deficit into account just as they do their preferences for comfort and convenience and their value of time when deciding how and when to travel. It also represents a conservative approach to estimating the total number of vehicle trips associated with the CPHP since each taxi, TNC or drop-off trip generates twice the number of vehicle trips per person compared to drive alone trips (for example, one trip when the vehicle arrives to the site to drop-off a passenger, and a second trip when the vehicle departs empty; the process is reversed for the return trip).

Two comments assert that maintaining the current mode split share for public transit is a false assumption, and that lower shares should be assumed for transit in the future, particularly if the transit system is at capacity. Another comment states that a decrease in transit share and other non-automobile modes in the future should not be assumed. Since no substantial changes are expected to the public transit services in the area, the share of travel by public transit was assumed to remain the same or be slightly reduced from current levels, a commonly accepted practice. While the transit share is projected to remain the same, CPHP implementation will result in an increase in the daily population at the campus site, which would result in new transit riders. These new riders would distribute among multiple Muni routes in the immediate vicinity of the campus site, including the N Judah, 6 Haight/Parnassus, 7 Haight/Noriega, and 43 Masonic, all of which operate within a 7- to 11-minute headways during the peak periods, or about six vehicles per hour on each line. Further, it is important to note that the increase in campus population due to CPHP implementation is expected to occur over a 30+ year timeline when considering how people may alter their travel behavior if the transit system is at capacity. As described in Master Response 20, while UCSF does not control the provision of public transit service provided by Muni and SFMTA, it does monitor transportation conditions at all campus sites where development is proposed and would continue to monitor vehicle traffic conditions (that could affect Muni), employee and patient mode split, and shuttle ridership within and surrounding the Parnassus Heights campus site. To the degree that demand for transit and/or shuttle services increases in the future, UCSF would also increase shuttle services to better match demand and serve UCSF populations such as employees, patients, and visitors.

A comment states that the expected increase in trips due to the CPHP would be substantially dependent on the provision of public transit. As described in the previous paragraph, it has been assumed that the mode share of public transit would be maintained or would slightly decrease by the time the CPHP is implemented; this is a reasonable assumption and an accepted practice. Due to a constrained availability of parking, and other incentive measures presented in UCSF's TDM

program (see Table 4.15-2 on page 4.15-13), CPHP-related new person trips would instead shift to shared travel modes that do not require parking, such as travel by taxi or TNC, or drop off.

A comment indicates that the detailed calculations supporting the future mode of travel assumptions have not been provided in the Draft EIR, which prevents the readers from verifying the accuracy of the results. It also questions whether the survey results are still valid because they were conducted prior to the onset of the COVID-19 pandemic. The existing modal split percentages are presented in Table 4.15-8 (page 4.15-30) of the Draft EIR, while the future phase assumptions are presented in Table 4.15-9 (page 4.15-32). Additional information has been added to Appendix TR in this Comments and Responses document to detail the source data and the process by which the future phase modal split percentages were developed. This information also includes how many individuals within each population category (faculty, staff, patients and visitors) would arrive and depart the campus site by various modes under the CPHP. For a discussion of the effect of COVID-19 on travel behavior, please see Master Response 3: COVID-19.

A comment indicates that the CPHP would result in an increase in cars parked on the street as (implied from the comment) off-street campus parking policies and availability would change with implementation of the CPHP. As stated on page 4.15-22 of the Draft EIR, the majority of the on-street spaces in the area are subject to Residential Parking Permit (Zone "J") restrictions (two-hour parking, except for residents, Mondays through Friday from 8 a.m. to 5 or 6 p.m.); about 90 percent of the spaces are occupied, on average, throughout the day. As such, no additional on-street parking demand has been assumed to occur as a result of the CPHP. As described above, the off-street parking supply has been used instead to establish the future mode of travel assumptions.

Another comment asserts that the assignment of trips to various modes is inaccurate due to the infeasibility of continuing the existing UCSF TDM program and the reliance of patients and visitors on private vehicles, while another asserts that some populations are unlikely to use non-automobile modes. UCSF plans to continue implementing, and improve as necessary, its robust TDM program, which is described on pages 4.15-12 and 4.15-13 in the Draft EIR. As explained above, the program has resulted in a historical trend of reduction in drive alone travel by faculty and staff. It is true that patients and visitors are more reliant on travel by private and for-hire vehicles than faculty and staff as shown in Table 4.15-8 (page 4.15-30) of the Draft EIR. As indicated before in the response, the heavily constrained parking environment expected at the completion of the CPHP would result in a forced reduction in travel by modes that require vehicle parking, such as drive alone and carpool, and a shift to travel by taxi, TNC, and other drop off modes, which do not require parking.

8.3.3.18 Master Response 18: Analysis of Parking Impacts

This response addresses parking related issues raised in Comments **I-Sandler-3, I-BaldaufM-7, I-Kessler-25, I-Jones-5, I-Zeff-9**, and **I-Robertson-4**. Numerous comments express concerns about the adequacy of the Draft EIR in fully assessing the effects of the CPHP on parking occupancy and availability in the surrounding neighborhoods. As noted in the comments, the CPHP plans for an increase in the employee, visitor, and student populations and a decrease in parking supply. The comments also assert that the increase in private vehicle travel to the campus site will

be higher than analyzed in the Draft EIR, especially because the COVID-19 pandemic will cause a shift away from transit and other modes towards driving in a personal vehicle. As such, comments express concerns that the amount of parking included in the CPHP will be inadequate.

Please see Master Response 16 above which lists the CEQA Appendix G checklist questions related to transportation. Impacts on parking are not included in the checklist; CEQA does not require that a project's effect on parking be analyzed. Further, CPHP development would be located in a transit priority area, on an infill site, and at an existing employment center where more jobs (and housing) would be provided. Therefore, as discussed on pages 4.0-3 to 4.0-4 in the Draft EIR as well as in Master Response 6: Public Resources Code Section 21099, the CPHP meets the eligibility requirements for PRC Section 21099. Per PRC Section 21099(d), parking impacts of the CPHP shall not be considered significant impacts on the environment. The adequacy of parking was not studied in the Draft EIR, and its absence does not result in an inadequate analysis.

Please note that although parking was not considered in determining if the project has the potential to result in significant environmental impacts, the Draft EIR presents information regarding the existing parking supply in relation to the parking demand, both on- and off-street facilities, in the Parking Conditions section, pages 4.15-22 to 4.15-24 for context and for informational purposes. Furthermore, the supply of parking is fully considered in developing the changes in mode choice that would occur with CPHP development; i.e., parking supply is factored into the analysis of how people choose to travel at the present time and how they would travel in the future as a result of a smaller increase in parking relative to the population increase (Mode Choice section, pages 4.15-29 to 4.15-33). Further discussion of the mode share and vehicle travel is provided in Master Response 17 and Master Response 19. For the effect of COVID-19 on travel behavior, please see Master Response 3: COVID-19.

8.3.3.19 Master Response 19: Project Effects (i.e., Population Increase) on Transportation System

This response addresses issues raised in Comments **O-SM-9, O-SM-21, I-Sandler-3, I-BaldaufM-7, I-Hanley-2, I-HofmannP-6, I-Cole-5, I-Goodman-19, I-Goodman-22, I-Kessler-23, I-Kessler-24, I-Kessler-27, I-Jones-5, I-Liederman-7, I-Liederman-9, I-Zeff-6, I-Lebus-2, I-Welborn-3**, and **I-Maerki-6**. These comments express concerns about the adequacy of the Draft EIR in fully analyzing the effects of the CPHP's general increase in land use and activity, with a primary focus on the amount of vehicular traffic generated by the increase in employee and patient/visitor population that could result from the implementation of the CPHP. These comments state that the Draft EIR fails to provide a complete analysis of how this increased traffic would impact air quality, pedestrian safety, vehicular operations in the study area, and public transportation operations.

As noted in the comments, the increases in employee, student and patient/visitor populations as a result of the CPHP are likely to lead to an overall increase in travel activity, inclusive of all modes of travel. This increase in travel activity is estimated and reported in the Draft EIR on page 4.15-29, in Table 4.15-7. In total, the Draft EIR estimates an increase of about 52,200 daily person trips on an average weekday, which corresponds to 28,800 additional daily vehicle trips as

shown on page 4.15-32 of the Draft EIR. These estimates are used throughout Section 4.15 of the Draft EIR, and as such the analysis adequately addresses the population growth and the related increase in travel activity associated with the CPHP. It is also important to note that this increase in population is expected to develop over a 30+ year timeline. Further discussion of how the increase in daily travel is distributed among the various modes, and how it considers the planned parking supply, is addressed in Master Response 17.

The transportation impact analyses presented in the Draft EIR use these estimates of total travel demand to evaluate the direct, indirect, and cumulative impacts of the CPHP on all modes of transportation in the study area around the campus site. As discussed in Master Response 16, the scope of the transportation analyses conforms to the requirements of the *State CEQA Guidelines* as set forth in *Appendix G*. The Draft EIR discloses the impacts of the CPHP, including its associated growth in employee and patient/visitor populations, on various transportation modes, including the impacts on vehicle miles traveled (VMT), pedestrians, bicycle traffic, and safety hazards.

Comments discussing the proposed level of growth associated with the CPHP also include concerns around the effects of vehicular traffic on surrounding roadways. The Draft EIR discusses this increase in vehicular traffic in Section 4.15. The primary effect of increased vehicular traffic is increased levels of delay and increased total travel times for drivers using surrounding facilities. However, per *State CEQA Guidelines* Section 15064.3, a project's effect on automobile delay shall not constitute a significant environmental impact. Therefore, transportation impacts based on vehicular delay are appropriately not analyzed in the Draft EIR, and the absence of such analysis does not render the EIR inadequate. Relating to the potential secondary effects of the increase in traffic volumes, the following findings apply:

- The effects of the increase in traffic volumes on transit delay would not constitute a significant impact under the criteria set forth in *State CEQA Guidelines* Appendix G and presented in the Draft EIR on page 4.15-27. Further discussion of transit delay is included in Master Response 20.
- The effects of increased traffic volumes on bicyclists and pedestrians in the area would not constitute a significant impact based on compliance with local plans and policies, such as the Better Streets Plan. As discussed in the Draft EIR on page 4.15-40, the CPHP incorporates multiple design elements to improve conditions for both bicyclists and pedestrians; these design elements would not be affected by increased vehicular traffic.
- Increased traffic volumes do not constitute a safety hazard based on the significance criteria set forth on page 4.15-27 of the Draft EIR, as traffic increases would not include geometric design elements that could cause new or exacerbate existing safety hazards.

The effects of the increase in vehicular traffic on air quality are analyzed in Section 4.2, and result in a finding of a significant air quality impact, as shown on page 4.2-33 of the Draft EIR. Mitigation is presented in the Draft EIR to reduce the effect on air quality to the maximum extent feasible. However, as described in the Draft EIR on pages 4.2-33 to 4.2-37, a residual air quality impact is expected to occur.

8.3.3.20 Master Response 20: Project Effects on Transit

This response addresses issues raised in Comments **A-SFP-16, A-SFP-18, A-SFP-19, A-SFP-20, A-SFP-25, A-SFP-26, O-LD2-50, O-SM-1, O-SM-11, O-SM-12, O-SM-13, O-SM-14, O-SM-16, O-SM-21, I-Cole-5, I-Goodman-19,** and **I-Kessler-28**. These comments express concerns that the Draft EIR does not analyze the effects of the CPHP on transit capacity and transit delay, both within the immediate study area and citywide.

Master Response 16 notes that CEQA provides for lead agencies, such as UC, to adopt their own thresholds of significance and to evaluate the significance of a project's impact based on substantial evidence. As discussed in Master Response 16, UC's significance criteria for the CPHP are based on Appendix G of the State CEQA Guidelines. The Appendix G checklist does not include a question related to a project's effect on transit capacity or delay. Further, as noted in Master Response 19, a project's effect on automobile delay shall not constitute a significant environmental impact per *State CEQA Guidelines* Section 15064.3. While the Draft EIR does include a brief assessment of potential effects of the CPHP on transit operations in Appendix TRANS, this assessment is included as a qualitative discussion for informational purposes only.

It is important to note that the increase in campus population due to CPHP implementation is expected to occur over a 30+ year timeline. UCSF monitors transportation conditions at all campus sites where development is proposed and would continue to monitor vehicle traffic conditions, employee and patient mode split, and shuttle ridership within and surrounding the Parnassus Heights campus site. To the degree that demand for transit and/or shuttle services increases in the future, UCSF could increase shuttle services to better match demand and serve UCSF populations such as employees, patients, and visitors

In contrast, UCSF does not control the provision of public transit service provided by Muni and SFMTA. UCSF understands that Muni relies on regularly-collected passenger data to inform their service planning and occasionally makes modifications to best match service to its customers. This type of flexibility and responsiveness is necessary in order to provide the most efficient transit service possible. As the CPHP would be implemented over a long-term 30+ year horizon, and other conditions would change across the City of San Francisco, SFMTA would likely continue to reevaluate key factors, including annual ridership, vehicle availability and resource availability, to determine the most efficient provision of transit service at that time. Additionally, Muni's operational costs are not a CEQA concern. For a discussion of the effect of COVID-19 on travel behavior, please see Master Response XX: COVID-19.

8.3.3.21 Master Response21: Project Effects on Ambulance Delays and Access

This response addresses issues raised in **Comments O-SM-19, I-HofmannR-2, I-HofmannP-7, I-Kessler-27, I-Zeff-6,** and **I-Welborn-5**. The comments express concern that emergency vehicle access to the New Hospital could be compromised because of existing and future traffic conditions on Parnassus Avenue. As described in Impact TRANS-4 in the Draft EIR (page 4.15-48), implementation of the CPHP would not result in inadequate emergency access. This analysis

takes into consideration all times of day, but particularly when more people are traveling such as "rush" or commute hours as noted in a comment. Further, the "emergency vehicles" analyzed in Impact TRANS-4 includes law enforcement, such as SFPD, firefighting and life safety, such as SFFD, and medical vehicles, such as ambulances.

As stated in the impact analysis, the proposed CPHP would not make any changes to city streets leading to or from the campus site or include elements that would conflict with adopted codes regarding street widths and turning movements. Furthermore, the proposed CPHP would not include any design features that would hinder or preclude emergency vehicle access. This includes any potential changes to Parnassus Avenue pursuant to the Parnassus Avenue Streetscape Plan, which was proposed and analyzed as part of the 2014 LRDP Final EIR. Though no changes have been identified as part of the CPHP at this point in time, should slight modifications to the Parnassus Avenue Streetscape Plan be made to conform to new development proposals they would be designed to conform to San Francisco's Better Streets Plan, which takes into account the operation of emergency vehicles as part of its standards.

With respect to additional requests for analysis made in the comments, specifically, travel time on Parnassus Avenue before and after street enhancements and the effect of responding emergency vehicles on street traffic, these effects concern vehicle delay which is not within the scope of transportation impacts under CEQA. Please see Master Response 16which explains the basis of the transportation significance criteria used in this Draft EIR.

8.4 Written and Spoken Comments on the Draft EIR, and Responses to Comments

8.4.1 Introduction

This section contains copies of the written comment letters (including emails) received from agencies, organizations and individuals, and copies of the public hearing transcript during the public review period on the Draft Environmental Impact Report (July 13, 2020 through September 11, 2020). Each letter received during this comment period is reproduced here in its entirety, with the exception of certain exhibits and/or attachments to ten comment letters (Comment Letters O-LD2, O-TL1, O-TL2, O-TL3, O-SM, O-NZA, O-EBPA, I-Cherny, I-Robertson, and I-Maerki) (in those instances, the subject attachments and appendices are included in their entirety in Appendix O-LD2, Appendix O-TL1, Appendix O-TL2, Appendix O-TL3, Appendix O-SM, Appendix O-NZA, Appendix O-EBPA, Appendix I-Cherny, Appendix I-Robertson, and Appendix I-Maerki, in this Comments and Responses document).

8.4.2 Comments and Responses

Each written comment letter is designated with commenter code in upper right-hand corner of the letter. As discussed in Section 8.2 in this Comments and Responses document, the commenter code begins with a prefix indicating whether the commenter represents a public agency (A), an organization (O), an individual (I), or a speaker at the public hearing (PH). This is followed by a hyphen and the acronym of the agency or organization, or the individual's last name.

Within each written comment letter, individual comments are labeled with a number in the margin. Immediately following each comment letter is a corresponding individual response to each numbered comment.

Within the public hearing transcript, individual speaker comments are labeled with the name of the speaker followed by the numbered comment of the speaker in the margin. Immediately following the public hearing transcript is a corresponding individual response to each numbered comment.

Where responses have resulted in changes to the Draft EIR, the reader is referred to changes that appear in Section 8.5 of this Comments and Responses document. Where the individual response refers to the reader to one or more master responses, the reader is referred to the applicable master response(s) in Section 8.3 of this Comments and Responses document.

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8.4.2.1 Draft EIR Comment Letters – Agencies

San Francisco Planning

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September 8, 2020

Diane Wong
UCSF Real Estate – Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: **UCSF Comprehensive Parnassus Heights Plan Draft EIR**
Planning Department File No. 2020-005090OTH

Dear Ms. Wong,

On August 19, 2020, the Historic Preservation Commission (HPC) held a public hearing on the Draft Environmental Impact Report (DEIR) for the proposed University of California, San Francisco, Comprehensive Parnassus Heights Plan. The DEIR was prepared by UCSF and the lead agency for the purposes of the California Environmental Quality Act (CEQA) is the Regents of the University of California. The San Francisco Planning Department ("the Planning Department") is a responsible agency. Under CEQA, the duties of a responsible agency include providing comments on the DEIR. 1

After discussion, the HPC arrived at the comments below:

- The HPC unanimously affirmed that the Depression-era frescoes created by painter Bernard Zakheim (the Zakheim Murals) in UC Hall collectively constitute the most significant historic resource located on the UCSF Parnassus Heights campus. However, the HPC is concerned that the evaluations on which the significance of UC Hall is based, completed in 2003 and 2005, are too old to reflect current thinking on the resource's full significance and do not include an evaluation of either the building's or the murals' eligibility for listing in the National Register of Historic Places. The HPC requests that the DEIR include an evaluation of National Register eligibility for both UC Hall and the Zakheim Murals. The evaluations must incorporate the latest methodologies and all applicable historic contexts, such as those that focus on representations of historically marginalized communities such as Native Americans and African Americans. 2

- Overall, the HPC found that the DEIR did not adequately consider alternatives that focused on the preservation of historic resources. Specifically, the DEIR did not analyze an alternative that retained just UC Hall, the building where the Zakheim murals are located, or just Toland Hall, the part of UC Hall where the Zakheim murals are located. Although the HPC would not feel comfortable endorsing an alternative that resulted in a reduction of hospital services, the HPC stated that the DEIR be revised to include an alternative that evaluates the impact on plan objectives of retaining just UC Hall, and an alternative the evaluates the impact of retaining just the Zakheim murals, such as retaining just the 3

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Toland Hall portion of UC Hall. 3 cont.

- The HPC requests that the DEIR be revised to include a mitigation measure that requires that salvage of the Zakheim Murals, if UC Hall is to be demolished in its entirety. This mitigation measure must include a provision requiring that all of the murals be kept together in campus in a public space. The Irving Street Arrival, a new campus feature proposed by the CPHP, could be an appropriate location for such a display. 4

- The HPC is pleased to see that the designs of the proposed new buildings, as represented in the renderings in the DEIR, contain some reference to the existing historical architecture on the campus. To ensure that this aspect of the design is implemented in the final campus build-out, the HPC requests that UCSF require that new buildings be subjected to a design review process that ensures historic compatibility, and that UCSF consider adopting this requirement as a mitigation measure. 5

The HPC appreciates the opportunity to participate in review of this environmental document.

Sincerely,

Aaron Hyland, President
Historic Preservation Commission

Responses to Comments from San Francisco Historic Preservation Commission

A-SFHPC-1 The Historic Preservation Commission indicates it held a hearing on the Draft EIR for the proposed CPHP; and that the San Francisco Planning Department is a responsible agency under CEQA, and that one of the responsibilities of a responsible agency under CEQA is to comment on the Draft EIR. These comments are acknowledged; no response is required.

A-SFHPC-2 The commenter notes that the Zakheim Murals were determined by the HPC to be "the most significant historic resources located on the UCSF Parnassus Heights campus" and requested that UC Hall and the Zakheim Murals be evaluated for the National Register of Historic Places. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals. The Historic Preservation Commission is requesting that both UC Hall and the Zakheim Murals be evaluated for National Register eligibility. UC Hall has been determined eligible for the California Register with the Zakheim Murals as a character-defining feature (Carey & Co., Inc., 2003). This determination means that UC Hall and the Zakheim Murals are already considered historical resources per 14 CCR § 15064.5 and further evaluation is not necessary. Nonetheless, while ESA has not prepared an independent evaluation of UC Hall or the murals for eligibility on the National Register, the technical memo prepared by ESA's architectural historians in conjunction with these responses to comments indicates that the information in the record would support their listing if an evaluation were prepared.

It should be noted that on November 25, 2020, the Mayor of San Francisco approved Ordinance 241-20 amending the Planning Code to designate the Zakheim Murals as a City Landmark consistent with the standards set forth in Article 10 of the Planning Code. This has been noted in a revision to the Draft EIR. Please refer to Section 8.5 of this Comments and Responses document for the proposed revision.

The Zakheim Murals' eligibility and/or listing in the National Register (and as a San Francisco Landmark) would not alter the conclusions presented in the Draft EIR, which considers UC Hall and the murals as an historical resource pursuant to CEQA Section 21084.1.

A-SFHPC-3 The commenter requests that the EIR consider an alternative that retains UC Hall and an alternative that retains Toland Hall, where the Zakheim Murals are located. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals. Please also see Master Response 5: EIR Alternatives, for a discussion of the reasonable range of alternatives included in the Draft EIR. As noted in this Master Response 11, two historical preservation firms retained by the University independently found the murals to be in fragile condition and susceptible to damage from ground movements. While

these evaluations were completed to assess potential relocation of the murals, the same conditions identified would make their preservation in place infeasible if the building around them (UC Hall) were to be demolished and replaced.

A-SFHPC-4 The commenter requests that the EIR contain a mitigation measure providing for salvage of the Zakheim Murals if UC Hall is demolished, indicating that the mitigation measure should provide for the murals to be kept together in a public space such as the Irving Street Arrival. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals. Please also see CPHP Mitigation Measure CUL-1c, which provides for public interpretation and salvage for all historic resources that would be affected by the CPHP.

A-SFHPC-5 The Historic Preservation Commission is requesting that the new buildings at Parnassus Heights campus site be "subjected to a design review process that ensures historic compatibility" and that this process be included in the EIR as mitigation. Projects on the UCSF Parnassus Heights campus are not subject to the City's design review process. Also, the Draft EIR did analyze impacts to eligible resources resulting from any near term projects covered by the CPHP. As noted in the Draft EIR Project Description, if the CPHP is adopted, it "would guide the development of the Parnassus Heights campus through the next 30 years" (page 3-9). As explained on Draft EIR page 4.0-3, Future Phase projects under the CPHP are not known with certainty, and therefore the CPHP EIR provides a programmatic analysis, anticipating that future projects will be reviewed to determine the appropriate level of additional environmental review, if any, at the time they are proposed (page 4.0-3). Given that UCSF will evaluate future projects to determine whether there are impacts necessitating additional review, a mitigation measure requiring this review is not necessary.

San Francisco Planning

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September 11, 2020

Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143

Re: **City and County of San Francisco Comment Letter on the Comprehensive Parnassus Heights Plan DEIR**

Dear Ms. Wong,

The City and County of San Francisco (City) appreciates the University of California, San Francisco (UCSF) and the Regents of the University of California (Regents) for their ongoing contributions to San Francisco and for engaging the City and San Francisco community in the planning process for the Comprehensive Parnassus Heights Plan (the plan). As a municipal and responsible agency, the City is interested in working with UCSF and the Regents to mitigate environmental impacts from implementation of the plan and address the City and its residents' concerns.

It is in that spirit that the City submits these comments on the plan's Draft Environmental Impact Report (DEIR). These comments reflect combined comments from the San Francisco Planning Department, San Francisco Historic Preservation Commission, San Francisco Municipal Transportation Agency (SFMTA), San Francisco Public Utilities Commission (SFPUC), the Office of Economic and Workforce Development and the Recreation and Parks Department.

The City recognizes the need to upgrade and modernize older medical facilities as well as the services and benefits that UCSF provides to the City and the residents of San Francisco and welcomes this opportunity to help plan for the Parnassus campus's future needs. The City is particularly supportive of UCSF's plan to add new on-campus housing and to redesign and reorient public spaces to improve pedestrian access and integrate the campus with the surrounding neighborhood and open spaces.

At the same time, the plan represents a substantial increase to the existing development at Parnassus Heights (greater than 50 percent increase in gross floor area), and the City is concerned about the plan's impacts on Muni, important cultural resources, San Francisco's job-housing balance, downstream stormwater and wastewater systems, and recreational facilities. The City has shared many of these concerns with UCSF previously. We are optimistic that UCSF can ameliorate these impacts through mitigation measures and other commitments, including a memorandum of understanding between the City and UCSF. We look forward to continued collaboration for decades to come.

1

Cultural Resources

The History of Medicine in California Frescos (Zakheim Murals)

UCSF can advance its educational mission while also protecting cultural resources that have significance to the broader community. Amongst the cultural resources on the UCSF campus, the History of Medicine in California frescos by renowned 20th Century Jewish artist Bernard Zakheim (Zakheim murals) are particularly noteworthy. The murals depict vivid images of doctors, lab scientists, and suffering and recovered patients throughout California's medical history, including a central depiction of Biddy Mason, a Black mid-wife from the late 1800's who was born as an enslaved person but who died as an influential and prominent citizen of Los Angeles. The murals were completed in 1938 as part of the Federal Art Project, a New Deal program designed to employ artists and fund visual art in the United States. 2

The San Francisco Board of Supervisors has taken steps to designate the Zakheim murals as a local historic landmark. In Resolution No. 355-20, effective July 31, 2020, the Board unanimously resolved to initiate Landmark Designation of the murals. On August 19, 2020 the city's Historic Preservation Commission voted unanimously to recommend that the Board approve the Landmark Designation of the murals. We anticipate that the Board will finalize the Landmark Designation by mid-December. The DEIR should be updated to note these developments. 3

The baseline approved condition for the campus is the retention of UC Hall for conversion to residential use under the 2014 Long Range Development Plan. The DEIR states that "UCSF has determined that it will not attempt to remove the Zakheim murals." However, such a determination cannot be made prior to a full evaluation under CEQA of the changes to baseline conditions. We are concerned that UCSF has prematurely decided the outcome for the murals and effectively limited the DEIR's responsibility under CEQA to identify ways to preserve these historic resources. 4

The DEIR identifies a significant and unavoidable impact to the murals due to the demolition of UC Hall. The DEIR states that no feasible mitigations are available to reduce this impact to less than significant. However, the DEIR provides no evidence to support its conclusion that the estimated $7.6 million to preserve, remove, and relocate the mural is prohibitive, particularly in light of the overall cost of the plan. CEQA requires the DEIR to include all potentially feasible mitigation measures. A determination of actual feasibility occurs at plan adoption. 5

The City proposes multiple feasible ways that the murals could be preserved: through modification of the reduced project alternative and through mitigation measures. These options meet CEQA requirements and are feasible given their minimal costs compared to the substantial cost of the overall plan.

First, the DEIR must include an alternative that retains and rehabilitates UC Hall. Although the DEIR studies a reduced density alternative that adaptively reuses UC Hall and thus potentially preserves the murals, the reduced density alternative assumes preservation of multiple other buildings, includes a much smaller new hospital, and renovates Moffit Hospital, a series of proposals which are, collectively, unlikely to meet UCSF's objectives. Therefore, the DEIR should include an alternative that consists of the project with the larger hospital and only preserves UC Hall, or at least preserves Toland Hall—the section of UC Hall in which the Zakheim Murals are located—including the murals themselves. This alternative should include protection of Toland Hall during construction and the restoration of the murals using appropriate conservation treatments that ensure their historic integrity and long-term stability. This alternative should also provide public access to Toland Hall and a comprehensive interpretive program. 6

UCSF may not need to create a new alternative and recirculate the DEIR for public comment to address the alternative proposed above, but instead may be able to combine existing alternatives to respond to this comment in the Final EIR. However, UCSF must present such an alternative to the public and the Regents so they may make an informed decision. 7

Second, if UCSF's preferred project includes demolition of UC and Toland Halls, the DEIR must include a mitigation measure requiring salvage of the murals. This mitigation measure would require UCSF to salvage all sections of the murals and require UCSF to reinstall them as a complete group in a publicly accessible location on the UCSF Parnassus Campus. The mitigation measure would also require a conservator experienced in mural conservation to work with the historical architect to develop a detailed plan for the extraction, moving, storage, reinstallation, and ongoing maintenance of the murals, as well as a comprehensive interpretive program. 8

In summary, UCSF must do everything it can to preserve the Zakheim murals. The alternatives and mitigation measures described above are some feasible options to preserve the murals while still allowing UCSF to meet its project objectives.

Following the publication of the DEIR, the City understands that the Regents opened a Request for Proposals for the removal, conservation, and transportation of the murals to an off-site storage facility to preserve the murals. However, the City strongly prefers that the murals not only be preserved but that they remain publicly displayed for all to enjoy. We look forward to working with UCSF to preserve this invaluable cultural resource. 9

Other Cultural Resource Comments

The following includes additional comments and recommendations on the DEIR cultural resources section.

Page #	Comments and Recommendations	
4.4-19	MM CUL-1a. The DEIR should have established character defining features of known historical resources prior to identifying impacts and determining mitigation. The comments and responses document should identify character-defining features of historic properties under the California Register criteria instead of deferring this to future mitigation, except as it relates to CUL-2.	10
4.4-22	Impact CUL-2. The City recommends modifying mitigation measure CUL-1a to state that prior to the demolition of one of the age-eligible buildings, a qualified professional would evaluate the building for eligibility and, if it is determined to be eligible, the remainder of mitigation measure CUL-1a and mitigation measures CUL-1b and -1c shall apply.	11
4.4-23	Impact CUL-3. The Planning Department's GIS prehistoric archeological modeling assesses the central portion of the main campus (approximately where the UCSF Medical Center and UCSF Health Sciences West are) as moderately sensitive for buried and surface prehistoric resources, not low sensitivity as stated in the DEIR. The Planning Department's assessment is based on topography and slope, distance from water sources and other factors. The area designated as moderately sensitive in our model is much less steep than the rest of the project area and is the location of most of the proposed development. As we have seen demonstrated on numerous projects in San Francisco, past disturbance from use and development does not necessarily equate with destruction of all potential resources. The presence of potential resources depends on the extent of grading, mass excavation and soil improvement associated with the existing and prior development and the nature of ground disturbance for the proposed project. Pockets of significant archaeological deposits may survive even in areas where substantial prior ground disturbance has taken place.	12

Page #	Comments and Recommendations	
	Thus, please amend the mitigation measure to require (1) increased awareness training for the more sensitive areas, and (2) inspection of the site by an archaeologist after each demolition or during site grading and prior to new construction, especially in areas of moderate sensitivity.	12 cont.
4.4-24	MM CUL-3. The phrase "as appropriate to the discovered prehistoric resource" is unclear in the context of this statement, since it covers all resources. Thus, we suggest deleting "prehistoric."	13
6-22	Reduced Project Alternative. The City typically requires an assessment of a "full preservation" alternative that preserves all historic resources, including those significant for association with events (not just architecturally significant buildings). We also typically require that all rehabilitations conform to the Secretary of Interior Standards for Rehabilitation. We recommend UCSF explain whether such an alternative was considered, but rejected, but at a minimum require all rehabilitations conform to the Secretary's Standards.	14

Transportation

The City appreciates the decrease in the total amount of off-street parking supply compared to existing conditions, which will discourage single-occupancy vehicle trips and encourage future users to use sustainable transportation solutions, such as public transit. However, for unexplained reasons, the DEIR transportation analysis does not follow the city's Transportation Impact Analysis (TIA) Guidelines.[1] Most glaringly, the DEIR does not analyze the project's transit and loading impacts at all. For the reasons described below, the plan could have significant effects on the environment related to transit and loading, and the DEIR analysis of consistencies with City transportation policies is inadequate. 15

Transit

San Francisco's Muni public transit system provides vital bus and rail service for the City, including to the Parnassus Heights campus. Today, about 32 percent of students, 17 percent of faculty, and 25 percent of residents travel to and from the campus via Muni (DEIR Table 4.15-8).

For Muni to remain an attractive transportation option for existing and future students, faculty, and residents of the campus, buses and trains serving the campus must operate effectively and people must have the opportunity to board the vehicle. This requires a combination of factors to occur, including funding to support Muni capacity expansions (e.g., increased fleet) and limiting private vehicle conflicts with Muni (i.e., delay). However, the DEIR does not assess the plan's impacts on Muni capacity or delay or consider what improvements could mitigate those impacts. As an initial matter, the San Francisco TIA Guidelines require that large projects like this identify the potential for public transit to accommodate the project's estimated transit trips and adjust estimates as needed if transit capacity is unavailable (TIA Guidelines, p. F-14). The DEIR does not include any such analysis. The DEIR assumes a 55 percent increase in daily external person trips.[2] The DEIR assumes a similar mode split as existing conditions under plan implementation, with 33 percent of 16

[1] In most instances in the DEIR, UCSF uses significance criteria consistent with City guidance despite the differences between the City's guidance and the UC system overall; for instance, wind and shadow impacts are evaluated in the DEIR consistent with City guidance.

[2] The DEIR provides no additional details (e.g., an appendix) to allow verification of the accuracy of numerous calculations or to estimate transit trips to inform the City's planning and to allow the City to participate meaningfully in the environmental review process.

students, 15 percent of faculty, and 25 percent of residents using Muni. This is a false assumption because the DEIR does not assess the ability for Muni to meet this increased demand from the plan's increase in population in a reliable manner. As a result, the DEIR lacks substantial evidence for this assumption, and other topics that rely on this mode split assumption are also flawed (e.g., air quality, noise).[3] 16 cont.

Large development projects in San Francisco are generally subject to the Transportation Sustainability Fee and other fees and agreements to improve transit infrastructure and Muni service, which includes transit capital maintenance, expansion, and reliability. The department preliminarily estimates that if UCSF were a private developer it would owe over $30 million in the Transportation Sustainability Fee alone based on the plan.[4] 17

UCSF will be unable to successfully execute its plan if Muni is over capacity or substantially delayed. This DEIR does not identify whether Muni can accommodate the project's estimated transit trips, nor does it address the effects of people switching modes to private vehicles, which would lead to additional air pollution and noise impacts. Furthermore, Muni cannot commit to providing an increase in service to the campus without additional funding. 18

Additionally, the DEIR fails to identify the transit delay impacts from the plan. As stated above, if Muni is delayed, Muni is less attractive for students, faculty, residents, visitors, and patients of the campus, and potentially makes the DEIR's future mode split assumptions flawed. 19

To determine transit delay impacts on individual Muni routes, the City uses a transit delay significance threshold of greater than or equal to four minutes. This threshold is based on the City Charter,[5] a local policy that the DEIR did not assess. The methodology assesses three sources of transit delay: general congestion at intersections ("congestion"), the additional time required for a transit vehicle to re-enter the flow of traffic ("reentry"), and increased time needed for alighting and departing a transit vehicle ("ridership"). The supplemental "informational" analysis (DEIR Appendix TRANS) shows that the project could exceed this threshold by congestion alone. Several intersections in the project area would degrade in performance from LOS B or C to LOS E or F. This includes Parnassus Avenue, which serves the 6-Parnassus and 43-Masonic Muni routes, and Irving Street, which serves the N-Judah. As for delays caused by increases in ridership, the TIA Guidelines use a factor of 2.5 seconds for boarding and alighting delay that would further result in delays to Muni service due to the several thousand net new transit trips from the project. 20

UCSF must revise the DEIR to include an analysis of the plan's impact on Muni service and transit delay. Without this analysis, the DEIR is inadequate and fails to inform the decision makers of the environmental consequences of the plan. 21

Loading

The City uses the following significance criterion when assessing whether a project would have impacts related to loading: Would the project result in a loading deficit and the secondary effects would create potentially 22

[3] The DEIR air quality and noise analysis rely on vehicle trip estimates consistent with the transportation section to estimate mobile source emissions and traffic noise. As stated here, the DEIR underestimates the plan's vehicle trips because it falsely assumes that the plan would result in similar mode splits as existing conditions.

[4] Calculated as different between existing conditions and plan conditions, based on numbers presented in DEIR tables 3-1 and 3-2.

[5] San Francisco Charter. *SEC. 8A.103(c)(1). Service Standards and Accountability.*

hazardous conditions to people walking, bicycling, or driving, or substantially delay transit? The DEIR did not assess such impacts. 22 cont.

As documented in the DEIR, the project is anticipated to increase p.m. peak hour passenger loading demand by 240 percent. The DEIR does not explain how or whether this loading demand would be adequately accommodated. In comparing the anticipated passenger loading demand (DEIR Table 4.15-13) with the anticipated passenger loading supply (DEIR Table 4.15-14), the data suggests that there would be a passenger loading deficit. Regarding commercial loading, there is no analysis of whether the plan would adequately accommodate its loading needs. 23

Under existing conditions, on-street loading in the project vicinity is impacted. SFMTA transit collision data include nine collisions in the past five years between light rail vehicles and vehicles parked and stopped in the middle of intersections near the Parnassus campus. SFMTA data also show that the N-Judah and nearby routes already experience delays at the Arguello/Carl/Irving intersection under existing conditions when trucks and private vehicles are double parked in the travel lane and obstruct light rail vehicles behind them. When travel lanes are obstructed often, buses and vehicles are forced to make maneuvers to circumvent double-parked vehicles, which in turn may lead to potentially hazardous conditions for substantial numbers of people walking, biking, and driving nearby. The DEIR acknowledges the existing loading deficit in the project vicinity but does not discuss how the project will address the project's contributions this problem. As evidenced here, without addressing the loading issues, the plan could exacerbate the number of collisions and cause additional delay to transit. 24

Lastly, Muni operates as a system; the impacts on one point of a route affect other parts of the route. The DEIR does not disclose the effects of Mitigation Measure AIR-2b and whether the implementation of additional shuttles and TNC subsidies will impact transit in San Francisco in areas farther out from the Parnassus campus. These shuttles and transportation network company (TNC) trips would be additional sources of delay to Muni along their routes and at their loading zones, a fact which is not disclosed or analyzed in the DEIR. 25

Next Steps

UCSF must revise its analysis and identify and analyze mitigation measures to account for the project's transit and loading impacts. The City has significant concerns about the plan's impact on Muni, how the project's passenger and commercial loading demand will be accommodated, and how resulting secondary impacts that could occur from unmet loading demand will be addressed. Potential mitigation measures could include in-kind payment of a transportation impact fee to help offset the project's impact on Muni, and direct contributions to public right-of-way improvements to the surrounding area. Such physical improvements could include: 26

- Roadway infrastructure improvements to signals, bikeway improvements, or pedestrian infrastructure in the Parnassus campus vicinity;
- Improvements and/or contributions to impacted transit lines, including 6-Parnassus, 43-Masonic, and N-Judah;
- A loading plan that demonstrates how the project would fully accommodate expected growth in TNC use and growth in additional demand for other types of loading; and
- Improved TDM measures that could include public use of UCSF shuttles or an institutional transit pass program.

We look forward to working with UCSF to implement the project while supporting the surrounding neighborhood. 26 cont.

Population Growth, Jobs, and Housing

According to the DEIR, the number of students, faculty, and staff at the campus would grow to 16,262, or an increase of 5,184 persons above existing conditions. The DEIR provides no evidence to support its assertion that this increase in jobs was "potentially accounted for" in *Plan Bay Area 2040*. This growth was not accounted for in Planning Department projections for *Plan Bay Area 2040*. 27

The City adopted a Jobs-Housing Nexus Study and linkage fee in 2019 that assumes that 100 percent of all new workers in new developments in San Francisco would generate demand for housing within San Francisco. Thus, the DEIR should assume students, faculty, and staff would seek housing within San Francisco, not the five-county DEIR study area. 28

The City supports the additional housing units that UCSF is constructing on-campus. However, there is a large deficit between the unplanned growth in the number of students, faculty, and staff that UCSF would attract to San Francisco and the amount of housing available on-campus under the plan. The plan would result in a net increase of only 762 housing units and would meet less than 20 percent of the net new housing demand UCSF is creating. This is on top of an existing unmet demand from UCSF. 29

This amount of unplanned growth would require unplanned transportation and utility infrastructure upgrades, which are not discussed in the DEIR. Of particular concern to the City are the project's impacts on the City's transportation system, combined sewer system, and recreational facilities, as documented elsewhere in this letter. UCSF must work with the City to help alleviate the effects of population growth within San Francisco. 30

Stormwater and Wastewater Utilities

The DEIR incorrectly assumes the project is in an area of separated sanitary and storm sewers, and that compliance with State requirements for Municipal Storm Sewer Systems (MS4) is required (see DEIR page 4.9-6). As noted in the DEIR, UCSF is in fact served by the City's combined sewer system. The Parnassus Heights Plan is wholly within the combined sewer area, not MS4. Thus, the State's MS4 Phase II permit requirements do not apply this this project, and any DEIR text relying that assumption should be corrected. Project demolition and construction activities should be coordinated with the SFPUC to ensure that city infrastructure can adequately accommodate the project's stormwater and wastewater needs. 31

To support the DEIR's conclusion of no hydrological impacts or cumulative utility impacts from the proposed project, the DEIR should be revised to include project compliance with the San Francisco Stormwater Management Ordinance (or LEED[6] 6.1). The Stormwater Management Ordinance achieves similar stormwater detention/retention improvements to those contemplated by the DEIR through MS4 compliance; those stormwater controls, in turn, have the potential to mitigate the potential effects of the increased sanitary flows. 32

Conformance with San Francisco Stormwater Management Requirements would typically help offset potential impacts from increased sanitary flows and changes in net impervious surfaces and modified connection points. Furthermore, these stormwater management requirements, as amended in 2016 through Board of 33

[6] LEED (Leadership in Energy and Environmental Design) is a green building certification program developed by the non-profit U.S. Green Building Council that is used worldwide.

Supervisor legislation, apply to State projects.[7] Alternatively, since UCSF already states in the DEIR that the project is pursuing some elements of LEED for the development plan (e.g., energy efficiency), a documented project commitment to the stormwater control element of LEED (SSc6.1) would typically provide a similar offset to potential impacts from increased sanitary flows. UCSF must demonstrate conformance with San Francisco Stormwater Management Requirements or conformance to the stormwater control element of LEED. 33 cont.

In addition, for typical large projects in San Francisco, modeling of increased sewer demand is required for building permit approvals. When project sponsors propose new or replacement sewer connections, the capacity of the adjoining sewer system must be analyzed to ensure that the system can accommodate increased flows and/or modified connection points. For large projects, the project sponsor has the option of conducting the analysis on its own and providing the analysis to the SFPUC for review, or SFPUC can complete the analysis on the sponsor's behalf, subject to reimbursement. If UCSF elects to conduct the modeling and analysis on its own, the modeling must be submitted to the SFPUC Wastewater Enterprise for review and approval. In the event that the analysis finds that increased flows exceed conveyance capacity of the adjoining downstream sewer, additional mitigation would be required from the project. UCSF must work with SFPUC to perform the requisite modeling and ensure that the combined sewer system has adequate downstream capacity. 34

Next Steps

As discussed above, UCSF must model the plan's increased sewer demand and contact the SFPUC to verify whether the combined sewer system has capacity to accommodate the proposed plan, which is substantial unplanned growth from the perspective of the SFPUC. If downstream improvements are required to help accommodate the proposed project, UCSF must contribute funds to help construct necessary utility infrastructure. All development projects in San Francisco are required to pay a wastewater capacity charge and water capacity charge to offset their impacts to the city's utility infrastructure. Such upgrades are vital to the plan's successful implementation. 35

In addition to serving the UCSF Parnassus campus, the combined sewer system is a critical utility that serves the greater San Francisco community. It is imperative that UCSF conform with city stormwater regulations and that it work with the City to ensure that the combined sewer system can perform effectively. 36

Recreation

UCSF's acknowledges its policy to be "generally consistent" with applicable local plans, policies and regulations to the extent feasible. Under Section 295 of the San Francisco Planning Code, projects that are over 40 feet tall must disclose the impacts from shadows cast on Recreation and Park Department property. Although the DEIR provides shadow analyses for many surrounding parks and open spaces, the DEIR fails to provide quantitative shadow on all surrounding city open spaces and properties, including: the Garden For The Environment, White Crane Springs, and the Interior Greenbelt, which is subject to Section 295 Planning Code requirements. Consequently, further analysis is needed to determine whether the plan would adversely impact the use and enjoyment of these open spaces and properties. 37

[7] Ordinance no. 64-16 (File no. 160155) states: Large Development Projects not subject to City building or planning approvals, including, but not limited to, State and Federal projects, must submit a Stormwater Control Plan and receive approval from the General Manager before undertaking any construction activity. For more information: https://sfwater.org/modules/showdocument.aspx?documentid=9077

The City is also concerned that unplanned population growth from the proposed plan would cause increased pressures on city parks and recreational facilities, especially those in the area surrounding the Parnassus campus. The plan would increase the daytime population of the campus by approximately 5,490 persons by 2030 (a 33 percent increase) and 7,850 persons by 2050 (a 45 percent increase). Daytime visitors, students, and employees would likely use nearby recreational facilities. While on-campus recreational facilities would offset some of the demand for recreation and open space, people will likely use off-campus, city-owned facilities as well. The DEIR must analyze whether the unplanned growth would adversely impact city recreational facilities. 38

Next Steps

Large projects in the city typically pay impact fees to help the city maintain and expand recreational facilities and mitigate impacts on city facilities. Consistent with other major projects in the San Francisco, UCSF should contribute funds to help offset physical impacts on recreational facilities from UCSF users due to increased demand. Such fees would help alleviate the project's impact on recreational facilities in the city. 39

Conclusion

The City recognizes the need to upgrade and modernize older medical and research facilities on the UCSF Parnassus Campus. We support this endeavor, but we also have concerns about the plan's impact on San Francisco, impacts which would be significant if left unaddressed. We are optimistic that our concerns about the plan's impacts to cultural resources, public transit, population growth, stormwater utilities and infrastructure, and recreation can be mitigated without hindering UCSF efforts to achieve its overall goals, and we have outlined several approaches that would alleviate these concerns. We look forward to continued engagement with UCSF and working on a mutual memorandum of understanding to plan a healthier, sustainable future for our common community. 40

Please contact Planning Department staff Ryan Shum (ryan.shum@sfgov.org) to discuss any comments in this letter, or Joshua Switzky (joshua.switzky@sfgov.org) regarding the memorandum of understanding.

Sincerely,

Lisa Gibson
Environmental Review Officer

CC: Rich Hillis, Planning
Wade Wietgrefe, Planning
Allison Vanderslice, Planning
Jørgen G. Cleemann, Planning
Sally Morgan, Planning
Ryan Shum, Planning
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Adam Smith, SFMTA
Scott MacPherson, SFPUC
Irina Torrey, SFPUC
Jon Lau, OEWD
Brian Stokle, Rec & Park
Chris Townes, Rec & Park
Audrey Pearson, City Attorney
Victoria Wong, City Attorney

Responses to Comments from San Francisco Planning Department

A-SFP-1 The City indicates that as a municipal and responsible agency under CEQA, it is interested in working with UCSF and the Regents to mitigate environmental impacts that could result from implementation of the CPHP and address the City and residents' concerns. The City also indicates it recognizes the need to upgrade and modernize older medical facilities, and the benefits UCSF provides to the City and residents of San Francisco, and supports UCSF's plans to add new on-campus housing and redesign public spaces to improve pedestrian access and integrate the campus with the surrounding neighborhood and open spaces. These comments are acknowledged; no response is required.

The City indicates it is concerned about the CPHP's impacts on Muni, important cultural resources, the City's jobs-housing balance, stormwater and wastewater systems, and recreational facilities. For responses related to CPHP effects on Muni, please see Responses A-SFP-16 through A-SFP-21, and Response A-SFP-26. For responses associated with CPHP effects on cultural resources, please see Responses A-SFP-2 through A-SFP-14. For responses related to CPHP effects on the job-housing balance, please see Responses A-SFP-27 through A-SFP-30. For responses associated with CPHP effects on stormwater and wastewater systems, please see Responses A-SFP-31 through A-SFP-36. For responses concerning the CPHP effects on recreational facilities, please see Reponses A-SFP-37 to A-SFP-39.

The City indicates UCSF can ameliorate the above-referenced impacts through mitigation measures and other commitments, including a memorandum of understanding between the City and UCSF, and that it looks forward to continued collaboration. These comments are acknowledged; no response is required.

The commenter also indicates the City's appreciation for UCSF's ongoing contribution to San Francisco, expresses the City's concern about possible impacts, and requests a memorandum of understanding between the City and UCSF. Please see the responses below regarding individual comments on the Draft EIR.

A-SFP-2 The commenter describes the Zakheim Murals. This is not a comment on the adequacy of the EIR. The comment has been noted and will be forwarded to decision-makers. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals.

A-SFP-3 The commenter notes that the City is in the process of listing the Zakheim Murals as a Landmark. The comment is noted. In fact, on November 25, 2020, the Mayor of San Francisco approved Ordinance 241-20 amending the Planning Code to designate the Zakheim Murals as a City Landmark consistent with the standards set forth in Article 10 of the Planning Code. This has been noted in a

revision to the Draft EIR. Please refer to Section 8.5 of this Comments and Responses document for the proposed revision.

However, this does not change the status of the Zakheim Murals with regards to CEQA; they were already considered historical resources due to their identification as character-defining features of UC Hall, which is California Register-eligible. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals.

A-SFP-4 The comment describes "baseline approved conditions" with preservation of the Zakheim Murals in the 2014 LRDP and suggests that UCSF has "prematurely decided the outcome for the murals." UC Hall is seismically deficient and was proposed for demolition in two prior LRDPs preceding the 2014 LRDP, which proposed that the building be retained and retrofitted for residential use. The CPHP again proposes removal of UC Hall and its replacement with a new, state of the art research and academic building. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals. UCSF is currently assessing how best to relocate the murals, and the Draft EIR's conclusion is conservative in the sense that it assumes that despite the best efforts of UCSF and qualified professionals retained to move the murals, they may be damaged.

A-SFP-5 The comment requests evidence to support the Draft EIR's conclusion that there is no feasible mitigation to reduce the impact associated with demolition of UC Hall to less than significant. The proposed CPHP includes demolition of UC Hall, and would therefore have an adverse change on the historical resource. Despite inclusion of CPHP Mitigation Measures CUL-1a, 1b, 1c, and 1d, this impact would remain significant and unavoidable. UCSF has not identified any additional mitigation measures that could reduce the severity of this impact to less than significant, up to and including moving the murals, which based on the two studies referenced on Draft EIR pages 4.4-14 through -15, may be too fragile to survive the move without serious damage. Please see Master Response 11: Toland Hall Murals for additional responses to comments regarding the Zakheim Murals.

A-SFP-6 The commenter proposes multiple ways that the murals could be preserved via revisions to the reduced project alternative and through mitigation measures. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals and Master Response 5: EIR Alternatives for responses to comments regarding the reasonable range of alternatives presented in the Draft EIR. Among these alternatives, both the No Project – Development Under the 2014 LRDP and the Reduced Project Alternative would preserve UC Hall and could retain the murals in situ.

A-SFP-7 The commenter suggests that Draft EIR alternatives could be combined to preserve the murals. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals and Master Response 5: EIR Alternatives for responses to comments regarding the reasonable range of alternatives presented in the Draft EIR. Among these alternatives, both the No Project – Development Under the 2014 LRDP and the Reduced Project Alternative would preserve UC Hall and could retain the murals in situ.

A-SFP-8 The commenter requests the addition of a mitigation measure requiring salvage of the murals and reinstallation in a publicly accessible location on campus. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals. Please also see CPHP Mitigation Measure CUL-1c, which provides for public Interpretation and Salvage for all historic resources that would be affected by the CPHP.

A-SFP-9 The commenter reiterates the commenter's request for alternatives and mitigation measures to preserve the murals, stating the City's strong preference that the murals be preserved and "remain publically displayed for all to enjoy." Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals and see CPHP Mitigation Measure CUL-1c, which would require preparation of public interpretation and salvage plan prior to demolition or substantial alteration.

Please also see new CPHP Mitigation Measure CUL-1e added to the Draft EIR that states that should the Zakheim murals be successfully removed from Toland Hall and stored, a Task Force will be convened to advise on options for the display of the murals in a publicly accessible setting, either on a UCSF campus or at a museum or other institution. Please refer to Section 8.5 of this Comments and Responses document for the full text of this new mitigation measure.

A-SFP-10 The commenter suggests that the EIR should identify character-defining features of known historic resources prior to identifying impacts and mitigation. Demolition of historical resources in their entirety is a significant and unavoidable impact, and the EIR does not need to include additional information regarding character-defining features of the historic resources in order to reach this conclusion. As listed on page 4.4-12 and 13, buildings proposed for demolition include UC Hall, Millberry Union, School of Dentistry, LPPI, and Aldea San Miguel Housing Buildings 8, 10, and 12. Per CPHP Mitigation Measure CUL1a (on page 4.4-19 of the Draft EIR), the character-defining features for each resource will be identified and this information will be used to fulfill CPHP Mitigation Measure CUL-1b (Document Historical Resources Prior to Demolition or Alteration) and CPHP Mitigation Measure CUL-1c (Public Interpretation and Salvage Plan).

As noted in the Draft EIR Project Description, if the CPHP is adopted, it "would guide the development of the Parnassus Heights campus through the next

30 years" (page 3-9). As explained on Draft EIR page 4.0-3, Future Phase projects under the CPHP are not known with certainty, and therefore the CPHP EIR provides a programmatic analysis, anticipating that future projects will be reviewed to determine the appropriate level of additional environmental review, if any, at the time they are proposed (page 4.0-3).

The proposed project includes alterations to Saunders Court, the Mount Sutro Open Space Reserve (Reserve), HSIR East, HSIR West, and the Medical Sciences Building; however, the details of those alterations are not known at this time. A detailed description of Saunders Court is located on page 50 of Carey & Co., Inc.'s 2011 *UCSF Historic Resources Survey report* (2011 Report), in the 2010 DPR form attached to the 2011 Report, and in the DPR update form that has been prepared in response to the commenter's request and included in a technical memo provided in conjunction with these responses to comments. Saunders Court is also discussed in the DPR forms for HSIR West, Medical Services Building, and School of Nursing in the Carey & Co., Inc.'s 2011 Report as that space related to those buildings. Carey & Co., Inc.'s 2011 Report includes detailed descriptions of the HSIR East, HSIR West, and Medical Sciences Building. Per the impact analysis beginning on page 4.4-18 of the DEIR, "In addition, in the absence of detailed plans at this stage, other historical resources, including cultural landscapes, could be significantly physically altered under the CPHP: Saunders Court, Reserve, HSIR East, HSIR West, and Medical Sciences building. The demolition or significant alteration of these individually eligible resources would be considered a significant impact because, once demolished or significantly altered, they would no longer be eligible as historical resources under CEQA."

In response to the commenter's request, an Historic Resources Technical Memo has been prepared containing a summary of each of the existing technical reports that have evaluated resources on Parnassus Heights Campus Site, ESA's methodology for review of these evaluations, how each of the reports was used to inform the EIR analysis, as well as DPR update forms for four of the buildings that had not been evaluated previously (Millberry Union, Saunders Court, HSIR West, and HSIR East) and a list of character-defining features for each of the historic resources that could be impacted by the CPHP.

A-SFP-11 The commenter recommends the modification of CPHP Mitigation Measure CUL-1a to "state that prior to the demolition of one of the age-eligible buildings, a qualified professional would evaluate the building for eligibility and, if it is determined to be eligible, the remainder of CPHP Mitigation Measure CUL-1a and CPHP Mitigation Measures CUL-1b and -1c shall apply." Impact CUL-1 and CPHP Mitigation Measures CUL-1a through 1c are in place to mitigate potentially significant impacts to known historic resources that have already been determined to be historic resources, thus an additional evaluation for eligibility is not needed and the CPHP Mitigation Measures CUL-1b and 1c would apply. Impact CUL-2 addresses potential impacts to potential historic resources that

have not been evaluated (some are not currently age-eligible), but may become eligible for listing in the National and/or California registers and may be affected during the Future Phase of the CPHP. In response to the commenters' requests, the Historic Resources Technical Memo updates the evaluations of the buildings that have become of historic-age. As noted in Response A-SFHPC-5 above, future projects will be evaluated to determine whether additional environmental review is required. If actions affecting potentially historic buildings are later proposed that are not addressed by the proposed mitigation, additional CEQA review would be required, including any necessary evaluations.

A-SFP-12 In this comment, the Planning Department indicates that the Department's GIS prehistoric archaeological modeling assesses the central portion of the main campus as moderately sensitive for buried and surface prehistoric resources, based on topography and slope, distance from water sources and other factors. The Planning Department requests the mitigation measure be revised to require (1) increased awareness training for the more sensitive areas, and (2) inspection of the site by an archaeologist after each demolition or during site grading and prior to new construction, especially in areas of moderate sensitivity.

The geologic context of the main campus includes Quaternary beach and dune sand deposits and hillslope deposits. These types of geologic formations do have a moderate potential to contain archaeological resources buried by natural processes and there have been buried archaeological discoveries in these types of geologic formations in the eastern part of the San Francisco Peninsula. However, the areas proposed for development on the campus site have been substantially disturbed from development of the existing facilities; the campus site is over one mile from any historic perennial water sources or other potential resource procurement areas important to prehistoric populations; and there have been no archaeological discoveries within several miles of the campus site. Therefore, the potential for buried or surface prehistoric archaeological resources to be in the project vicinity is substantially lessened and monitoring was not recommended during demolition or site grading.

The Draft EIR includes CPHP Mitigation Measure CUL-3: Inadvertent Discovery of Archaeological Resources and Tribal Cultural Resources. This mitigation measure includes an awareness training for all on-site personnel that outlines general archaeological and tribal cultural sensitivity, and what to do in the event of a discovery. The Draft EIR also includes provisions to halt work within 100 feet of a find of potential cultural significance so the contractor can notify the UCSF Environmental Coordinator (EC).

A-SFP-13 The City notes that the phrase "as appropriate to the discovered prehistoric resource" is unclear in CPHP Mitigation Measure CUL-3 because the measure is related all resource types, including prehistoric and historic-era finds as well as tribal cultural resources.

CPHP Mitigation Measure CUL-3 is revised to delete the word "prehistoric" when referring to discovered resources; please refer to Section 8.5 of this Comments and Responses document for the proposed revision.

A-SFP-14 The commenter notes that EIRs prepared by the City and County of San Francisco typically include an alternative that would preserve all historic resources and require all rehabilitations to conform to the Secretary of Interior's Standards for Rehabilitation. The commenter then recommends inclusion of an explanation whether such an alternative was considered and rejected, and also imposition of a requirement for conformance with the Standards.

The CPHP Draft EIR includes a No Project Alternative consisting of Alternative 1A, No Project – No Development and Alternative 1B, No Project – Development Under the 2014 LRDP. As discussed in Chapter 6 of the EIR, the first of these alternatives would include no development and would thus not affect cultural resources. The second No Project alternative, would include development as called for in the 2014 LRDP and would not demolish the School of Dentistry, Aldea and San Miguel Housing Buildings 8, 10, and 12, UC Hall, or Millberry Union. Overall, this alternative would constitute a "preservation alternative" in every sense except that it would include demolition of the LPPI, which has been determined to be an historical resource since adoption of the 2014 LRDP. Similarly, the Reduced Project Alternative would constitute a "preservation alternative" in every sense except that it would include demolition of the LPPI and Millberry Union, both of which are significant for reasons other than their architecture. Another alternative that would retain and reuse all historic resources, including both the LPPI and Millberry Union would be infeasible if Parnassus Heights were to accommodate development anticipated in the proposed CPHP, with its new hospital, and UCSF's desire to improve the North Side Gateway district, making way for new building on opportunity sites in the core campus (Draft EIR Figure 3-6) necessary to provide adequate and appropriately designed space for research, educational, and clinical programs.

A-SFP-15 The comment expresses support for the CPHP's proposed parking supply. This portion of the comment is noted.

The comment then asserts that the Draft EIR does not adequately assess the CPHP's transportation impacts due to the fact that it utilizes significance criteria that differ from those used by the City and County of San Francisco, and that the Draft EIR does not adequately assess compliance with applicable plans, policies, and programs. Refer to Master Response 16 for a response that discusses the study topics and significance criteria used in the Draft EIR. For reasons set forth in Master Response 16, UCSF need not comply with the City's environmental review guidance for assessment of the CPHP. The Draft EIR is in compliance with the standards set by the University of California Board of Regents as the

lead agency, and as such presents an adequate analysis of the CPHP's impacts, and no additional analysis is needed.

A-SFP-16 The comment asserts that the Draft EIR does not adequately analyze or disclose the CPHP's effects on public transit service, specifically service provided by San Francisco Muni. Refer to Master Response 16 for a discussion of why UCSF is not required to analyze the CPHP's effects on transit capacity or delay for purposes of assessing environmental impacts. In addition, refer to Master Response 20 for additional discussion of why Muni operational issues are not a CEQA concern, and therefore analysis of these effects is not required in the EIR.

The comment further asserts that because the Draft EIR does not include a capacity analysis for Muni services, that it lacks substantial evidence backing its mode share assumptions, specifically the share of new trips that would be made by transit. Please refer to Master Response 20 for a response to this comment, and to Master Response 17 for discussion of methods used in mode share assignments.

A-SFP-17 The comment states that projects under the jurisdiction of the City and County of San Francisco are required to pay a Transportation Sustainability Fee, and estimates the amount of that fee for a project similar to the Comprehensive Parnassus Heights Plan. The CPHP is under the jurisdiction of the University of California and per Planning Code Sec. 411A.3(b)(4) is not required to pay a Transportation Sustainability Fee; as such, the comment is noted, and no changes are necessary to the Draft EIR.

A-SFP-18 The comment reiterates statements presented in Comment A-SFP-16, and asserts that the Draft EIR's future travel demand analysis is inadequate because it does not account for Muni's capacity to accommodate the estimated transit demand. See Response A-SFP-16 and Master Response 20 for responses to the issues raised in this comment.

A-SFP-19 The comment reiterates and expands on statements presented in Comment A-SFP-16, and states that the Draft EIR's future travel demand analysis is inadequate because it does not account for how future changes in Muni travel times would affect the CPHP travel demand. See Response A-SFP-16 and Master Response 20.

A-SFP-20 The comment provides a summary of how the City of San Francisco analyzes transit delay for projects for which it is the lead agency, and asserts that the Draft EIR should use similar methods and thresholds to comply with policies set forth in the San Francisco City Charter, specifically SFMTA's Service Standards for Muni Service. However, the City's transit delay significance criteria do not apply to the CPHP for reasons explained in Master Response TR-16. Further, as discussed in Master Response 20, UCSF does not control the provision of public transit service provided by Muni and whether Muni's Service Standards are met; UCSF does not consider this operational concern to be a CEQA matter.

A-SFP-21 The comment asserts that the Draft EIR presents an inadequate assessment of the CPHP's environmental consequences based on lack of analysis of transit capacity and delay. Neither of these topic areas are included in Appendix G of the CEQA Guidelines, and UCSF does not consider Muni operational concerns to be a CEQA concern, as discussed in Master Response 16 and Master Response 20. The DEIR adequately addresses the required topic areas outlined in Appendix G and as such, the Draft EIR's assessment of the CPHP's transportation-based impacts on the environment is adequate and complete.

A-SFP-22 The comment describes the significance criteria used by the City of San Francisco to assess loading impacts in projects where it is the lead agency, and further states that the Draft EIR did not assess such impacts. However, the City is not the lead agency for the CPHP and does not have the authority to set significance criteria. See Master Response 16 for a response that discusses the study topics and significance criteria used in the Draft EIR.

A-SFP-23 The comment summarizes findings from pages 4.15-34 through 4.15-35 of the Draft EIR, where the Draft EIR acknowledges that loading demand may exceed supply during the peak minute of the day and states that there is no analysis of commercial loading demand in the Draft EIR. See Master Response 16 that discusses the study topics and significance criteria used in the Draft EIR; loading demand does not fall within the scope of the issues identified in the Appendix G checklist. Further, it is important to note that the increase in campus population under the CPHP is expected to occur over a 30+ year timeline and the loading demand discussion refers to a projection of a peak minute within a peak hour (the referenced 240 percent increase in the comment). UCSF monitors transportation conditions at all campus sites where development is proposed and would continue to monitor vehicle traffic conditions, inclusive of passenger and commercial loading and seek to remedy potential effects of any recurring shortfall. However, UCSF does not believe this operational concern to be a CEQA matter.

A-SFP-24 The comment describes two existing operational concerns in the vicinity of the Parnassus Heights campus. The first relates to a history of collisions between N-Judah light rail vehicle and unidentified vehicles along the light rail tracks. The second refers to delays to N-Judah light rail vehicles due to parked trucks and vehicles in the vicinity of the intersection of Arguello Boulevard, Carl Street, and Irving Street. UCSF appreciates this additional information. UCSF does not have a record of its vehicles being involved in collisions with Muni light rail vehicles in the vicinity of the campus.

However, UCSF does not believe this existing operational concern to be a CEQA matter. Master Response 16 notes that CEQA provides for lead agencies, such as UC, to adopt their own thresholds of significance and to evaluate the significance of a project's impact based on substantial evidence. UC's significance thresholds

for the CPHP are presented and discussed in Master Response 16. The DEIR adequately addresses the required topic areas outlined in Appendix G and as such, the Draft EIR's assessment of the CPHP's transportation-based impacts on the environment is adequate and complete.

A-SFP-25 The comment asserts that the Draft EIR's assessment of transportation impacts is inadequate and incomplete because it does not consider the secondary effects on transit from the programs included in CPHP Mitigation Measure AIR-2b. See Master Response 20 regarding transit concerns.

A-SFP-26 The comment summarizes the transportation issues raised in Comments A-SFP-15 through A-SFP-25, and requests revisions to the analysis and identification of mitigation measures for the CPHP's impacts on transit and loading. See Master Response 20 regarding transit concerns. As defined by UCSF significance criteria, presented on page 4.15-27 of the Draft EIR, and further discussed in Master Response 16, there are no significance criteria related to transit delay, transit crowding, or inadequate loading supply. As such, the Draft EIR is not lacking in its omission of detailed discussion of those items, and the analysis presented therein is adequate and complete.

However, please also see new measure added to CPHP Mitigation Measure AIR-2b: TDM Program Enhancements that would provide for implementation of a patient transit pass program by June 30, 2025 to further reduce CPHP operational increases in criteria air pollutants. Please refer to Section 8.5 of this Comments and Responses document for the full text of this new mitigation measure.

A-SFP-27 The commenter states that because employment growth at the Parnassus Heights campus site under the CPHP is not accounted for in the Planning Department projections included in *Plan Bay Area 2040*, the growth is not in the regional projections.

Please see Master Response 14: Population and Housing as to why the Draft EIR states that the increase in jobs at the Parnassus Heights campus site under the CPHP is potentially accounted for in *Plan Bay Area 2040*. The master response summarizes the methodology used by ABAG to develop the regional employment projections. Based on that methodology, it is reasonable to assume that the employment growth at Parnassus Heights campus site under the CPHP is included in *Plan Bay Area 2040* projections.

A-SFP-28 The commenter states that UCSF should use the same approach as the City of San Francisco and assume that all new employees under the CPHP would seek housing in San Francisco.

The City, as a lead agency for CEQA documents under its jurisdiction, may elect to assume that 100 percent of new workers in new developments in San Francisco would create a demand for housing only in San Francisco. However,

the University, as lead agency for the CPHP EIR, conducted the impact analysis based on observed patterns of residence of UCSF students and employees. Based on the observed patterns, about 60 percent of the new students and employees would live in San Francisco and the rest in a 4-county area. This is a reasonable analysis as not all new UCSF employees and students would choose to live in San Francisco; rather, place of residence decisions are based on a number of variables, including availability, cost and type of housing, as well as a number of other factors such as access to good schools, preference for suburban living, and proximity to family and friends. Note that the Draft EIR presents an estimate of the population increase in San Francisco based on this residence pattern, in addition to an analysis which conservatively assumes that all of the new students and employees would choose to live in San Francisco. Please see Draft EIR page 4.12-8.

A-SFP-29 The commenter states that the CPHP includes a small number of new housing units at the campus site and would create an additional demand for housing in San Francisco.

Please see Master Response 14: Population and Housing regarding the analysis of population and housing impacts in the Draft EIR. Due to space constraints at the Parnassus Heights campus site, UCSF cannot plan for substantially more than the approximately 762 new housing units that are included in the CPHP. However, UCSF continues to explore and develop additional housing in other parts of the City to accommodate UCSF students and employees, including those that study and/or work at Parnassus Heights campus site. By Summer 2021, 71 units of faculty housing will be provided at 2130 Post Street. In collaboration with UC Hastings, about 230 units will be provided in the Civic Center area at UC Hastings. Also, as part of a memorandum of understanding with the City, UCSF is committed to facilitating the delivery of 200 additional units. Therefore, UCSF would increase the total number of University-controlled housing in San Francisco by about 1,263 net new housing units.

A-SFP-30 The Draft EIR fully addresses the impacts of the projected population growth under the CPHP on the transportation system, utilities (including the combined sewer system), and recreational facilities. Please also see Responses A-SFP-15 through A-SFP-26 with respect to the CPHP's impacts on transportation; Responses A-SFP-31 through A-SFP-36 with respect to the CPHP's impacts on utilities; and Responses A-SFP-37 through A-SFP-29 regarding CPHP's impacts on recreation.

A-SFP-31 The commenter believes that the Draft EIR assumes that the project is in an area of separated sanitary and storm sewers, which is incorrect, and indicates that compliance with State requirements for an MS4 permit is not required. The commenter also states that demolition and construction activities "should be coordinated with the SFPUC to ensure that city infrastructure can adequately

accommodate the project's stormwater and wastewater needs." Please see Master Response 12: Stormwater, Wastewater, and Overflows.

A-SFP-32 The commenter suggests that the EIR should be revised to include compliance with the San Francisco Stormwater Management Ordinance, which achieves detention/retention similar to those contemplated by UCSF and could mitigate the potential effects of increased sanitary flows. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

A-SFP-33 The commenter suggests that San Francisco's stormwater management requirements apply to State projects, and that the project must either demonstrate conformance with San Francisco's Stormwater Management Ordinance or the stormwater control element of LEED. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

A-SFP-34 The commenter indicates that modeling of increased sewer demand is required for building permit approval of large projects in San Francisco to determine if the system can accommodate increased flows and/or modified connection points. The commenter also indicates that UCSF has the option of conducting the analysis for SFPUC's review, or paying for SFPUC to do the analysis, and that "if the analysis finds that increased flows exceed conveyance capacity of the adjoining downstream sewer, additional mitigation would be required." Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

A-SFP-35 The commenter states that UCSF's plan is "substantial unplanned growth" from the SFPUC's perspective and that UCSF must model the plan's increased sewer demand and contact the SFPUC to verify there is capacity. Also, if downstream improvements are required, UCSF must contribute funds for their construction. The commenter also indicates that all development projects in San Francisco are required to pay a wastewater capacity charge and water capacity charge to offset impacts to the City's infrastructure. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

A-SFP-36 The commenter emphasizes the critical nature of the City's combined sewers system, stating "it is imperative that UCSF conform with city stormwater regulations and that it work with the City to ensure that the combined sewer system can perform effectively." Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

A-SFP-37 The commenter indicates the Draft EIR fails to assess shadow effects on the Garden for the Environment, White Crane Springs, and the Interior Greenbelt. Please refer to Master Response 9: Shadow Impacts.

A-SFP-38 The commenter expresses concern that unplanned population growth from the proposed CPHP would cause increased pressures on City parks and recreation facilities, particularly those in the area surrounding the campus site.

As addressed in Impact REC-1 in the Draft EIR, Section 4.14 Recreation, the increase in the population at Parnassus Heights, particularly, but not limited to, the population that would live on-campus, would increase demand for recreational facilities. As discussed in Section 4.14, the Parnassus Heights campus site features substantial open space and recreation opportunities – including the 61-acre Mount Sutro Open Space Reserve. The Reserve includes a 5-mile network of public, multi-use trails that serve hikers, runners, cyclists, and dogs on leash year-round. Much of the campus housing, including that located within the Aldea Housing complex, is located in proximity to the Reserve. As discussed in Impact REC-1, UCSF would provide a net increase in publically accessible open space within the campus core over existing conditions, including the proposed Millberry Terrace, expanded Saunders Court, an open space connection from 5th Avenue to the Reserve, and a proposed Promenade to the south of the current UC Hall. In addition, under the CPHP, additional indoor recreational opportunities would be created, such as a proposed new wellness center (including a fitness studio and pool).

It is acknowledged that some increase in the use of nearby City recreational facilities (e.g., Golden Gate Park, and the Interior Greenbelt) would be associated with the daytime population (e.g., visitors and employees); as with the increase in on-campus residential population, such increase in usage is unlikely to be so large as to result in significant physical deterioration of the facilities.

A-SFP-39 The commenter indicates that UCSF should contribute funds to help offset physical impacts on recreational facilities from UCSF users due to increased demand. As explained in Response A-SFP-38, and demonstrated in Impact REC-1 in the Draft EIR, implementation of the CPHP would not increase use of existing neighborhood parks or other existing off-campus recreational facilities such that substantial physical deterioration would occur or be accelerated; and as such, the impact would be less than significant, and no mitigation is required. Nevertheless, this suggestion from the commenter is part of the public record on the CPHP, and will be considered by the UC decision-makers prior to considering CPHP approval.

A-SFP-40 The commenter repeats a number of comments made in the opening of the comment letter. Please see Response to Comment A-SFP-1.

8.4.2.2 Draft EIR Comment Letters – Organizations

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BY E-MAIL AND OVERNIGHT MAIL

August 19, 2020

Ms. Diane Wong
UCSF Campus Planning, Box 0286
San Francisco, CA 94143-0286
EIR@UCSF.edu

RE: Request for Extension of Draft EIR Comment Period for UCSF Comprehensive Parnassus Heights Plan (SCH 2020010175)

Dear Ms. Wong:

We write on behalf of The Parnassus Neighborhood Coalition ("PNC"), a group of residents living near the UCSF Parnassus Heights campus. PNC intends to comment on the recently-released Draft Environmental Impact Report ("DEIR") for the Comprehensive Parnassus Heights Plan (SCH 2020010175). As you can imagine the current COVID-19 pandemic has made coordination and communication with neighbors, consultants and others quite difficult. Even the California Judicial Council has recognized the need to extend CEQA deadlines due to the COVID-19 pandemic. (See, California Rule of Court Emergency Rule No. 9). Given this situation, we request a 30-60 day extension of the comment period for the DEIR to allow for a full and adequate public comment, as intended by CEQA. Thank you for considering this request. 1

Sincerely,

Richard Toshiyuki Drury
LOZEAU DRURY LLP

Responses to Comments from Lozeau Drury LLP

O-LD1-1 The commenter requests a 30- to 60-day extension of the public comment period. As the commenter is aware, the typical Draft EIR public review period is 30 to 45 days. The University provided an extended review period of 60 days for the CPHP Draft EIR, ending on September 11, 2020. As many community meetings have been held over the past couple of years regarding the CPHP, including robust public education materials on the details of the CPHP, the University believes that the 60-day public comment period for the Draft EIR is appropriate. Throughout the pandemic, the University has made public access to information as easy as possible by providing materials online, by holding community meetings online, and by frequent outreach to its neighbors.

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Via Email

September 11, 2020

John A. Pérez, Chair
Cecilia Estolano, Vice Chair
Regents of the University of California
c/o Ms. Diane Wong
UCSF Campus Planning, Box 0286
San Francisco, CA 94143
EIR@UCSF.edu

Re: Comment on Draft Environmental Impact Report, UCSF Comprehensive Parnassus Heights Plan (SCH 2020010175)

"The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets) and this limit shall be permanent."

-Resolution of the Board of Regents of the University of California, May 21, 1976 (Exhibit A)

Dear Chair Pérez, Vice Chair Estolano, and Honorable Regents:

This letter is submitted on behalf of the Parnassus Neighborhood Coalition ("PNC"), a group of residents living near the University of California, San Francisco ("UCSF") Parnassus Heights campus, regarding the Draft Environmental Impact Report ("DEIR") prepared for the Comprehensive Parnassus Heights Plan ("CPHP") (SCH 2020010175) (the "Project"). After reviewing the DEIR, we conclude that the EIR fails as an informational document and fails to impose all feasible mitigation measures to reduce the Project's impacts. PNC requests that the University address these shortcomings in a revised draft environmental impact report ("RDEIR") and recirculate the RDEIR prior to considering approvals for the Project. We reserve the right to supplement these comments during review of the Final EIR for the Project and at public hearings concerning the Project. *Galante Vineyards v. Monterey Peninsula Water Management Dist*. (2007) 60 Cal.App.4th 1109, 1121. 1

I. PROJECT DESCRIPTION

In 2014, the University of California prepared a Long Range Development Plan ("2014 LRDP") setting forth concepts, principles, and plans to guide future growth for the UCSF campus, outlining projected development levels and patterns for UCSF at all of its main campus sites through 2035. Available at https://ucsf.app.box.com/s/h6f3cfzsznl1bl3kk0am5k9gtc5lila8/file/701727549327. The Regents certified the FEIR for the LRDP in November 2014, which included an analysis of the potential environmental impacts from then-envisioned development at the Parnassus Heights campus site. However, at some point after this, UCSF undertook a planning process to re-envision and revitalize the Parnassus Heights campus as a whole, resulting in the development of the CPHP, which provides a long-term development framework for the "revitalization" of the Parnassus Heights campus.

This Project proposes to develop approximately 2.9 million gross square feet ("gsf") of new building space at Parnassus Heights. The CPHP includes an "Initial Phase" that comprises of: 1) Irving Street Arrival improvements, 2) Research and Academic Building ("RAB"), 3) initial Aldea Housing Densification, and 4) New Hospital. This Initial Phase is anticipated to be completed by approximately 2030. Beyond the Initial Phase, the "Future Phase" encompasses the remaining development described in the CPHP envisioned for completion by the horizon year of 2050. However, when accounting for existing campus site development, demolition that was approved under the UCSF 2014 LRDP but not yet implemented, and potential additional building demolition that would occur under the CPHP, the total amount of campus space upon full implementation of the CPHP would be 6.0 million gsf. The Project will add over 2 million square feet of additional space. To put this in perspective, this is equivalent to placing both the Salesforce Tower and the Transamerica Pyramid on this highly congested site in a residential neighborhood.

2A

The CPHP for the first time reneges on the promise made by the UC Regents in 1976 to the City of San Francisco and the community of Parnassus Heights to resolve a CEQA lawsuit that the Parnassus campus would never exceed 3.55 million square feet. The CPHP would exceed this Space Ceiling by over 2 million square feet, making a mockery of this false promise.

2B

II. LEGAL BACKGROUND

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an environmental impact report ("EIR") (except in certain limited circumstances). *See, e.g.*, Pub. Res. Code § 21100. The EIR is the very heart of CEQA. *Dunn-Edwards v. BAAQMD* (1992) 9 Cal.App.4th 644, 652. "The 'foremost principle' in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the

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statutory language." *Communities for a Better Environment v. Calif. Resources Agency* (2002) 103 Cal. App. 4th 98, 109.

CEQA has two primary purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project. 14 Cal. Code Regs. ("CEQA Guidelines") § 15002(a)(1). "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR 'protects not only the environment but also informed self-government.'" *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 564. The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs*. (2001) 91 Cal. App. 4th 1344, 1354 ("Berkeley Jets"); *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.

Second, CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring "environmentally superior" alternatives and all feasible mitigation measures. CEQA Guidelines § 15002(a)(2) and (3); see also, *Berkeley Jets*, 91 Cal. App. 4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564. The EIR serves to provide agencies and the public with information about the environmental impacts of a proposed project and to "identify ways that environmental damage can be avoided or significantly reduced." CEQA Guidelines §15002(a)(2). If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has "eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns." Pub. Res. Code § 21081; CEQA Guidelines § 15092(b)(2)(A) & (B). The lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding. *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 732 (Cal. App. 5th Dist. 1990).

3 cont.

The EIR is the very heart of CEQA "and the integrity of the process is dependent on the adequacy of the EIR." *Berkeley Jets*, 91 Cal. App. 4th 1109, 1355. CEQA requires that a lead agency analyze all potentially significant environmental impacts of its proposed actions in an EIR. Pub. Res. Code § 21100(b)(1); Guidelines § 15126(a); *Berkeley Jets*, 91 Cal.App.4th 1344, 1354. The EIR must not only identify the impacts, but must also provide "information about how adverse the impacts will be." *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 831. The lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding. *Kings County Farm Bureau*, 221 Cal.App.3d 692, 732. "The 'foremost principle' in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." *Communities for a Better Env't*, 103 Cal.App.4th 98, 109.

The California Supreme Court has noted that "the adequacy of an EIR's discussion of environmental impacts is an issue distinct from the extent to which an agency is correct in its determination whether the impacts are significant" and, as such, "adequacy of discussion claims are not typically amenable to substantial evidence review." *Sierra Club v. Co. of Fresno* (2018) 6 Cal. 5th 502, at 514-15. Rather, such claims are reviewed de novo to determine "whether the discussion sufficiently performs the function of facilitating 'informed agency decisionmaking and informed public participation.'" *Id*. at 513 [quoting *California Native Plant Soc'y v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 988].

"[T]he reviewing court is not to 'uncritically rely on every study or analysis presented by a project proponent in support of its position. A 'clearly inadequate or unsupported study is entitled to no judicial deference.'" *Berkeley Jets*, 91 Cal. App. 4th 1344, 1355 (emphasis added), quoting, *Laurel Heights Improvement Assn. v. Regents of University of California*, 47 Cal. 3d 376, 391 409, fn. 12 (1988). A prejudicial abuse of discretion occurs "if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process." *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal. App. 4th 713, 722; *Galante Vineyards v. Monterey Peninsula Water Management Dist*. (1997) 60 Cal. App. 4th 1109, 1117; *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal. App. 4th 931, 946. As discussed below, and in the attached expert comment letters of expert Dr. Smallwood, expert consulting firm SWAPE, Mr. Ikeda, and Ms. Watt, the EIR for this Project fails to adequately analyze and mitigate the Project's impacts.

In general, mitigation measures must be designed to minimize, reduce or avoid an identified environmental impact or to rectify or compensate for that impact. CEQA Guidelines § 15370. Where several mitigation measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. *Id.* at § 15126.4(a)(1)(B). A lead agency may not make the required CEQA findings unless the administrative record clearly shows that all uncertainties regarding the mitigation of significant environmental impacts have been resolved.

3 cont.

III. DISCUSSION

A. Space Ceiling.

The most glaring shortcoming of the CPHP is that it reneges on the Regents' promise to the City of San Francisco and the community of Parnassus Heights never to exceed 3.55 million square feet of development at the Parnassus Heights campus. This promise was made by the Regents themselves to resolve a lawsuit in 1976, and has been reaffirmed countless times thereafter, most recently in the 2014 LRDP. In May 21, 1976, the Regents adopted a resolution stating the following:

4

> The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets) and ***this limit shall be permanent.*** These restrictions prohibit expansion by UCSF by purchase or condemnation or gift of any property or lease of private residential property not only contiguous with the new campus boundaries, but anywhere within the surrounding area bounded by Golden Gate Park, Oak Street, Ninth Avenue, Clayton and Clarendon. This does not prohibit the use of commercial properties or the affiliation with other public agencies within the area described.

1976 Resolution, ¶ 2 (emphasis added) (Exhibit A). The Regents directed that these commitments be amended into the 1975 Long Range Development Plan. Id., ¶ 6 ("That the Long Range Development Plan for the San Francisco campus, as approved by The Regents in October, 1975, be amended to reflect the described changes in designation of open space, boundaries, and use of housing").

The Space Ceiling was reaffirmed by the Regents in the Long Range Development Plans (LRDPs) of 1982 and 1994. It was reaffirmed in 2014, though amended to exclude certain residential properties from the calculation of the Campus' gross square feet. UC has relied on the Space Ceiling as a justification to develop other sites throughout the City. In *Laurel Heights II*, the Regents represented to the Supreme Court that the expansion to Laurel Heights was necessary since the Space Ceiling prohibited any further development at the Parnassus Campus. *Laurel Heights Impr. Assoc. v. Regents of Univ. of Calif.* (1993) 6 Cal.4th at 1120 (*Laurel Heights II*). The Supreme Court noted in the *Laurel Heights I and II* cases that development of the new Laurel Heights campus was necessary due to the Regents' representation of "serious space constraints at the Parnassus campus and concluded there was a need to develop off-campus locations." *Laurel Heights II,* 6 Cal.4th at 1120; *Laurel Heights Impr. Assoc. v. Regents of Univ. of Calif*. (1988) 47 Cal.3d at 388 (*Laurel Heights I*). Having benefitted by relying on the Space Ceiling to develop other locations, the Regents now want to disregard the Space Ceiling and its prior declaration to the Court, notwithstanding the reliance of the community on the commitment. The Space Ceiling was negotiated because the campus was too small to accommodate future growth, and that remains even more pressing today.

4 cont.

In 2014, the Regents adopted a Long Range Development Plan ("LRDP") that recognized the need to comply with the Space Ceiling, and to "decompress" the Parnassus Campus by moving certain functions to other locations. However, in order to more readily comply with the Space Ceiling, the Regents amended the 1976 Resolution's development ceiling to exclude specific residential development at Aldea Housing and University House from the ceiling calculation. The 1976 Resolution had not excluded these specific residential buildings from the development ceiling calculation, although other residential areas were excluded. See 2014 LRDP, p. 51 ("The total

amount of structured space within the campus boundaries is not to exceed 3.55 million gsf, excluding space committed to residential use on Third, Fourth, Fifth, and Parnassus avenues and Kirkham and Irving streets.") The 2014 LRDP "identifies strategies to reduce the space ceiling overage over the life of the LRDP by: 1) converting some existing office space (UC Hall and Millberry Union towers) to residential use; 2) demolishing a number of buildings and either moving occupants and programs to other campus sites or absorbing them into other buildings at Parnassus Heights; and 3) excluding all residential space from the space ceiling calculation." 2014 LRDP, p. 57 (emphasis added). The 2014 LRDP included an amendment to the 1976 Resolution which stated, "3. The space ceiling for the Parnassus Heights campus site is 3.55 million gross square feet. The space ceiling includes space in non-residential buildings within the boundary of the Parnassus Heights campus site." 2014 LRDP, p. 64. Although the 2014 LRDP was intended to guide the University's growth through 2035, the University is now proposing to abandon the 2014 LDRP at the Parnassus Campus to allow dramatic expansion of development approved in 2014 and proposed as the UCSF Comprehensive Parnassus Heights Plan. The Plan proposes to further amend the 1976 Resolution to "Increase the space ceiling limit from the current 3.55 million gsf to a proposed 5.05 million gsf, excluding housing (an increase of approximately 1.5 million gsf above the current space ceiling limit) in recognition of the tremendous need for program space at the campus site in order for UCSF to retain its leadership position in patient care, research, and education." Plan DEIR, p. 3-44.

4 cont.

As discussed below, under the doctrine of promissory estoppel, the Regents cannot abandon their solemn promise to the community to adopt a "permanent" Space Ceiling of 3.55 million square feet.

1. The Space Ceiling is Enforceable Under the Doctrine of Promissory Estoppel

a. Elements of Promissory Estoppel

Promissory estoppel involves "'[a] promise which the promisor should reasonably expect to induce action or forbearance of a definite and substantial character on the part of the promisee and which does induce such action or forbearance is binding if injustice can be avoided only by enforcement of the promise.' This rule is applicable in California." *Hilltop Properties, Inc. v. State* (1965) 233 Cal.App.2d 349, 362. "The elements of promissory estoppel are (1) a promise, (2) the promisor should reasonably expect the promise to induce action or forbearance on the part of the promisee or a third person, (3) the promise induces action or forbearance by the promisee or a third person, and (4) injustice can be avoided only by enforcement of the promise." *Kajima/Ray Wilson v. Los Angeles County Metropolitan Transportation Authority* (2000) 23 Cal.4th 305, 310.

5

The purpose of promissory estoppel is “to make a promise binding even though there was no consideration in the sense of something that is bargained for and given in exchange. Reasonable reliance serves to hold the offeror in lieu of the consideration ordinarily required to make the offer binding." *Id*. “Promissory estoppel is a theory of recovery which is allowed where injustice can be avoided only by enforcement of the promise, this usually occurring where the plaintiff has made a complete and substantial change of position in reliance upon the promise.” *Id*. The doctrine only applies where there was no bargained for reliance by the promissee. *Id*. at 363.

“[E]stoppel has been applied with some reluctance insofar as its application against a governmental body is concerned, since it is the general rule that a governmental agency may not be estopped by the conduct of its officers and employees.” *Id*. at 364. Here, however, the Regents adopted the resolution at issue, so there would not be a problem regarding a promise of an employee or officer. The promise at issue was made by the University’s ultimate decision-making body, not by a subordinate employee. There was a written promise, especially given the emphatic statement that the development ceiling of 1976 was “permanent.”

The Space Ceiling Resolution meets all of the elements of promissory estoppel:

(1) There is no dispute that the Space Ceiling Resolution was a promise never to build more than 3.55 million square feet at the campus;
(2) The Regents reasonably expected the promise to induce action or forbearance on the part of the promisee or a third person -- namely the dismissal of the 1976 CEQA lawsuit;
(3) The promise induced action or forbearance by the promisee or a third person -- namely the Petitioners did in fact dismiss their lawsuit; and
(4) Injustice can be avoided only by enforcement of the promise. There is no way for the Petitioners or anyone else to revive the 1976 lawsuit at this point since the limitations period is long expired. The only way avoid injustice is to enforce the promise.

5 cont.

The adoption of the Space Ceiling induced a forbearance “of a definite and substantial character” by any neighbors or organizations. In particular, the neighbors forbore from prosecuting their CEQA lawsuit challenging the 1975 LRDP.

First, there can be no question that the Space Ceiling Resolution was a “promise.” Second, the Regents clearly reasonably expected the petitioners in the 1975 LRDP case to drop their lawsuit in exchange for the promise of a “permanent” Space Ceiling. There is no way to avoid the injustice other than to enforce the Regents’ solemn promise, since the 1976 CEQA petitioners cannot now reinstitute their action. All of the elements of promissory estoppel are satisfied. The Regents therefore cannot simply disregard the promise made to the City and the neighborhood in 1976 simply because they find it no longer convenient to keep their promise.

b. The 1976 Space Ceiling Does Not Impair the Police Power.

The Regents may contend that the 1976 Resolution improperly surrenders or impairs the Regents' delegated governmental power sitting as a legislative body. As a general rule, "a local government may not contract away its right to exercise its police power in the future, and land use regulations involve the exercise of police power." See *Alameda Cty. Land Use Assn. v. City of Hayward* (1995) 38 Cal.App.4th 1716, 1724. Courts '"will not read into the contract[ ] an abrogation of the potential future exercise of the sovereign police power." *Richeson v. Helal* (2007) 158 Cal.App.4th 268, 280 (involving effort to enforce covenants to remove nonconforming use despite issuance of use permit), and will construe a contract, if possible, in a manner that preserves the police power. *Id*. at p. 281, citing *Delucchi v. County of Santa Cruz* (1986) 179 Cal.App.3d 814, 823-824 (rejecting interpretation of Williamson Act contract which sought "wholesale freeze of zoning" changes). "A contract that purports to do so is invalid as contrary to public policy if the contract amounts to a municipality's 'surrender' or 'abnegation' of its control of a municipal function." *108 Holdings, Ltd. v. City of Rohnert Park* (2006) 136 Cal.App.4th 186, 195.

First, it is unclear whether the Regents even possess police powers. There is no case law discussing whether the University wields any police powers. "The definition of 'police power' is broad and rather nebulous." *Goldbaum v. Regents of Univ. of California* (2011) 191 Cal.App.4th 703, 712. "The police power is the authority to enact laws to promote the public health, safety, morals and general welfare. [Citation.] Legislation is within the police power if it is reasonably related to a proper legislative goal." *Id*., quoting C*ommunity Memorial Hospital v. County of Ventura* (1996) 50 Cal.App.4th 199, 206, 56 Cal.Rptr.2d 732. "As noted in Witkin's Summary of California Law, 'It has been said that the police power is simply the power of sovereignty or power to govern—the inherent reserved power of the state to subject individual rights to reasonable regulation for the general welfare.'" *Churchill v. Parnell* (1985) 170 Cal.App.3d 1094, 1098 (quoting 5 Witkin, Summary of Cal. Law (8th ed. 1974) Constitutional Law, § 435, p. 3734). Most of the cases touching on police power and the Regents involves whether statutes enacted by the Legislature pursuant to its police powers are applicable to the Regents. 6

Second, even if the Regents possess police powers, they were not exercising police powers in adopting the Space Ceiling, but merely limiting their own use of their own property as a market participant. The Space Ceiling is an act of the Regents placing limitations on themselves. It limits the Regents use of their own property. It does not restrict the general public or anyone else in any manner, as would a general plan or zoning ordinance. A governmental entity's role in regulating the use of its own property is not an exercise of its police power or its power as a government per se, but as a market participant engaged in what were historically called proprietary activities. *City of Oakland v Burns* (1956) 46 C2d 401, 407 ("When a governmental entity is authorized to exercise a power purely proprietary, the law leans to the theory that it has

full power to perform it in the same efficient manner as a private person would"). Governmental entities have broad discretion over the use of their own property. *Laura Vincent Co. v City of Selma* (1941) 43 CA2d 473. 43 CA2d at 476; see also *Irwin v City of Manhattan Beach* (1966) 65 C2d 13.

The courts have recognized the validity of permanent deed restrictions on public property donated to the public by private entities. Thus, when land is donated to the city with a restriction on its use, the city usually cannot divert the use of the property to purposes inconsistent with the terms of the grant, including transferring an interest in the donated land to private parties for nonpublic uses. *Big Sur Props. v Mott* (1976) 62 CA3d 99. Thus, a public entity should be equally in its right to impose permanent restrictions on its own property.

The Space Ceiling was not an attempt to "subject individual rights to reasonable regulation for the general welfare." Instead, it was simply the Regents' decision regarding how to use its own property. Instead of exercising any non-delegable police powers, the Regents used their "virtual plenary power" to manage and dispose of their property by entering into a "permanent" commitment to maintain a Space Ceiling of 3.55 million square feet. There is no reason that this promise should not be enforceable.

6 cont.

2. The Space Ceiling is Enforceable Under the Doctrine of Equitable Estoppel.

The California Supreme Court has articulated the doctrine of equitable estoppel as follows: "[o]ne cannot justly or equitably lull his adversary into a false sense of security, and thereby cause his adversary to subject his claim to the bar of the statute of limitations, and then be permitted to plead the very delay caused by his course of conduct as a defense to the action when brought. [Citations]" *Lantzy v. Centrex Homes* (2003) 31 Cal.4th 363, 383. The Court further noted: "[a]n estoppel may arise although there was no designed fraud on the part of the person sought to be estopped. [Citation.] To create an equitable estoppel, 'it is enough if the party has been induced to refrain from using such means or taking such action as lay in his power, by which he might have retrieved his position and saved himself from loss.' ... Where the delay in commencing action is induced by the conduct of the defendant it cannot be availed of by him as a defense. [Citations]" *Id*. at 384.

7

In this case, the elements of equitable estoppel are present. To establish equitable estoppel, a Plaintiff must show: 1) the Defendant knew the relevant facts; 2) the Defendant made a misrepresentation bearing on the necessity of bringing a timely suit; 3) the Defendant intended its words or conduct would be acted upon or led Plaintiff to believe it was so intended; 4) Plaintiff was ignorant of the true state of facts; and 5) Plaintiff reasonably relied thereon in delaying commencement of the action. *Doheny Park Terrace Homeowners Ass'n, Inc. v. Truck Ins. Exch.* (2005) 132 Cal.App.4th 1076,

1099. Finally, 6) the exception applies here to the rule that estoppel is not ordinarily applied against a city for the conduct of its officials. 7 cont.

a. The Regents knew the relevant facts.

The Regents were aware that they had been sued under CEQA over the 1975 LRDP. To settle that case, the Regents adopted a resolution imposing a permanent space ceiling on the Parnassus Campus. The Regents knew that this would induce the petitioners to drop their lawsuit, which they did. As the court held in *Lantzy v. Centrex Homes* (2003) 31 Cal.4th 363, 383, "[a]n estoppel may arise although there was no designed fraud on the part of the person sought to be estopped. [Citation.] To create an equitable estoppel, 'it is enough if the party has been induced to refrain from using such means or taking such action as lay in his power, by which he might have retrieved his position and saved himself from loss.' ... Where the delay in commencing action is induced by the conduct of the defendant it cannot be availed of by him as a defense. [Citations]" *Id*. at 384.

b. Regents made a misrepresentation bearing on the necessity of bringing a timely suit

The Regents made their promise to settle a lawsuit, but reneged on the promise long after the time had passed to refile or revive the lawsuit. The Petitioners are not able to bring a timely suit at this point since the statute of limitation has expired. 8

c. Regents intended their words or conduct would be acted upon or led Petitioners to believe it was so intended.

The Regents obviously intended the adoption of the Space Ceiling Resolution to induce the petitioners to dismiss their CEQA lawsuit challenging the 1975 LRDP.

d. Petitioners were ignorant of the true state of facts.

The petitioners in the 1975 lawsuit were ignorant of the fact that the Regents would renege upon their commitment to a "permanent" space ceiling of 3.55 million square feet.

e. Petitioners reasonably relied upon the commitment.

The petitioners in the 1975 lawsuit reasonably believed that when the Regents adopted a Resolution stating that development would never exceed 3.55 million square feet, and that this commitment would be "permanent," that the Resolution meant what it said.

f. The Regents may not rely on the rule relating to the conduct of government officials because its application would work a grave injustice in this case.

As the California Supreme Court has stated, there is a general rule that a "government agency may not be estopped by the conduct of its officers or employees." *Farrell v. Co. of Placer* (1944) 23 Cal.2d 624, 627 ("*Farrell*"). However, the Court held in that same case that "there are many instances in which an equitable estoppel in fact will run against the government where justice and right require it. [Citations]" Id. at 627-628; see also *California Cigarette Concessions, Inc. v. City of Los Angeles* (1960) 53 Cal.2d 865, 869 ("estoppel against a city is appropriate "when the facts clearly establish that a grave injustice would be done if an equitable estoppel were not applied. [Citation]"). The court noted that the government should be held to a similar standard as ordinary citizens in the conduct of its business, quoting Justice Holmes thus: "…[i]t has been aptly said: 'If we say with Mr. Justice Holmes, 'Men must turn square corners when they deal with the Government', it is hard to see why the government should not be held to a like standard of rectangular rectitude when dealing with its citizens. (48 Harv.L.Rev. 1299.)" *Farrell* at 628.

Here, there is no issue of the University being bound by promises made by their officers of employees. The promise at issue was made at the highest level by the Regents themselves. 9

In *Farrell*, counsel for two defendant Counties in a personal injury case advised the plaintiff suing for defective condition of a bridge that she need not bring an action until after she had ascertained the amount of her damages. Plaintiff then waited until after the relevant statute of limitations had expired to file her claim. The Defendants demurred on the grounds that the statutory period to file a claim had run. In reversing the trial court's sustaining of the demurrer, the court emphasized that the Plaintiff's reasonable reliance on the representations of the Defendants worked an injustice which a court of equity was empowered to correct.

Moreover, courts have held that "strong considerations of policy" are needed to deny the application of estoppel where government entities have misled the public. *Co. of San Diego v. Cal. Water and Telephone Co.* (1947) 30 Cal.2d 817. Here, failure to estop the Regents from rescinding their Space Ceiling Resolution will result a manifest injustice. The time has long passed for reviving the lawsuit that was dismissed in exchange for the Space Ceiling. Also, countless neighbors have purchased homes and businesses in the area in reasonable reliance on the permanent Space Ceiling. The permanent commitment made in 1976 should be enforced exactly as it was written - permanent.

3. The Violation of the Space Ceiling Policy is a Significant Impact Under CEQA.

Where a local or regional policy of general applicability, is adopted in order to avoid or mitigate environmental effects, a conflict with that policy in itself indicates a potentially significant impact on the environment. *Pocket Protectors v. Sacramento* (2005) 124 Cal.App.4th 903. Indeed, any inconsistencies between a proposed project and applicable plans must be discussed in an EIR. CEQA Guidelines § 15125(d); *City of Long Beach v. Los Angeles Unif. School Dist.* (2009) 176 Cal. App. 4th 889, 918; *Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal. App. 4th 859, 874 (EIR inadequate when Lead Agency failed to identify relationship of project to relevant local plans). A Project's inconsistencies with local plans and policies constitute significant impacts under CEQA. *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 783-4. The recent *Georgetown Preservation Society v. County of El Dorado* (2018) 30 Cal.App.5th 358 follows *Pocket Protectors* in holding that the fair argument standard applies to a potential inconsistency with a plan adopted for environmental protection. 10

The Space Ceiling is a policy adopted by the Regents to address the campus' environmental impacts in almost every area: traffic, population, growth inducement, air pollution, noise, etc. The violation of the Space Ceiling is therefore a significant impact that must be analyzed and mitigated under CEQA. The most obvious alternative is for the University to continue to abide by the Space Ceiling. This is a feasible alternative since it was deemed feasible only a few short years ago in the 2014 LRDP.

B. The EIR Fails to Consider Impacts of COVID-19 In the Baseline.

The DEIR dismisses the impacts of COVID-19 on the Project. A revised draft EIR is required to analyze whether and how COVID-19 will impact the need for this massive expansion Project. COVID-19 has dramatically impacted our work practices, increasing the use of telecommuting from home, telemedicine, and remote learning. All of these developments have the potential to reduce the need for office, classroom and clinical space as people are increasingly inclined to work and learn from home. These developments may dramatically and permanently change the nature and need for the Project. 11

Every CEQA document must start from a "baseline" assumption. The CEQA "baseline" is the set of environmental conditions against which to compare a project's anticipated impacts. Section 15125(a) of the CEQA Guidelines states in pertinent part that a lead agency's environmental review under CEQA:

> "…must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time [environmental analysis] is commenced, from both a local and regional perspective. This environmental

> setting will normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant." (Emphasis added.)

CEQA Guidelines § 15125(a); see, *Save Our Peninsula Committee v. County of Monterey* (2001) 87 Cal.App.4th 99, 124-125 ("*Save Our Peninsula"*). As the court of appeal has explained, "the impacts of the project must be measured against the 'real conditions on the ground,'" and not against hypothetical permitted levels. *Save Our Peninsula, supra*, 87 Cal.App.4th 99, 121-123.

The outbreak of COVID 19 was first reported on December 31, 2019 in Wuhan China. The Notice of Preparation (NOP) for the UCSF Parnassus Heights campus was issued January 14, 2020. The NOP for the proposed CPHP was published in January 2020, and the baseline conditions contained in this CPHP EIR are generally taken from this time period. However, the CEQA Guidelines and applicable case law recognize that the date for establishing an environmental baseline cannot always be rigid." DEIR at 4.6-6. UCSF is a health based organization, therefore fully aware early on of the implications of the Wuhan outbreak. The DEIR itself acknowledged the potential implications of COVID 19, concluding that:

> "The net effect of the pandemic on the Parnassus Heights campus site development and operations cannot be predicted at this point in time without speculation." DEIR, p. 1-9.

11 cont.

The DEIR concedes COVID 19 has implications for the Project. For example, the objectives for the New Hospital, objectives used in part to dismiss some alternatives, include an increase in beds to provide for inpatient health care in times of severe strain such as the current pandemic. DEIR, p. 6-4. The brief discussion at page 1-9 also acknowledges that UCSF will likely consider operational changes such as increases in telehealth services and telework, among others.

COVID 19 was known at the time of the issuance of the NOP and certainly, as reflected in Section 1.7 of the DEIR, was known prior to circulation of the DEIR for public comment. COVID 19 warrants changes and updates to existing environmental setting information, critical to complete an accurate impact analysis, as well as to the Project Description (e.g., space needs changes given a likely transition as noted in the discussion to telework and telehealth). Significant questions are raised by COVID 19 that have implications to the Project and related impacts – including but not limited to an acknowledgement that UCSF is likely to increase telework, telehealth consultations and remote learning. These are but a few of the changes warranting UCSF to hit pause both to revise the DEIR and to re-engage the public and experts, right-size the Project and evaluate other alternatives that would reduce or eliminate impacts while adhering to the existing space ceiling.

C. The EIR's Alternatives Analysis is Legally Deficient.

An EIR must describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. "An EIR's discussion of alternatives must contain analysis sufficient to allow informed decision making." *Laurel Heights I*, 47 Cal.3d at 404. An EIR must also include "detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." *Id*. at 405.

CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring "environmentally superior" alternatives and all feasible mitigation measures. CEQA Guidelines § 15002(a)(2) and (3); *see also*, *Berkeley Jets*, 91 Cal. App. 4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564. The EIR serves to provide agencies and the public with information about the environmental impacts of a proposed project and to "identify ways that environmental damage can be avoided or significantly reduced." CEQA Guidelines § 15002(a)(2). If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has "eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns." Pub. Res. Code § 21081; CEQA Guidelines § 15092(b)(2)(A) & (B). A "feasible" alternative is one that is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors. Pub. Res. Code § 21061.1; CEQA Guidelines § 15364. 12

The lead agency is required to select the environmentally preferable alternative unless it is infeasible. As explained by the Supreme Court, an environmentally superior alternative may not be rejected simply because it is more expensive or less profitable:

> The fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with the project.

Citizens of Goleta Valley v. Bd. of Supervisors (1988) 197 Cal.App.3d 1167, 1180-81; *see also*, *Burger v. County of Mendocino* (1975) 45 Cal.App.3d 322; *County of El Dorado v. Dept. of Transp*. (2005) 133 Cal.App.4th 1376 (agency must consider small alternative to casino project); *Preservation Action Counsel v. San Jose* (2006) 141 Cal. App. 4th 1336.

In addition, an environmentally superior alternative may not be rejected because it does not meet all of the Project's objectives. Inconsistency with only some of the

Project Objectives is not necessarily an appropriate basis to eliminate impact-reducing project alternatives from analysis in an EIR. CEQA Guidelines § 15126.6(c), (f); *see also Watsonville Pilots Assn. v. City of Watsonville* (2010) 183 Cal.App.4th 1059, 1089. Here, the DEIR fails to adopt the environmentally superior alternatives and fails to describe a reasonable range of alternatives. 12 cont.

First, the EIR identifies several significant environmental impacts the Project will have, as well as the project alternatives that may alleviate some of these impacts. However, UCSF failed to adopt the environmentally superior alternative, or any other alternative, that would reduce the Project's impacts and failed to include and analyze several feasible alternatives that are available and would reduce some of the Project's significant impacts. The DEIR refuses to adopt the environmentally superior alternative, Alternative 2: the Reduced Project Alternative, because it would "fail to fully achieve certain Project objectives, and in particular, would not fully meet the CPHP project objectives, for space, urban design and mobility, or for the New Hospital, RAB or Aldea Housing Densification." DEIR, p. 6-71. This justification is insufficient and does not constitute substantial evidence that the environmentally superior alternative is infeasible. 13

Second, the DEIR fails to select the 2014 LRDP Alternative. The environmental impacts of the 2014 LRDP Alternative were already analyzed in the 2014 LRDP EIR, and this alternative would result in less significant impacts than the proposed Project. However, UCSF did not select this alternative because it "would not achieve the proposed CPHP objectives." DEIR, p. 6-20. Numerous objectives from the 2014 LRDP FEIR remain valid with respect to the proposed Project. *See id*. at 3-13. Dismissing this alternative for this reason fails to demonstrate how this alternative is not feasible. 14

Additionally, Urban Planner Terrell Watt, a member of the American Institute of Certified Planners, reviewed the DEIR, including the alternatives analysis, and concluded that the DEIR is legally deficient because it "fails to describe a reasonable range of alternatives, or to the location of the Project, which would feasibly attain most of the basic objectives of the Project but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the merits of the alternatives." Exhibit B,,p. 21. Specifically, the DEIR improperly rejected feasible off-site alternatives and omits other feasible off-site alternatives. *Id*. at 22. For example, feasible alternatives to the Project that would reduce or eliminate the Project's significant impacts that the DEIR briefly considered but dismissed include the following: (1) No New Hospital at Parnassus Heights Campus Site/Implement Phase 2 of Medical Center at Mission Bay Campus Site; and (2) New Hospital at Mount Zion Campus Site. *Id*. 15

The reasons provided for dismissing the alternative of a new hospital at Mission Bay comes down to the alternative's reported failure to meet every focused Project objective and a purported conflict with the 2014 LRDP and CPHP. *Id*. Specifically, the DEIR states that the alternative would not meet some of the Project objectives and

would conflict with several 2014 LRDP and CPHP objectives including but not limited to adequate space to foster collaboration and to facilitate inter-dependence and connectivity for operational efficiency, adequate clinical and administrative support and alignment with other programs, increase in beds, and modern industry standards including seismic activity. *See* DEIR, p. 6-55. The discussion concedes that the alternative would reduce significant wind, cultural, and construction impacts, but that in doing so, it would likely also result in increased cross-town traffic between the Parnassus and Mission Bay campus sites. However, the discussion failed to analyze a combination of a smaller, new hospital at Parnassus in combination with Mission Bay, which is a feasible option that has the potential to address total need and allow phasing to accommodate patients and services. Exhibit B, p. 22. The DEIR's justification for dismissing this alternative is not justified. First, the alternative would meet most of the Project's objectives. *Id*. Second, the argument that the alternative would increase cross-town traffic is not supported by any evidence or analysis. *Id*. at 22-23. Lastly, the conflicts with the 2014 LRDP are not persuasive since that document is being amended to break the space ceiling and this alternative would not require that significant amendment to the LRDP. *Id*. at 23. "In fact, the Mission Bay Hospital was justified in part by the development cap at the Parnassus Campus." *Id*. This alternative must be fully analyzed in a revised and recirculated DEIR, including additional facts and analysis to support the arguments concerning the alternatives analysis.

The DEIR also dismisses the alternative of a new hospital at the Mount Zion Campus Site without actually analyzing the alternative, stating that it "would be less than ideal and inefficient" to have UCSF hospitals at three different sites, and that it would not help achieve the benefits realized through interdisciplinary collaboration and convergence between clinical care, research and education, land acquisition would be difficult, and citing undisclosed conflicts with the 2014 LRDP and CPHP objectives. DEIR, p. 6-57. Locating the proposed hospital at the Mount Zion campus would "reduce the significant wind impact . . ., avoid demolition of the LPPI (individually eligible for listing in the National and California Registers), and avoid a number of temporary construction and operational impacts associated with the New Hospital at the Parnassus Heights campus site." *Id*. The Mount Zion campus site is 2 miles from the Parnassus campus site and several of the existing buildings, including the hospital, must be retrofitted or demolished due to seismic issues. *See* UCSF 2014 LRDP, p. 89. The 2014 LRDP even states that the demolition of outdated and seismically compromised buildings would allow for the construction of new space to accommodate clinical programs at the Parnassus site. *Id*. at 91. The DEIR must analyze the feasibility of this alternative due and compare it with the other identified alternatives.

Rejection of the Mission Bay and Mount Zion sites for a new hospital, either in lieu of or in combination with a smaller hospital at the Parnassus campus, is not supported by the evidence and analysis provided and both require full analyses in a revised and recirculated DEIR.

15 cont.

Lastly, the DEIR also fails to mention their Hunters Point site. UCSF owns 3.8 acres in Hunters Point with two single story buildings used for an animal care facility. UCSF 2014 LRDP, p. 117. At the time the 2014 LRDP was published, the City had approved the Candlestick-Hunters Point Shipyard Development Plan, an extensive mixed-use redevelopment plan for the area that would include housing, retail, office, commercial, industrial, and open use spaces. *See id*. Due to UCSF's facilities at this site being in relatively poor condition, UCSF was exploring the possible relocation of those functions and occupants and potential relinquishment of the site. *Id*. However, healthcare, a hospital, and economic development would be greatly needed in this community, especially with the progression of the Candlestick-Hunters Point Shipyard Development Plan. Since UCSF does not have future plans for this site, it should consider the feasibility of locating a portion of the proposed Project at this location. 16

The DEIR rejects many of the off-site alternatives because they are off-site. This makes a mockery of CEQA's requirement for consideration of off-site alternatives. The courts have held that if environmentally superior alternative sites are available for a project, it would be inconsistent with CEQA's purposes to ignore off-site alternatives simply because on-site alternatives have been considered. In *Citizens of Goleta Valley v Board of Supervisors* (1988) 197 Cal.App.3d 1167, 1179 (*Goleta I*), the court held that the EIR for a proposed resort hotel should have considered alternative locations for the project. Observing that the public need for the hotel should be served at minimal environmental expense, the court concluded that "[r]eason requires that the agency charged with the duty to protect the environment compare impacts at feasible alternative locations." *Id*. at 1180. If off-site alternatives can be rejected simply because they are off-site, then the CEQA requirement for analysis of off-site alternatives becomes meaningless. A revised draft EIR is required to analyze and consider the above alternatives and to select the environmentally superior alternative unless it is truly infeasible. 17

D. The EIR Improperly Delays the Analysis of the Hospital.

The DEIR fails to describe details of several elements of the hospital, contending that sufficient details are not known to allow a detailed analysis of impacts such as wind. However, the DEIR reveals that the University of aware of many of the details of the Project, including the specific height and sizes of buildings - the extent that it was possible to create visual representations of all of the buildings. Since the University is aware of these details, a more detailed analysis must be provided in the DEIR. 18

The courts have consistently held that an "accurate and stable project description" is a bedrock requirement of CEQA—the *sine qua non* (that without which there is nothing) of an adequate CEQA document:

> Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost,

> consider mitigation measures, assess the advantage of terminating the proposal (i.e., the "no project" alternative) and weigh other alternatives in the balance. An accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR.

Inyo v. Los Angeles (1977) 71 Cal.App.3d 185, 192-93. The ability of informed citizens to participate in environmental review is a key component of CEQA. *Washoe Meadows v. Dept. of Parks and Rec*. (2017) 17 Cal.App.5th 277, 285 ["Informed public participation is essential to environmental review under CEQA."]; *Inyo*, 71 Cal.App.3d at 192 ["The EIR process facilitates CEQA's policy of supplying citizen input."]. Through the EIR process, CEQA "provide[s] public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment." *Washoe, supra*, 17 Cal.App.5th at 286 [quoting Pub. Res. Code § 21061].

The court recently noted that the requirement for an accurate, stable, and finite project description has been "reiterated in a number of cases since *County of Inyo*." *Stop the Millenium Hollywood v. Los Angeles* (2019) 39 Cal.App.5th 1, 17. In *Millennium*, the court evaluated the project description for a large mixed-use development, which described three conceptual development scenarios that would satisfy the project's Development Agreement. *Id*. at 9-10. The scenarios presented in the DEIR only depicted potential massing options that might have been developed and, thus, "the public had no idea how many buildings or towers would be built and where they would be located on the project site." *Id*. at 11. The court held that the DEIR did not meet CEQA's requirement for an accurate, stable or finite proposed project because "it fails to describe the siting, size, mass, or appearance of any building proposed to be built at the project site" and "presents different conceptual scenarios that Millennium or future developers may follow for the development of this site." *Id*. at 18. Notably, the court noted that the failure to include an accurate, stable, and finite project description "was an obstacle to informed public participation 'even if we cannot say such input would have changed the project ultimately selected and approved.'" *Id*. at 20 [quoting Washoe, supra, 17 Cal.App.5th at 290] [emphasis added]. 18 cont.

The DEIR for CPHP is similar to the one rejected in *Millenium*. It fails to provide detail of the project, hampering informed public comment. A revised draft EIR is required to provide requisite details of the Project and its impacts.

E. The EIR Impermissibly Defers Mitigation.

Feasible mitigation measures for significant environmental effects must be set forth in a CEQA document for consideration by the lead agency's decision makers and the public before certification of the CEQA document and approval of a project. The formulation of mitigation measures generally cannot be deferred until after certification and approval of a project. CEQA Guidelines, section 15126.4(a)(1)(B) states: "Formulation of mitigation measures should not be deferred until some future time. 19

However, measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way."

"A study conducted after approval of a project will inevitably have a diminished influence on decisionmaking. Even if the study is subject to administrative approval, it is analogous to the sort of post hoc rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA." *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 307. "[R]eliance on tentative plans for future mitigation after completion of the CEQA process significantly undermines CEQA's goals of full disclosure and informed decisionmaking; and[,] consequently, these mitigation plans have been overturned on judicial review as constituting improper deferral of environmental assessment." *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 92. Moreover, by deferring the development of specific mitigation measures, UCSF is effectively precluding public input into the development of those measures. CEQA prohibits this approach. 19 cont.

Here, The DEIR is rife with impermissible deferred mitigation for several of the Project's environmental impacts.

1. The EIR defers mitigation of the Project's wind impacts.

The DEIR admits the Project's wind impacts will be significant and unavoidable with mitigation. DEIR, p. 4.1-46. However, the DEIR defers the formation of actual mitigation measures to lessen the Project's wind impacts to an undetermined future time. *See id*. at 4.1-47. Specifically, mitigation measure AES-4 requires UCSF to engage a qualified wind consultant to conduct wind tunnel testing of the proposed buildings with facades 80 feet high or over to determine whether the buildings would result in exceedances of San Francisco's 26-mph pedestrian wind hazard criterion. *Id*. If the consultant does find an exceedance, UCSF shall work with the consultant to identify feasible mitigation strategies such as design changes. *Id*. UCSF's delay in mitigating the Project's potential wind impacts undermines CEQA's goals of full disclosure and informed decisionmaking. Moreover, UCSF is preventing the public from providing input on the development of these measures and leaving them up to the sole discretion of UCSF and the wind consultant it hires, violating CEQA. 20

2. The EIR defers mitigation of the Project's impacts on cultural resources.

The DEIR also admits that the Project as proposed would result in a significance and unavoidable adverse change in the significance of known historical resources, in particular the UC Hall which includes the Bernard Zakheim murals. DEIR, p. 4.4-12. During the 1930s, Zakheim, a student of Diego Rivera, was one of the leading artists in the area who were creating major public art under the auspices of the New Deal art 21

programs. *See* Exhibit C. The ten murals that make up Zakheim's *History of Medicine* (1936-39) constitute one of this region's largest New Deal art projects by a single artist. *See id*. Despite housing such important artwork, the Project proposes to demolish UC Hall. DEIR, p. 4.4-12.

The DEIR contains several mitigation measures for the project's impacts to cultural resources, but all of them are improperly deferred to an uncertain time. For example, mitigation measure CUL-1a requires, at some point prior to any demolition work or significant alterations initiated at the known historical resources, "UCSF shall ensure that a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards identifies character-defining features of each historical resource." *Id*. at 4.4-19. The DEIR provides no justification for delaying this mitigation measure until after the EIR has been certified. The identification of character-defining features for historical resources on the Project site can and must be done prior to the approval of the Project so decision-makers and the public have sufficient information to determine the Project's impacts on cultural resources.

Mitigation measure CUL-1b also improperly defers mitigation by requiring a qualified architectural historian to thoroughly document each building and associated landscaping setting, which will include photography and a written documentary record of the buildings, at some point "[p]rior to any demolition work or significant alterations initiated at the known historical resources." *Id*. This measure suffers the same fatal flaws as CUL-1a – the DEIR does not provide any justification why this measure must be performed at some uncertain time, and should in fact be performed prior to the approval of the Project. 21 cont.

Mitigation measure CUL-1c requires UCSF to determine whether any character defining features of an individual historic resource may be salvaged "[p]rior to the demolition or significant alteration activities." *Id*. at 4.4-20. If features can be salvaged, "a Salvage Plan shall be prepared by a qualified architectural historian or historic architect." *Id*. The identification of historic resources on the Project site that can be salvaged must be done prior to the preparation of an EIR. The DEIR's conclusion that the Project will have significant and unavoidable impacts on cultural resources cannot be supported without such an analysis. Further, by deferring this analysis and the preparation of Salvage Plans for such resources, UCSF is undermining the full disclosure of the Project's impacts to decision-makers and the public, and preventing them from commenting on or analyzing the substantive mitigation measures for such impacts.

Lastly, mitigation measure CUL-1d requires UCSF Planning staff to work with a conservator to develop and implement a digital imaging and virtual preservation proposal for the Zakheim murals at some point "[p]rior to the commencement of demolition activities at UC Hall." *Id*. Not only does this measure suffer the same deferred mitigation flaws as identified for the other measures above, but it is attempting

to stand in place of feasible mitigation that would in fact preserve the murals. The DEIR states that the cost to physically preserve the murals by removing and relocating them, $7.6 million, "is prohibitive in light of UCSF's primary responsibility to support its academic health care mission." *Id*. at 4.4-15. UCSF instead is threatening to destroy the murals unless another third party, including Zakheim's family, will pay to preserve the murals. *Id*. $7.6 million is a drop in the bucket for the cost of the Project and the many measures UCSF proposes to implement for the Project that have nothing to do with its "primary responsibility to support its academic health care mission." UCSF has failed to otherwise explain why preserving the murals is not feasible.

21 cont.

3. The EIR defers mitigation of the Project's hazards and hazardous materials impacts.

The DEIR states that the Project may have impacts due to naturally occurring asbestos but any impact will be mitigated to less than significant due to the implementation of mitigation measure HAZ-1. DEIR, p. 4.8-16. However, HAZ-1 requires an Excavation Management Plan to be prepared at a later time. *See id*. at 4.8-18. This Excavation Management Plan is to be prepared to determine the absence or presence of naturally occurring asbestos in materials to be excavated yet the DEIR fails to provide a justification or explanation for why this Excavation Management Plan has not already been conducted in order to inform the decision-makers and the public reviewing the DEIR. UCSF should prepare the Excavation Management Plan prior to the approval of the Project so that the Project's potential hazardous impacts are known and fully analyzed in the DEIR, and so decision-makers and the public can propose mitigation measures and comment on the analysis.

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The DEIR also proposes mitigation measure HAZ-4, which requires an environmental consulting firm to prepare a Soil Management Plan to include measures to address protocols for identifying, handling, and characterizing suspect contaminated soils at some point "[p]rior to development of the [Project]." *Id*. at 4.8-23. Again, this mitigation measure is improperly deferred and UCSF fails to provide an explanation why this Soil Management Plan could not be prepared prior to the DEIR. By deferring the development of this plan, UCSF is precluding the decision-makers and the public from reviewing the plan and commenting on its adequacy.

4. The EIR defers mitigation of the Project's noise impacts.

The DEIR includes mitigation measures NOI-1a, NOI-1b, and NOI-1c to reduce the Project's construction noise impacts. DEIR, p. 4.11-18. However, NOI-1a and NOI-1b are improperly deferred. For example, NOI-1a requires UCSF contractors to employ site-specific noise attenuation measures during construction of the Project, which will be included in a Noise Control Plan "that shall be submitted for review and approval by UCSF to ensure that construction noise is consistent with the standards set forth in the City's Noise Ordinance." *Id*. The DIER goes on to list several noise control strategies

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that must be included in the Noise Control Plan. *Id*. UCSF again improperly excludes decision-makers and the public from participating in the review of this plan, and fails to explain why this plan could not be prepared prior to the DEIR. In deferring the formation of the mitigation measure to an unknown future time, UCSF cannot conclude that NOI-1a will in fact mitigate construction noise.

Further, NOI-1b suffers from similar flaws in that measures to minimize potential impacts of construction noise occurring outside the established work hour limits will be determined at a later time. *See id*. at 4.11-19. Additionally, NOI-1b lists several mitigation measures that *may be* included to reduce these impacts, but fails to include any concrete measures to show this impact will be mitigated. *Id*. 23 cont.

The DEIR also concludes that the Project's operational noise impacts will be less than significant with mitigation. *Id*. at 4.11-26. However, NOI-2 also improperly defers mitigation. For example, an acoustical consultant will be retained to review mechanical noise to determine specific noise reduction measures to reduce noise to comply with the City's Police Code. *Id*. at 4.11-28. NOI-2 also contains a list of possible noise reduction measures but fails to make them requirements. *Id*. Again, the deferment of the analysis of the operational noise and selection of mitigation measures prevents the disclosure of the Project's impacts and potential mitigation measures to decision-makers and the public. Without concrete and required mitigation, this measure cannot be relied upon to conclude that the Project will have less than significant operational noise impacts. 24

Lastly, the DEIR concludes that the Project's groundborne vibration and noise levels due to construction activities will be less than significant with mitigation. DEIR, p. 4.11-30. However, measure NOI-3b improperly defers this mitigation. NOI-3b requires UCSF to evaluate the presence of vibration-sensitive equipment within 150 feet of construction and demolition areas, and any sensitive equipment shall be evaluated for the existing extent of vibration isolation and relocated or further embellish isolation, as it is warranted. *Id*. The Project already lays out where construction will take place, even on future projects within the CPHP, so there is no reason why the evaluation of vibration-sensitive equipment is deferred to an unknown future time. Again, UCSF is preventing decision-makers and the public the opportunity to evaluate the Project's impacts and commenting on the proposed mitigation measures. Without this analysis and the deferred mitigation, this measure cannot be relied upon to conclude the Project will have less than significant groundborne vibration and noise levels. 25

5. The EIR defers mitigation of the Project's travel condition impacts.

The DEIR states that the Project's construction activities will have a less than significant impact with mitigation on the travel conditions along sidewalks and roadways serving the Project site. DEIR, p. 4.15-49. The DEIR relies on mitigation measure TRANS-5 to reduce this to a less than significant impact. *Id*. TRANS-5 requires construction contractors to prepare a traffic control plan for major phases of the 26

Project's construction, as well as meet with City agencies to coordinate feasible measures to reduce traffic congestion. *Id*. at 4.15-49. UCSF fails to provide an explanation for why the traffic control plan could not be prepared prior to the DEIR and why decision-makers and the public are excluded from reviewing and commenting on the mitigation measures that will be selected for the traffic control plan. By deferring this mitigation and excluding decision-makers and the public from reviewing and commenting on such measures, UCSF cannot rely on TRANS-5 to conclude the Project will have less than significant impact on the travel conditions along sidewalks and roadways serving the Project site during construction. 26 cont.

F. The EIR Impermissibly Relies on CEQA Section 21099.

The DEIR states that under CEQA section 21099, aesthetics and parking impacts do not need to be considered because this is an "employment center project" on an "infill site." DEIR, p. 4.0-3. The DEIR's conclusions are erroneous, and a revised EIR is required to analyze aesthetic and parking impacts. PRC 21099(d)(1) defines "employment center project" as follows:

> (a) For purposes of this section, the following terms mean the following:
> 1. 'Employment center project' means a project located on property **zoned for commercial uses** with a floor area ratio of no less than 0.75 and that is located within a transit priority area.

The Project area is not zoned for commercial uses. The DEIR at 4.10-7 states that the "campus site is primarily located in the City's P (Public) Zoning District…. Housing located along Third and Fifth Avenues is designated by the City as Residential House District, Two-Family (RH-2)." Since the Project site is not zoned commercial, 21099 does not apply at all. 27

Furthermore, 21099(e) states, "This section does not affect the authority of a public agency to establish or adopt thresholds of significance that are more protective of the environment." San Francisco has adopted thresholds that are more protective of the environment. The voters adopted Measure M, adding Planning Code section 101.1, which protects public open space vistas. General Plan Urban Design Element Policy 1.1 protects public views of open space and water. Since the City and voters of San Francisco have adopted more protective thresholds, those thresholds apply and must be considered.

The DEIR is therefore misleading as an informational document since it falsely states that 21099 applies to the Project and that aesthetic and parking impacts need not be considered. A revised draft EIR is required to correct this misinformation and to fully analyze and mitigate the Project's significant aesthetic and parking impacts.

G. The EIR Fails to Adequately Analyze the Project's Aesthetic Impacts.

If a project has any substantial negative effect on views and other features of beauty, it may have a significant environmental impact under CEQA. *See Ocean View Estates Homeowners Association, Inc. v. Montecito Water District* (2004) 116 Cal.App.4th 396, 401; *see also Quail Botanical Gardens Foundation, Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1604. If a project has a substantial adverse effect on a scenic vista, will substantially damage scenic resources, including scenic highways, or substantially degrade the existing visual character or quality of the site and its surroundings, it may have a significant aesthetic impact. *See* CEQA Guidelines, Appendix G.

The DEIR states that the Project would have a less than significant impact on scenic vistas. DEIR, p. 4.1-27. However, land use planner and Principal of Ikeda Consulting Jared Ikeda reviewed the DEIR and the Project's visual impacts and concluded that the Project will result in a significant change to public views and will change the visible skyline. *See* Exhibit D.

Specifically, a "particularly significant local view point is the trail head near the intersection of Farnsworth Lane and Edgewood." *Id*. at 3. The addition of a 294 foot high hospital will be seen from this vantage point and blocks views to the west, which "is a significant change to the public view and the inherent quality of the trail head and experience of accessing and walking this trail." *Id*. at 4. While the existing trees in this area and along the trail leading down screen and filter the vistas, the new hospital will entirely block scenic vistas and dominate the view. *Id*. This is a significant impact that must be analyzed and mitigated in the DEIR. 28

Additionally, the neighborhoods to the east, and views from streets such as Edgewood and Belmont and Willard will also be visually impacted by the new hospital. *Id*. The hospital will also "block views to Mt Sutro and the forest reserve from areas north of Parnassus Ave and Irving Street, and the visual experience of seeing a natural setting of a forested hillside from the local sidewalks and streets will be changed to one of a large urban building." *Id*. Furthermore, the addition of the new hospital "will undoubtedly change the visible skyline." *Id*. at 5. This is a noticeable chance and should be addressed in the context of the San Francisco General Plan Urban Design Element. *Id*. at 5-6.

San Francisco's General Plan Urban Design Element first policy is to "recognize and protect major views in the city, with particular attention to those of open space and water." San Francisco General Plan, Urban Design Element, Policy 1.1. Specifically, "[p]rotection should be given to major views whenever it is feasible, with special attention to the characteristic views of open space and water that reflect the natural setting of the city and give a colorful and refreshing contrast to man's development." *Id*.

However, the DEIR ignores this policy and fails to acknowledge the proposed hospital's impact on views of the Pacific Ocean. *See* Exhibit D, pp. 4-5.

A revised and recirculated draft EIR is required to analyze and mitigate the Project's significant aesthetic impacts. Feasible mitigation would include reducing the height or moving the 297 foot proposed hospital since it is responsible for most of the Project's adverse aesthetic impacts. 28 cont.

H. The EIR Fails to Adequately Analyze the Project's Impacts on Shadows.

The DEIR states that implementation of the Project would not create new shadows in a manner that would substantially and adversely affect the use and enjoyment of publicly accessible open spaces. DEIR, p. 4.1-74. However, as Mr. Ikeda points out, shadows affect the direct exposure to sun radiation, which can affect the temperature of the surface that is struck by sunlight. Exhibit D, p. 6. The comfort and attractiveness of these areas to pedestrians may be adversely affected yet are not addressed in the EIR. *Id*. Further, the city's Urban Design Guidelines state that plazas or parks located in the shadows cast by large buildings are unpleasant for users and large buildings can be oriented to minimize shadows falling on public or semi-public open space. *See id*. The EIR should take this into account and mitigate the Project's shadows in such a way as to minimize them on public or semi-public open spaces. Also, the DEIR clearly shows that the massive new hospital will cast shadows deep into Golden Gate Park. *See* DEIR, pp. 4.1-62, 4.1-68). The shadow renderings show shadows extending far into Golden Gate Park, near the baseball diamonds known as "Big Rec." The DEIR dismisses this impact arguing that the impact is on baseball fields that are rarely used in the morning. But this area is used for many things other than baseball. It is heavily used for soccer, tai-chi, frisbee, running and other activities at all hours of the day and at all times of the year. The shadowed area includes hiking/jogging trails which are very popular for dog walking, running, hiking and other activities at all hours. This is one of the most heavily used areas of the popular park. 29

San Francisco's Shadow Policy states that a project over 40 feet in height has a significant impact if it will cause shadows on a property under the jurisdiction of San Francisco's Department of Recreation and Parks. San Francisco Planning Department Shadow Analysis Procedure, July 2014; San Francisco Planning Code section 295.

Since the DEIR's own analysis shows that the massive 300- foot hospital casts shadows deep into Golden Gate Park, this is a significant impact that must be analyzed and mitigated in a revised DEIR. An obvious mitigation that should be analyzed in the revised DEIR is to relocate the hospital or make it much shorter to reduce its shadow impacts.

I. The DEIR Fails to Adequately Analyze the Project's Impacts on Biological Resources and Fails to Mitigate Impacts of the Project on Numerous Sensitive Species.

Expert biologist Shawn Smallwood, Ph.D. has reviewed the DEIR's discussion of biological resources. *See* Exhibit E. Drawing on his familiarity with the project area and decades of studying and surveying many of the species encountered at the site, Dr. Smallwood has prepared a critique of the DEIR, pointing out numerous shortcomings in the baseline assessment of the presence of species at the site, failures to evaluate impacts that will result from the Project, and numerous instances where the DEIR's assertions are insufficient or not supported by substantial evidence. 30

1. The DEIR provides an inadequate baseline and fails to adequately analyze the Project's impacts on biological resources.

In visiting the Project site, Dr. Smallwood observed at least 23 species of vertebrate wildlife, including 5 special-status species. Exhibit E, p. 2. The Golden Gate Audubon Society ("GGAS") tallied 47 species of birds on Mount Sutro Open Space Reserve in 2020. *See id*. at 5. eBird records further indicate a long list of species use Mount Sutro Open Space Reserve, the Parnassus Campus, and Aldea Housing. *Id*. While these sources documented 40 special-status species of birds, the EIR only addresses 6 special-status species. *Id*. at 9. Of these 6 special-status species, the EIR dismisses the likelihood of occurrence of two of them, assigns low likelihood of occurrence to another three, and assigns only a moderate likelihood of another, despite all of these species being documented on the site or surrounding area. *Id*. Furthermore, in a report prepared for UCSF, GGAS reported sighting 7 special-status species of birds that are not addressed in the EIR. *Id*. at 9-10. The EIR's attempts to justify this by claiming the Project site and surrounding area lacks the habitats necessary to support special-status species. *See* DEIR, pp. 4.3-14-4.3-15. However, as Dr. Smallwood notes, the EIR describes artificially narrow habitat needs for these species. *See* Exhibit E, p. 10. By narrowing down the species the EIR states is found at the Project site, the EIR also narrows its analysis of the Project's impacts to biological resources. In failing to establish an adequate baseline of biological resources, the EIR fails to adequately analyze the Project's impacts to biological resources. 31

The EIR also states that 0.15 acres of the Mount Sutro Open Space Reserve would be removed to facilitate the tallest of the proposed buildings on the campus, but would redesignate 0.4 acres to Open Space Reserve from Support. DEIR, p. 3-39. However, this 0.4 acres is already forested and otherwise indistinguishable from the forested landscape of the surrounding areas of Mount Sutro Open Space Reserve. Exhibit E, p. 7. "From the perspective of wildlife, the swap in land designations results in a 0.15-acre habitat loss," which the EIR fails to analyze. *Id*. Although "[m]uch more substantial impacts than mere acreage loss would result from the heights, extent, and structural attributes of the proposed new buildings." *Id*. Erecting tall structures into the

aerohabitat of volant wildlife results in collision mortality and interference with wildlife movement, as further described below. 31 cont.

2. The DEIR fails to adequately address the Project's impacts on wildlife resulting from bird strikes.

Migratory or dispersing birds attempting to stop over at the habitat island that Mount Sutro represents in San Francisco, and most birds leaving Mount Sutro to continue their migration or dispersal, "would expend extra energy – energy needed for long-distance flights – negotiating their way around the [Project's] buildings, but some would collide with the buildings after becoming disoriented or misled by the buildings' nighttime lights and by transparent and reflective glass windows." Exhibit E, p. 8. The DEIR acknowledges that the Project could result in an increase in bird collisions with buildings on the campus site, but concludes that by implementing mitigation measures BIO-2a, Prevention of Harm to Migrating Birds during Construction, and BIO-2b, Bird-Safe Building Treatments, the potential impacts to birds will be less than significant. Specifically, "[i]mplementation of these measures would reduce the potential adverse effect on resident and migrating birds to a less than significant level by reducing injuries associated with night lighting during construction and operation of the new facilities, and requiring design features be incorporated into new structures that would make buildings more visible to birds." DEIR, p. 4.3-19. This discussion of the Project is not sufficient to describe the Project's impacts on birds colliding with the building's windows. By failing to adequately quantify the Project's impacts due to bird collisions, the DEIR misrepresents the Project's potential impacts and fails to give any sense of the magnitude of this potential impact. 32

Full disclosure of the potential impact on wildlife of window collisions is especially important because "[w]indow collisions are often characterized as either the second or third largest source of human-caused bird mortality." Exhibit E, p. 17. Dr. Smallwood reviewed the DEIR, and even though it lacking details about the design of the proposed buildings, including the amount of glass, types of glass, and structural contexts of glass, predicted the Project will result in 6,176 bird deaths per year as a result of bird collisions. *Id*. at 16. The vast majority of these deaths are protected under Fish and Game Code section 3513. *Id*. If the Project moves forward as proposed, the Project will cause significant impacts on birds as a result of window collisions, despite the proposed mitigation measures. *Id*.

3. The DEIR fails to adequately analyze the Project's impacts on wildlife movement.

The DEIR asserts that since the Mount Sutro Open Space Reserve "does not provide contiguous habitat for any terrestrial species," the Project's "activities would have overall minimal impact on the Reserve's function as a migratory stopover," and implementation of several mitigation measures designed to address window collisions 33

would result in a less than significant impact on wildlife movement. DEIR, p. 4.3-19. However, the primary phrase of the CEQA wildlife corridor standard goes to wildlife movement regardless of whether the movement is channeled by a corridor. Exhibit E, p. 17. Sites such as the Project site "is critically important for wildlife movement because it composes a diminishing patch of natural cover within an expanse of anthropogenic land uses, forcing more volant wildlife to use the site as a stopover and staging habitat during migration, dispersal, and home range patrol." *Id*.

Further, even if mitigation measures do succeed in lessening bird-window collision mortality, "it will have no effect on the project's impacts to movement of wildlife that survive their encounters with the buildings." *Id*. Beyond window collisions, the Project's tall buildings would pose an additional barrier. "Many birds and bats attempting to fly to or from Mount Sutro would have to detour around the buildings, risking predation by peregrine falcons which exploit these types of situations, and costing valuable energy needed for long-distance travel. Inserting multiple tall buildings into the aerohabitat of birds and bats would cause significant adverse impacts to those birds and bats." *Id*.UCSF must therefore go back and adequately analyze the Project's impacts on wildlife movement.

33 cont.

4. No meaningful discussion of the Project's cumulative effects on wildlife is included in the DEIR.

Recognizing that several projects may together have a considerable impact, CEQA requires an agency to consider the "cumulative impacts" of a project along with other projects in the area. Pub. Res. Code § 21083(b); CEQA Guidelines § 15355(b). If a project may have cumulative impacts, the agency must prepare an EIR, since "a project may have a significant effect on the environment if '[t]he possible side effects of a project are individually limited but cumulatively considerable.'" *CBE*, 103, Cal.App.4th at 98; *Kings County Farm Bur*., 221 Cal.App.3d at 721. It is vital that an agency assess "'the environmental damage [that] often occurs incrementally from a variety of small sources . . . .'" *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1214 ("*Bakersfield Citizens*").

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Rather than assess the cumulative wildlife impacts of the Project, the DEIR states that due to the urban setting, implementation of the Mount Sutro Open Space Vegetation Management Plan, and the 2014 LRDP EIR mitigation measures, the Project would have a less than significant cumulative impact on biological resources. *See* DEIR, pp. 4.3-23-4.3-24. As Dr. Smallwood points out, "[i]f cumulative effects were indeed merely residual impacts of inadequately mitigation, then CEQA would require an inadequate mitigation analysis instead of a cumulative impact analysis." Exhibit E, p. 18.

Redevelopment of existing structures in already developed areas does in fact pose potentially severe bird-window collision impacts despite the assertion that redeveloped areas have already removed all biological resources. *Id*. As Dr. Smallwood

points out, "[j]ust as the project proposes potentially severe bird-window collision impacts, so too do new buildings going up in place of older buildings. New buildings in San Francisco are glass-covered." *Id*. An adequate cumulative impacts analysis would therefore "include a tally of predicted or estimated fatality rates of birds colliding with glass facades of recently built, planned, and foreseeable buildings in San Francisco." *Id*. Due to the Project's impacts, and those of other buildings in San Francisco, a serious cumulative impacts analysis is warranted. Bird abundance across North America has declined 29% over the last 48 years, which will result in substantial ecological and economic consequences. *See id*. Since windows are recognized as one of the principal anthropogenic sources of bird mortality, their cumulative effects among San Francisco's new buildings must be analyzed and mitigated. As a result, the DEIR's discussion of cumulative wildlife impacts is entirely deficient. 34 cont.

5. The DEIR's proposed mitigation measures will not reduce impacts to biological resources to less-than-significant levels.

The EIR proposes to mitigate potentially significant impacts to birds and bats through mitigation measures BIO-1c and BIO-1d, in which a biologist will conduct pre-construction surveys for nesting birds within 250 feet of the construction area and for roosting bats within 50 feet of the construction area within 7 days prior to initiation of construction activities. *See* DEIR, pp. 4.3-15-4.3-16. However, Dr. Smallwood disagrees that these measures would reduce the Project's impacts to less than significant because preconstruction surveys are limited in their mitigation effect as they detect only small fractions of bird nests and roosting bats occurring on a project site. Exhibit E, p. 18. 35

"Preconstruction surveys alone fail to prevent the deaths of most of the animals at risk, nor do they do anything to prevent habitat destruction and lost reproductive capacity." *Id*. at 19. Instead, detection surveys should be performed, and early enough to not only inform preconstruction surveys but also the public and decision-makers about potential project impacts. *Id*. "Take avoidance surveys cannot lessen impacts to nesting birds and roosting bats without first informing the public and decision-makers of the magnitude of potential impacts, nor without informing survey personnel where to look." *Id*.

The EIR also proposes to mitigate the Project's potentially significant impacts to birds due to collisions with the Project's windows through mitigation measure BIO-2b. BIO-2b includes the following measures: (1) minimizing unnecessary light emissions from interior and exterior portions of buildings; (2) exploring and adopting window glazing options such as marked glass or UV-reflective glass; and (3) minimizing light and glare of facades through orientation of the building, choice of materials, and landscaping. *See* DEIR, p. 4.3-20. However, Dr. Smallwood does not believe this mitigation measure will reduce the Project's impacts to birds due to window collisions to less than significant. San Francisco's 2011 standards for bird-safe buildings included glass and façade treatments and lighting treatment measures that were often of 36

uncertain efficacy and much has been learned by research performed since 2011. Exhibit E, p. 19. As for the third of the proposed measures in the EIR, minimizing light and glare of facades through orientation of buildings, etc., the EIR fails to identify the materials to be used and is unclear about whether and how building orientation would be decided to minimize collision risk, nor does it indicate the structural materials to be used on any particular portions of buildings. *See id*. at 19-20. While the building orientations are already decided, the decision of materials to be used are deferred to an unspecified later date. *Id*. at 20. In order to inform this measure, behavioral ecologists need to survey the project area to adequately characterize flight patterns and reactions to existing buildings, and surveys are needed to learn how many of each bird species fly through the area and at what times of day and night. *Id*.

36 cont.

6. The DEIR fails to analyze all potential feasible mitigation measures to reduce the project's impacts to biological resources.

As Dr. Smallwood points out, the most effective measure to minimize collision fatalities is careful siting. *Id*., at 21.

> There are two types of siting: Macro and micro. Macro-siting refers to selection of a project site, whereas micro-siting refers to selection of locations for project components within the boundary of a project site. Both levels of siting can substantially mitigate impacts to wildlife, but macro-siting usually offers the greatest opportunity for minimizing impacts. Applying macro-siting to the proposed project would consider impacts to wildlife if the new square footage was located at the site of UCSF's Medical Center at Mount Zion, or in Bayview at the Hunters Point shipyard, as examples. Of course, macro-siting must also consider project objectives but can also consider collateral opportunities for students and host communities. Other factors considered, siting the project farther from Mount Sutro Open Space Reserve would vastly lessen impacts to birds.

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Id. Micro-siting at the Project site to reduce the Project's impacts to birds would require reducing the size of the Project and minimizing the extent of windows on building facades, reducing building heights, and siting the taller buildings farther from the steep, forested slopes of Mount Sutro. *Id*. UCSF should investigate these siting measures and implement them if determined to be feasible.

J. Air Quality.

We submit herewith the expert comments of Dr. Paul Rosenfeld, Ph.D., and Matthew Hagemann, C.Hg., of the consulting firm, Soil Water Air Protection Enterprise (SWAPE). *See* Exhibit F. SWAPE demonstrates that the air quality analysis in the DEIR is patently inadequate. The SWAPE comments show that the air modelling supporting the DEIR was manually manipulated and altered in many respects to make

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the modelling fundamentally inaccurate and misleading. This renders the DEIR inadequate as an informational document. A revised draft EIR is required to include accurate air modelling and analysis.

In this letter we highlight just some of the more egregious examples of "tinkering" that were performed on the air models in the DEIR.

- The energy-generating utilities for the Project were manually adjusted to show a CH4 (methane) and N2O (nitrous oxide) intensity factor of zero. Exhibit F, p. 2. Of course, this is impossible, and vastly understates the greenhouse gas (GHG) emissions of the Project.
- The DEIR's model fails to include all of the 25,000 to 45,000 square feet of construction offices, again understating Project emissions of many types, particularly volatile organic compounds (VOCs).
- The Aldea Housing Densification will include 184 parking spaces (DEIR, p. 3-28), yet the DEIR's air model assumes zero parking for these units. Exhibit F, p. 3.
- The Project involves demolition of 42 existing student housing structures in order to construct 184 new housing structures. But the DEIR calculated the demolished housing as "Research and Development," which overstates the baseline emissions. *Id*. at 4.
- The DEIR models all 3.9 million square feet of existing land use space as "hospital." However, much of that space is housing, lecture halls, commercial space, library, parking and other functions that generate lower levels of emissions. This results in an overstatement of baseline emissions. *Id*. at 5.
- The DEIR vastly undercounts the emissions from Phase I of the Project. The Initial Phase calculation assumes 412,000 square feet of only research and development and residential space. But Phase I will actually include 1.43 million square feet of new building development. Thus, the DEIR undercounts the Phase I land use space by over 1 million square feet, and fails to include any hospital or parking space and related emissions. *Id*. at 6.
- The DEIR makes massive manual manipulations to the CalEEMod default construction schedule - extending the construction schedule out dramatically. The longer construction schedule results in lower emission numbers since emissions are calculated on a maximum daily basis. For example, the architectural coating (painting) phase was increased by over 5100% from the default value of 10 days to 521 days. The building construction phase was increased by over 400% from 200 to 1043 days. The grading phase was increased by 3700% from the default value of 4 to 152 days. The site preparation phase was increased by 7500% from the default value of 2 to 152 days. *Id*. at 7. SWAPE lists many other manipulations that were made to the air model, all resulting in lower daily emission rates by spreading out construction emissions over a longer time period.
- The DEIR underestimated the total amount of demolition emission and hauling trips. *Id*. at 8.

38 cont.

- The DEIR calculated emission assuming the use of Tier 4 Final Construction equipment, which is the cleanest construction equipment currently available. However, the DEIR does not require Tier 4 Final Construction equipment. It only required Tier 4 Construction equipment. There are two types of Tier 4 construction equipment: Tier 4 Interim and Tier 4 Final. These are actually quite different. Tier 4 Final equipment is up to 80% cleaner than Tier 4 Interim equipment. Therefore, by assuming the use of Tier 4 Final equipment, when only Tier 4 Interim is required, the DEIR underestimates Project construction emissions by up to 5 times. *Id*. at 11. SWAPE points out the there is very little Tier 4 Final equipment available in the market, so assuming that a contractor will voluntarily use it when it is not required is unrealistic. *Id*. at 12.
- The DEIR air model was manually manipulated to reduce vehicle emissions, thereby underestimating emissions from cars and trucks. *Id*. at 13.
- The DEIR was manually manipulated to reduce emission from consumer products, such as hair sprays, deodorants, air fresheners and other products that may be used by future residents. *Id*. at 14.
- The DEIR reduced the "silt-loading factor" for road dust by more than half. The DEIR states that it is using a San Francisco-specific silt loading factor. However SWAPE determined that the EIR relied on a San Diego factor, not a San Francisco factor. *Id*. at 15.
- The DEIR underestimates operations vehicle emissions by manually adjusting the default vehicle trip rates. *Id*.
- The DEIR underestimates the Project energy use. Operational energy use values were manually reduced to ZERO kilowatt hours. The DEIR justifies this by citing to UCSF's zero net electricity goal for 2025. However, the zero electricity goal is simply a goal, it is not a requirement of commitment. 2025 is less than five years away. It is preposterous to assume that the Project will use zero electricity in just five years from now. *Id*. at 16.
- The DEIRs cancer risk assessment is inaccurate for several reasons: First, it assumes the use of Tier 4 Final construction equipment, which is not required; second, it fails to consider the cumulative impacts of the various construction projects; third, it fails to consider the health risk impacts from the entire operation, which includes 52,200 daily vehicle trips and related diesel particulate matter emissions and other pollutants.

38 cont.

K. Greenhouse Gas Impacts.

The Project will have significant greenhouse gas ("GHG") emissions of 61,815 metric tons of carbon dioxide equivalents per year (MT CO2/yr), which indicates a significant impact. DEIR, p. 4.7-36. To mitigate this impact, the DEIR proposes mitigation measure GHG-1c, requiring offsets for emissions above the existing inventory of 125,426 MT CO2/year. However, the Court of Appeal recently held that emission offsets alone cannot justify a finding of a less than significant impact. *Golden Door v. San Diego* (2018) 27 Cal.App.5th 892. The Golden Door court held that offset credits

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may not adequately mitigate GHG emissions since they may be generated out of state or even out of country and may not represent real, verifiable and quantifiable emission reductions.

The DEIR also relies on alleged consistency with the 2017 California Air Resources Board ("CARB") Scoping Plan to determine GHG significance. However, SWAPE demonstrates that the Project does not demonstrate compliance with the 2017 Scoping Plan and appears to violate numerous provisions of the Plan. Exhibit F, pp. 21-25.

The DEIR relies on the Project's alleged compliance with Plan Bay Area 2040. CEQA Guidelines section 15064.4(b)(3) and 15183(b) allow lead agencies to consider a project's consistency with regional plans for mitigation of GHG emissions. However, Plan Bay Area 2040 is not a GHG reduction plan or a Climate Action Plan at all. It includes none of the required elements of such as plan as set forth in 15183.5(b)(1). *Id*. at 26.

39 cont.

L. Energy Impacts.

Lead agencies are required to analyze a project's energy impacts, and relying on existing energy-reduction requirements in buildings codes, and on the beneficial side effects of reducing greenhouse gases, to demonstrate a project's energy impacts will not be significant is not sufficient under CEQA. In *Spring Valley Lake Association v. City of Victorville* (2016) 248 Cal.App.4th 91, 103, the court determined that an EIR could not demonstrate greenhouse gas reductions from increasing Title 24 energy efficiency by 15 perfect if it could not show that the project "will, in fact, exceed Title 24 standards by 15 percent." While this case involves claimed greenhouse gas reductions, the result is applicable to the type of analysis required for energy reductions.

Here, the DEIR concludes that the Project will have less than significant energy impacts. DEIR, pp. 4.5-19, 4.5-28. This conclusion is in part based on the Project's compliance with UC's Sustainable Practices Policy provisions "that are designed to conserve and reduce energy consumption." *Id*. at 4.5-28. The DEIR states that all individual projects under the proposed CPHP would be required to comply with the UC Policy on Sustainable Practices, which requires new construction of facilities to meet a minimum standard of LEED-NC Silver and strive for LEED-NC Gold when possible and requires 20 percent better energy performance than Title 24. *See id*. However, the UC Policy on Sustainable Practices establishes goals, not requirements. *See* University of California - Policy on Sustainable Practices, p. 2. By solely relying on these goals, the DEIR's explanation fails to demonstrate how an increase in Title 24 efficiency and implementation of LEED-NC Silver or Gold will in fact reduce the Project's energy impacts. The DEIR also fails to calculate the reductions such measures would provide and whether they are sufficient to conclude the Project will in fact have a less than significant energy impact. Failure to provide such information renders the DEIR's

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energy impacts analysis legally inadequate because it is not based on substantial evidence.

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M. The EIR Fails to Adequately Analyze the Project's Land Use Impacts.

The DEIR concludes that the Project will result in a less than significant impact to Land Use and Planning. DEIR, pp. 4.10-9, 4.10-15. However, this ignores the fact that the Project is flatly inconsistent with a vast array of land use and general plan policies - most obviously the Project vastly exceeds applicable height limits. The DEIR justifies ignoring these policies by arguing that the University is not required to comply with local land use and zoning. Even if this were true, this does not mean that there is no impact resulting from the plan inconsistencies. CEQA is concerned with environmental impacts, not with legal requirements. The environmental impacts exist regardless of whether the University is bound to comply with the land use requirements at issue.

Also, in a 1987 Memorandum of Understanding ("MOU"), UCSF agreed to advise and consult with the City of San Francisco on any proposed construction projects. *See* Exhibit G. The MOU states that the City Planning Commission will advise UCSF about the "conformance of such development with the Master Plan of San Francisco and Planning Code Section 304.5 (Institutional Master Plans) with recommendations, of any, for amendment to the proposal… Should the City Planning commission and UCSF disagree on any matter which is the subject of this MOU, either party may request the participation of the Mayor and the Chancellor in attempting to resolve the dispute." *Id*. ¶ IV. Thus, UCSF has agreed to attempt to resolve any inconsistencies with the City's land use and zoning requirements. Also, UCSF has indicated that it intends to adhere to local policies and regulations to the extent practicable and to review policies germane to the analysis of land use impacts. DEIR, p. 4.10-6.

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Where a local or regional policy of general applicability is adopted in order to avoid or mitigate environmental effects, a conflict with that policy in itself indicates a potentially significant impact on the environment. *Pocket Protectors v. Sacramento* (2005) 124 Cal.App.4th 903; *Georgetown Preservation Society v. County of El Dorado* (2018) 30 Cal.App.5th 358.

The San Francisco General Plan provides policies and objectives to guide land use decisions and, along with the San Francisco Planning Code, prescribes the permitted uses and development standards to carry out the City's policies for the 107-acre Parnassus Campus site. The DEIR must therefore include a complete and forthright analysis of the Project's consistency with the General Plan and other applicable planning documents, ordinances and regulations so that UCSF can honor its intent to adhere to the extent practicable, the City's policies and "zoning codes related to building use, height, and bulk limitations; floor areas; and parking requirements or restrictions for the purpose of ensuring compatibility with the surrounding uses." DEIR, p. 4.10-6.

Compliance with the City's adopted policies and regulations are a key indicator of whether the Project is or is not compatible with the surrounding neighborhood. Here, after discussing only some of the applicable plans, the DEIR incorrectly concludes that the Project would be compatible with the adjacent land uses and impacts would be insignificant. Urban Planner Terrell Watt lists numerous inconsistencies with the General Plan and Planning Code. *See* Exhibit B, pp. 15-21.

41 cont.

GENERAL PLAN/ZONGING PROVISION	INCONSISTENCY
Land Use and Urban Design Elements LU-2: Plan for growth and renovations that are substantially consistent with use limitations and bulk limitations in City planning and zoning codes that exist at the time UCSF initiates the site selection process for such growth and renovation projects…UCSF will endeavor to be consistent with applicable land use plans and mitigation approaches where consistent with UC policy, while respecting specific neighborhood plans and concerns. LU3. Ensure that future UCSF development is compatible with physical surroundings in use, scale, and density and do not negatively affect surrounding land uses. LU10. Work toward compliance with the Parnassus Heights space ceiling and adhere to boundaries for the Parnassus Heights campus site. Policy 3.5: Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development. Policy 3.6: Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction. San Francisco Planning Code – Use Districts City's P (Public) Zoning District Housing along Third and Fifth Avenues – see also Residential House District, Two-Family (RH-2) Code sections Height and Bulk Districts: 25-X, 40-X, 65-D, 80-D, 130-D and 220-F. Floor areas rations are determined by allowable height and coverage.	The DEIR correctly concludes that the New Hospital, as well as Millberry Union, certain West Side development and the Aldea Housing densification project would not be consistent with City Planning Code height and/or bulk regulations for their respective building sites. DEIR at 4.10-16. The DEIR continues on to incorrectly conclude despite evidence to the contrary, that these conflicts would not result in significant incompatibility with adjacent land uses or impacts on surrounding uses. Taking just the New Hospital as an example, at about 955,000 gross square feet and up to 294 feet in height, the New Hospital clearly demonstrates the Project's incompatibility with the surrounding area resulting in significant adverse environmental impacts including but not limited to, wind, visual and environmental impacts associated with an inadequate supply of housing affordable to new students, faculty and staff. The New Hospital is patently inconsistent with SF Land Use and Design policies and height and bulk requirements in multiple ways. First, the New Hospital is within three height and bulk districts and exceeds height limits for portions of the site within two of these, the 65-D and 22-F Height and Bulk districts, by over 70 feet and X stories. Second, the New Hospital would require use of a portion of the Reserve and would be located even closer to the off-site residences on Edgewood. The DEIR concedes: Impact AES-2 finds that the New Hospital would be the most noticeable visual change under the CPHP program, and would contrast sharply both in height and scale with the nearby residential development…". DEIR at 4.10-17. In justifying the conclusion that the New Hospital is compatible with adjacent land uses, the DEIR points to the proposed amendments to the 2014 LRDP which increase the space ceiling. In addition, the DEIR (Impact AES-3) finds that with implementation of appropriate design standards and exterior materials light and glare and other impacts would be reduced to less than significant. Even so, the DEIR concedes that the New Hospital will still result in significant unavoidable wind

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	hazards. Analysis by Jared Ikeda provides clear evidence the New Hospital with also result in significant and unavoidable visual impacts. See Attachment 7. There are clear inconsistencies between the New Hospital and the City's General Plan policies and Code resulting in documented significant and unavoidable impacts associated with wind hazard, visual and housing, among other impacts. <u>These inconsistencies and the associated physical environmental impacts are not resolved by the amendment to the LRDP to raise the space ceiling</u>. Combined with other Project elements – Millberry Union, West Side – and the Project scale and bulk overall, the Project is clearly incompatible with the surrounding area resulting in significant and unavoidable impacts including those omitted from the DEIR but disclosed (wind) and some revealed by expert analysis (e.g., visual, cultural, housing). A revised and recirculated DEIR must re-analyze Project consistency with these and other applicable provisions of the City's Plans and Codes and Impact LU-2 must be found to be a significant and unavoidable impact. In addition, the Project is clearly inconsistent with CPHP Policy 3.6, which states that the height of buildings should be related to the prevailing scale and character of existing development. The New Hospital at nearly 100 feet taller than the tallest existing building on the campus, Moffit Hospital, is clearly inconsistent with this Policy. A revised DEIR must include in a revised Land Use and Planning section a systematic and thorough analysis of inconsistencies with all applicable (City, UC, other) policies and regulations.

42 cont.

Urban Design Element Policy 1.1: Recognize and protect major views in the city, with particular attention to those of open space and water. Policy 3.4: Promote building forms that will respect and improve the integrity of open spaces and other public areas.	The DEIR incorrectly concludes the project will not conflict with these policies and specifically that "[d]evelopment under the CPHP would not have a substantial adverse effect on a scenic vista" (AES-1) or "conflict with the applicable zoning and other regulations governing scenic quality" (AES-2) and therefore no mitigation is required. In his analysis of visual impacts, Jared Ikeda concludes that the New 16-story Hospital would result in significant visual impacts including specifically that it would block views to Mt Sutro and the Reserve and would block views of the ocean and Golden Gate Park from trails and other public vantage points resulting in policy inconsistencies with direct significant environmental impacts. See Attachment 7. A revised DEIR must change the disposition of these impacts (AES-1 and 2) to significant and unavoidable and identify feasible mitigation measures including alternatives to the Project.	43
Shadow Proposition M, adopted by the voters in 1986, added section 101.1 to the SF Planning Code and established 8 priority policies. Priority Policy No. 8 calls for the protection of parks and open space and their access to sunlight and vistas.	The DEIR incorrectly states that the implementation of the Project would not create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces. In his analysis of aesthetic impacts, Jared Ikeda reviewed the DEIR's analysis with respect to shadows and reached a different conclusion documented in his letter: "It appears though that certain areas along Parnassus Avenue and Irving Street will be subject to frequent shadows throughout the year." See Attachment 7. These more frequent shadows will clearly affect the use and enjoyment of these public spaces and as such should be called out as a Significant and Unavoidable impacts of the Project as proposed. Feasible mitigation measures must be identified.	44

Regents' Resolution: Space Ceiling of 3.55 Million Gross Square Feet	The DEIR conveniently concludes that the impacts associated with the Project's significant increase in gross square feet (an increase of approximately 1.5 million GSF about the existing space ceiling) and population increase from 18,500 to nearly 25,000, would be less than significant because the LRDP would be amended to increase both space and population. An amendment to the space and population ceiling does not eliminate the physical environmental impacts described in the table above associated with the increased scale of the Project. Such impacts include wind hazard (found SU by the DEIR), cultural (found SU by the DEIR) and additionally, aesthetic (visual and shadows) and housing, among others. A revised DEIR must identify this as an inconsistency, re-analyze the associated environmental impacts and identify feasible mitigation including alternatives to Project components such as the New Hospital.

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All of these inconsistencies are significant impacts under CEQA. A revised DEIR must include an expanded and forthright analysis of the Project's potential inconsistencies with applicable plans and policies, including the City's, and disclose the significant unavoidable environmental impacts associated with those inconsistencies. The revised DEIR must also include feasible mitigation measures and alternatives to reduce or eliminate these impacts. Alternatives should include alternative project proposals to conform to land use and zoning requirements to the maximum extent feasible, including height limitations.

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N. Growth Inducing Impacts, Population and Housing Impacts.

CEQA requires the lead agency to determine whether the "environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly," Pub. Res. Code § 21083(b)(3), (d)), and to "take immediate steps to identify any critical thresholds for the health and safety of the people of the state and take all coordinated actions necessary to prevent such thresholds being reached." *See* Pub. Res. Code § 21000 et seq. CEQA requires that an EIR include a detailed statement setting forth the growth-inducing impacts of a proposed project. *Id*. § 21100(b)(5). A proposed project is either directly or indirectly growth inducing if it: (1) **fosters economic or population growth or requires additional housing;** (2) removes obstacles to growth; (3) taxes community services or facilities to such an extent that new services or facilities would be necessary; or (4) encourages or facilitates other activities that cause significant environmental effects. CEQA Guidelines § 15126.2(d).

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While growth inducing impacts of a project need not be labeled as adverse, the secondary impacts of growth (e.g., gentrification and displacement, demand for additional housing and services, traffic, air pollution, etc.) may be significant and adverse. In such cases, the secondary impacts of growth inducement must be disclosed as significant secondary or indirect impacts of the project. The analysis required is similar in many respects to the analysis required to analyze impacts associated with population and housing. CEQA Guidelines Appendix G, Section XII provides that a project will have significant impacts where it will:

> • **Induce substantial population growth or concentration of population in an area, either directly (for example, by proposing new housing or businesses), or indirectly (for example, through extension of roads or other infrastructure);**
> • Displace substantial numbers of existing housing necessitating the construction of replacement housing elsewhere; or
> • **Displace substantial numbers of people**, necessitating the construction of replacement housing elsewhere.

47 cont.

The City of San Francisco Department of Public Health has issued a policy paper concluding that a Housing Impact Assessment should be conducted under CEQA. San Francisco Dept. of Public Health, *The Case of Housing Impacts Assessment: The Human Health and Social Impacts of Inadequate Housing and Their Consideration in CEQA Policy and Practice* (PHES Technical Research Report) (May 2004), Exhibit H. The Housing Impact Report grounds its conclusion in CEQA's requirement that an agency must consider reasonably foreseeable "environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly." Pub. Res. Code § 210983(b)(3).

Urban Planner Terrell Watt explains that the DEIR contains a short, 3 and 1/2-page discussion of Growth Inducing Effects. Exhibit B, pp. 8-12. Ms. Watt concludes that the Project will generate demand for housing that will vastly outstrip the amount of housing that will be constructed as part of the Project. The DEIR's discussion acknowledges the Project will increase the campus population by approximately 4,100 persons by 2030 and an additional 1,080 persons by 2050, including students and faculty and staff. The DEIR also calculates the multiplier of 0.73 for an additional 3,420 jobs that could be indirectly caused or induced by the Project. The Project includes construction of 142 net new housing units/beds within the Aldea housing complex and an additional 620 new residential units for a net total of 984 new units by 2050.

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The DEIR concedes "[c]ampus population growth under the proposed CPHP would not be entirely accommodated by the existing and new housing on site, and therefore would result in indirect housing demand beyond the campus site." DEIR, p. 5-5. The discussion provides little real analysis of the Project's potential to induce

growth in accordance with CEQA, nor does the discussion reach any conclusions as to the significance of growth inducing impacts instead relying on the assertion that the growth allowed by the Project is not substantial when "compared to the study area growth projections and to the extent that demand for new housing would exceed the capacity of the market area." DEIR, p. 4.12-10. Yet, the discussion does not identify any potentially significant impacts associated with population growth as a result of the elimination of the existing space ceiling and implementation of the Plan.

The DEIR goes on to state:

> "Generally, the housing demand associated with employment growth under the proposed CPHP would be satisfied by the housing that could be added in San Francisco and in other parts of the region." DEIR at 4.12-8.

Ms. Watt points out that the San Francisco and the region has been grossly underbuilding planned housing while generating significant new jobs; facts not disclosed by the DEIR. There is no information in the DEIR about the current housing crisis in San Francisco and region as summarized below. Nor does the DEIR contain any information about housing availability in the surrounding neighborhood and City, or information about housing affordability. Moreover, the DEIR fails to describe the breakdown of new students, faculty and staff in terms of numbers by typical jobs and salaries; information critical to estimating the percent of new staff, faculty and students who qualify as low income or very low income requiring lower cost housing options. Finally, the DEIR fails to acknowledge that UCSF is a major contributor to the affordable housing crisis, and will exacerbate that crisis by building out its expansion plan without building additional units affordable to new students, faculty, staff and employees of supporting services. *See* Jobs Housing Nexus Analysis SF, Kaiser Marston Associates, 2018. 48 cont.

Instead of the required analysis, the DEIR points to the Population and Housing Section conclusion to support its cursory overview of growth inducement impacts:

> "Implementation of the proposed CPHP would induce population growth in the Bay Area, but the population growth would **not be** substantial in comparison to growth that is projected and planned for San Francisco and the four study area counties in Plan Bay Area 2040 and the local general plans for the study area communities. Further, the population growth would not result in a demand for new housing that would exceed the capacity of the five-county market area." DEIR, p. 4.12-9. Emphasis added.

By comparing the Project's growth to the entire City and region, the DEIR seeks to diminish the significance of housing demand generated by the Project. CEQA prohibits this type of "drop in the bucket" analysis. No single project would ever have a significant impact if its effects were compared to an entire region. In *Friends of Oroville*

v. City of Oroville, 219 Cal. App. 4th 832 (2013), the Court of Appeal held that the agency failed to adequately analyze a project's cumulative contribution to significant GHG impacts by concluding, without adequate analysis, that the project's "miniscule" emissions were insignificant in light of the state's cumulative, state-wide GHG emissions, thus "applying a meaningless, relative number to determine insignificant impact." 219 Cal. App. 4th at 841-842. The Regents make the same error here by comparing the Project's impacts on housing to the entire Bay Area. In fact, given that the entire Bay Area is facing an extreme housing shortage, the cumulative impacts of this Project are worse, not better.

There is no question the Project will generate substantial additional growth in a highly constrained neighborhood, by increasing the daily average population by approximately 45%, nearly 5,200 students, faculty and staff. DEIR, p. 4.12-1. In addition, the Project generates an additional 3,420 jobs based on a multiplier of 0.73%; jobs that will put additional demand on a tight housing market. No information is provided about the nature of these jobs or the associated salary ranges of employees. The Project will also increase likely increase the demand for housing in the immediately surrounding neighborhoods and City as people avoid transit in a COVID worried world and seek to walk and or bike to work.

According to Urban Planner Ms. Watt, the Project most certainly will induce growth that will in turn significantly impact housing. Total new housing demand could be as high as 6,000+ units assuming that the majority of students, faculty, staff and indirect job employees are people who need housing. Lower demand for new housing, assuming all new students need housing and only 50% of faculty and staff need housing, at 4,000+ units, would still constitute a significant impact on a highly constrained housing market and could result in displacing local residents due to competition and gentrification. If demand is lower, due to a higher percent of new students, staff, faculty and indirect job employees are already housed (50%) the impact at 4,000+ units will still be significant due to the housing crisis because under either scenario, UCSF would be generating between 4 and 8 jobs for each new unit constructed. Added to the existing jobs-housing deficit in San Francisco and the region and the even greater deficit of housing affordable to low and very low income households, the growth induced by the Project would result in a significant impact on housing. Salaries disclosed for the Mission Bay Project for UCSF's workforce, suggest the majority of new students, staff and faculty will need housing affordable to low incomes. See www.payscale.com/research/USEmployer=UCSFMedicalCenter.

48 cont.

Housing Demand Range			
Direct/Multiplier Growth at 2040 DEIR page 4.12-7	Students 504	Faculty and Staff 4,680	Multiplier/Indirect Employees: 3,420
Housing Demand Estimates	High Demand (worst case scenario 100 require housing): 504 units Low Demand (50% not housed, new demand) 252 units	High Demand: (worst case scenario 80% not housed, net new): 3,744 units Low Demand (50% not housed, new demand) 2,340 units	High Demand: 50% not housed, new demand): 1,760 units

These housing-related impacts are more than glossed over by a discussion that excludes any information about the dire housing crisis. 48 cont.

Substantial new non-residential and residential growth in San Francisco includes total population growth based on household size assumptions, in addition to new students, staff and faculty estimated in the DEIR to be as high as 12,220 people by 2050. DEIR, p. 4.12-8. This estimate does not include indirect growth associated with the multiplier, but does assume all new growth is in San Francisco. This significant new growth will require additional public services, likely including expansion and therefore construction of facilities in the neighborhood or adjacent neighborhoods of a myriad of services. Yet the DEIR provides cursory information about these services and facilities and fails to analyze the associated impacts, including fiscal impacts. CEQA requires that if new construction of housing will occur to accommodate the Project's employees or services beyond that included in the Project, then the EIR must analyze the environmental impacts of that construction. The appropriate components for an adequate analysis include: (1) estimating the amount, location and time frame for growth that may result from the implementation of the Project (e.g., additional housing); (2) considering whether the new population would place additional demands on public services such as fire, police, recreation, emergency, health, childcare or schools; (3) applying impact assessment methodology to determine the significance of secondary or indirect impacts as a result of growth inducement; and (4) identifying mitigation measures or alternatives to address significant secondary or indirect impacts. CEQA Guidelines Appx. G § XIII(a).

The DEIR must be revised to provide this analysis and based on this analysis, to revise other environmental analyses including but not limited to population and housing, transportation, air quality, among other topics where impacts are derived in part from direct and indirect growth assumptions.

The DEIR's dismissal of likely growth inducing impacts because the impacts are "impossible to determine" violates CEQA. Virtually the sum total of the discussion, below, lacks analysis and supporting facts and evidence while at the same time identifying the potential areas of significant impacts associated with significant growth:

> "While it is acknowledged above that the precise nature, location, and magnitude of effects of indirect and induced growth cannot be determined, the proposed CPHP would likely increase overall demand in the region for housing, commercial and industrial space, and associated infrastructure. Potential effects could include increased traffic congestion; increased air pollutant emissions; loss of agricultural land and open space; loss of habitat and associated flora and fauna; increased demand on public utilities and services, such as fire and police protection, water, recycled water, wastewater, solid waste, energy, and natural gas; and increased demand for housing. An increase in housing demand in the Bay Area region would also require governmental services including, but not limited to schools, libraries, and parks to serve new commercial and residential development." DEIR, p. 5-7.

48 cont.

The discussion also acknowledges that this growth could contribute to a loss of open space by converting those lands to housing, commercial space and infrastructure, but attempts to discount the many impacts associated with conversion of natural and working lands by pointing out without evidence that "most jurisdictions have adopted smart-growth policies that discourage or prohibit this type of development." DEIR, p. 5-7.

Given that human beings must live somewhere, the increased demand for housing created by the Project will result in either displacement of local residents, who will in turn be forced to move elsewhere where additional housing will be required, or construction of additional housing in San Francisco. In either case, this will have significant impacts that must be analyzed in a revised EIR.

Ms. Watt concludes, "Based on accurate information about the pre-Covid SF and Bay Area housing crisis (summarize above), it can reasonably be concluded that the addition of 5,200 students, faculty and staff by 2050 and only 984 units produced, the housing need generated constitutes a significant impact. Demand for housing is further exacerbated by the job multiplier of 0.73 creating an additional 3,420 jobs induced by the Project. Total new housing demand could be as high as 6,000+ units assuming that the majority of students, faculty, staff and indirect job employees are people who need

housing. Lower demand for new housing, based on more new staff and faculty already housed, at an estimated 4,000+ units, would still constitute a significant impact. If demand is lower, due to a higher percent of new students, staff, faculty and indirect job employees are already housed (50%) the impact at 4,000+ units will still be significant due to the housing crisis. Under either scenario, UCSF would be generating between 4 and 8 jobs for each new unit constructed. Added to the existing jobs-housing deficit in San Francisco and the region and the even greater deficit of housing affordable to low and very low income households, the growth induced by the Project would result in a significant impact on housing.

A revised growth inducing analysis must be included in a revised and recirculated DEIR. The analysis must analyze the Project's likely impacts on generating housing demand and causing displacement of existing residents. The EIR must analyze feasible mitigation measures, such as the construction of additional affordable housing units to meet the additional demand generated by the Project, or contribution to a fund to facilitate construction of such new housing. Such measures are clearly feasible and therefore must be required. Since these measures will have environmental impacts of their own, this requires a recirculated draft EIR. CEQA Guidelines § 15088.5; *Mountain Lion Coalition v. Fish and Game Com*. (1989) 214 Cal.App.3d 1043.

48 cont.

O. The EIR Fails to Adequately Analyze the Project's Impacts on Public Services.

The DEIR concludes that the Project will result in a less than significant impact on public services. DEIR, pp. 4.13-7, 4.13-19. The DEIR makes this conclusion despite the fact that the total population at the Parnassus Heights campus will increase by nearly 7,500 by 2050. *Id*. at 4.13-7. Additionally, the DEIR limits its public services analyses to impacts on fire protection facilities and public school facilities. The DEIR states that since the increase in population at the Project site will increase over time, the Project "would result in an incremental increase in demand for fire protection." *Id*. at 4.13-8. Additionally, the DEIR only analyzed the impacts to schools based on the number of children anticipated to live in campus housing, and not the impact to school from children of students or employees not living on campus. *Id*. at 4.13-10. These analyses fail to provide substantial evidence that these impacts would be less than significant because the analyses are limited in scope and fail to include evidence supporting the conclusions. Lastly, with regards to other public facilities, with the exception to police facilities, the DEIR merely states "campus development under the proposed CPHP would not affect any other public facilities . . . and therefore, will not be evaluated further in this section." *Id*. at 4.13-6. The DEIR provides no further explanation for this omission, and the justification provided fails to support the DEIR's conclusion that the Project will have less than significant impacts on public services.

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P. The EIR Fails to Adequately Analyze the Project's Transportation Impacts.

The DEIR concludes that the Project will have a less than significant transportation impact because the Project would "be consistent with the transportation-related goals and policies set forth in the *UC Sustainable Practices Policy* and the 2014 LRDP," and "would not conflict with San Francisco's Transit First Policy, Better Streets Plan, or the San Francisco Bicycle Strategy." DEIR, p. 4.15-38, 4.15-40. However, this analysis ignores the practical implications of the Project on transportation impacts. The Project will increase the campus' daily population by 5,790 by the year 2030 and by 7,850 by the year 2050. *Id*. at 4.12-7. The DEIR also anticipates an increase in public transportation use and a decrease in personal vehicle travel to the Project site, and promotes the use of the N Judah by UCSF personnel and visitors yet fails to discuss the impacts this increase in daily population will have on public transit. The N Judah is the busiest line in the Muni Metro System and adding thousands of daily users will result in a significant impact. A revised EIR is required to analyze and mitigate this impact. 50

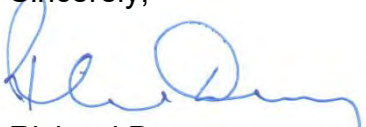
IV. UCSF SHOULD PREPARE AND RECIRCULATE A REVISED DEIR

A revised draft environmental impact report ("RDEIR") should be prepared and circulated for full public review to address the impacts identified above and to propose feasible mitigation measures. CEQA requires re-circulation of an EIR when significant new information is added to the EIR following public review but before certification. Pub. Res. Code § 21092.1. The CEQA Guidelines clarify that new information is significant if "the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project" including, for example, "a disclosure showing that . . . [a] new significant environmental impact would result from the project." CEQA Guidelines § 15088.5. The above significant environmental impacts have not been analyzed in the EIR and must be addressed in an RDEIR that is re-circulated for public review. 51

V. CONCLUSION

For the foregoing reasons, PNC believes that the Draft EIR for the UCSF Comprehensive Parnassus Heights Plan is wholly inadequate and urges the Regents to require a Revised Draft EIR to be prepared to address the concerns raised herein. Thank you for considering our comments and please include this letter in the record of proceedings for this project. 52

Sincerely,



Richard Drury
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Exhibit B

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September 9, 2020

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RE: Comments on Draft Environmental Impact Report for Proposed UCSF Comprehensive Parnassus Heights Plan

Dear Mr. Drury,

At your request, I have reviewed the Draft Environmental Impact Report ("DEIR") for the proposed UCSF Comprehensive Parnassus Heights Plan ("Project").[1] My review focused on the DEIR's treatment of:

- Population and Housing
- Growth Inducement
- Land Use and Planning
- Alternatives

In preparing these comments, I have reviewed the following information:

1. Draft Environmental Impact Report for the Plan and Appendices
2. 2014 LARDP
3. CPHP
4. 1976 Regents' Resolution
5. January 16, 2020 Letter from Mayor London Breed to Chancellor Sam Hawgood citing the 2007 MOU and 1987 and 2007 MOU's

After carefully reviewing the DEIR for the Project I have concluded the DEIR fails in numerous respects to comply with CEQA and to fulfill CEQA's fundamental mandate. As described below, the DEIR violates this law because it fails to analyze adequately the significant environmental impacts of the Project or propose sufficient mitigation measures. Where, as here, the EIR fails

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[1] See Attachment 1 for Watt Qualifications

to fully and accurately inform decision-makers and the public of the environmental consequences of proposed actions, it does not satisfy the basic goals of the statute. Because of the DEIR's numerous and serious inadequacies, the Lead Agency must revise and recirculate the document to permit an adequate understanding of the environmental issues and potential solutions, including feasible mitigation measures and alternatives.

53 cont.

I. Context and Introduction

A. UCSF Should Honor the Space Ceiling and Other Commitments

UCSF should honor its commitment to the space ceiling and to development compatible with surrounding uses at the Parnassus Heights campus by selecting an alternative within the existing space ceiling. The Parnassus Heights campus site, the oldest and largest of the UCSF campuses, is located in among some of the oldest neighborhoods in San Francisco, which are characterized by a mix of unique residential areas ranging from single family to multi-family housing and neighborhood serving commercial districts such as located along Irving and Judah Streets and 9th Avenue. In addition to Mount Sutro Open Space Reserve, several park and open space areas are located near the campus. This area surrounding the Parnassus Heights campus is further characterized by local serving streets plagued with traffic, parking congestion and lack of transit. Approximately 43% of the main campus (exclusive of the Aldea area) borders the Reserve, breaking the City's normal grid pattern and limiting ingress and egress routes to the main campus. The surrounding neighborhoods, like all of San Francisco, also suffer from a lack of affordable housing and available sites to build new housing. Recognizing the unique and constrained location the Parnassus Heights campus occupies, the Regents adopted a sensible "space ceiling" for the campus in its 1976 Regents Resolution, stating in pertinent part:

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> "The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets) and this limit shall be permanent." See Attachment 2.

The Regent's Resolution recognized the transportation problems in the area and committed funds to develop a plan to alleviate transportation problems including traffic, parking congestion and lack of transit. Concern for the impacts of the Project on the neighborhood is an ongoing concern. In a letter to Chancellor Hawgood, dated January 16, 2020, Mayor London Breed, President of the Board of Supervisors Norman Yee and Supervisor Dean Preston note the need for a revised MOU to adopt and formalize arrangements for coordination and consideration of both our interests and inputs in the context of land use approvals, transportation needs and ongoing service provisions, noting the common challenges faced include housing supply, affordability and climate and seismic related risks. See Attachment 3. According to a June 4th Staff Report to the Planning Commission, the Planning Department and UCSF are engaged in ongoing conversations about how to structure a stakeholder process to achieve the Mayor and Supervisor's objectives, expected to culminate in an MOU.

While not part of the objectives or regulations in the UCSF 2014 LRDP, reference is made in the DEIR to the Community Planning Principles including:

- Land Use LU1. Plan for growth and renovations that are substantially consistent with use limitations and height and bulk limitations in the City planning and zoning codes that exist at the time UCSF initiates the site selection process for such growth and renovation projects. The University should consider City planning proposals that are underway. UCSF will endeavor to be consistent with applicable land use plans and mitigation approaches where consistent with UC policy, while respecting specific neighborhood plans and concerns.
- LU3. Ensure that future UCSF development is compatible with physical surroundings in use, scale, and density, and that do not negatively affect surrounding land uses.
- LU10. Work toward compliance with the Parnassus Heights space ceiling and adhere to boundaries for the Parnassus Heights Campus site.

54 cont.

DEIR at page 4.10-3 to 4.10-4.

Although the University is constitutionally exempt from local land use regulation whenever using properties under its control in furtherance of its "educational mission," the University has committed to substantial consistency with local policies where feasible. This dual commitment – to the space ceiling and to adherence where feasible to local policy – is one UCSF should and can honor given the very real constraints to development in the area surrounding the Parnassus Heights campus. There are feasible alternatives to the Project, including a new hospital at Mount Zion, Mission Bay or Hunters Point, that should be fully considered in a revised and recirculated DEIR before the decision is made to break the space ceiling commitment and significantly impacting the surrounding neighborhoods.

B. The DEIR Should be Revised and Recirculated to Address the Outbreak in December 2019 of COVID 19

The outbreak of COVID 19 was first reported on December 31, 2019 in Wuhan China. The Notice of Preparation (NOP) for the UCSF Parnassus Heights campus was issued January 14, 2020. As described at page 4.0-6 of the DEIR, "[n]ormally, the baseline condition is the physical condition that exists when the Notice of Preparation ("NOP") is published. The NOP for the proposed CPHP was published in January 2020, and the baseline conditions contained in this CPHP EIR are generally taken from this time period. However, the CEQA Guidelines and applicable case law recognize that the date for establishing an environmental baseline cannot always be rigid." DEIR at 4.6-6. UCSF is a health based organization, therefore fully aware early on of the implications of the Wuhan outbreak. The DEIR itself acknowledged the potential implications of COVID 19, concluding that:

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> "The net effect of the pandemic on the Parnassus Heights campus site development and operations cannot be predicted at this point in time without speculation." DEIR at page 1-9.

The DEIR concedes COVID 19 has implications for the Project. For example, the objectives for the New Hospital, objectives used in part to dismiss some alternatives, include an increase in beds to provide for inpatient health care in times of severe strain such as the current pandemic. DEIR at page 6-4. The brief discussion at page 1-9 also acknowledges that UCSF will likely consider operational changes such as increases in telehealth services and telework, among others.

COVID 19 was known or should have been known at the time of the issuance of the NOP and certainly, as reflected in Section 1.7 of the DEIR, was known prior to circulation of the DEIR for public comment. COVID 19 warrants changes and updates to existing environmental setting information, critical to complete an accurate impact analysis, as well as to the Project Description (e.g., space needs changes given a likely transition as noted in the discussion to telework and telehealth). Significant questions are raised by COVID 19 that have implications to the Project and related impacts – including but not limited to an acknowledgement that UCSF is likely to increase telework, telehealth consultations and remote learning. These are but a few of the changes warranting UCSF to hit pause both to revise the DEIR and to re-engage the public and experts, right-size the Project and evaluate other alternatives that would reduce or eliminate impacts while adhering to the existing space ceiling.

55 cont.

II. The Project Violates the California Environmental Quality Act

A. The Project Description is In Flux

A fundamental requirement of CEQA is that an EIR contain an accurate, complete and stable project description. Without a complete and stable project description, an agency and the public cannot be assured that all the project's environmental impacts have been revealed and mitigated. Further, CEQA and the CEQA Guidelines mandate that an EIR include a description of the "physical environmental conditions . . . from both a local and a regional perspective. . . Knowledge of the regional setting is critical to the assessment of environmental impacts." CEQA Guidelines Section 15125(a) and (c). This requirement derives from the principle that without an adequate description of the project's local and regional context, the EIR – and thus the decision-makers, agencies and public who rely on the EIR – cannot accurately assess the potentially significant impacts of the proposed Project.

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As discussed above, the Project is likely changing in fundamental ways due to COVID 19 – including adjustments to the Project due to a likely increase in telework and telehealth, among other adjustments:

> "UCSF will likely consider operational changes such as increases in telework and telehealth services, especially primary and secondary health care services." DEIR at 1-9.

In addition to telehealth and telework, distance learning also appears likely on the increase. The overall space needs and allocations for the Project should be revisited in light of COVID 19 and other rapidly changing conditions due to COVID. The emerging stakeholder process referenced in the June 2020 Staff Memo to the San Francisco Planning Commission provides another good reason to pause the proposed Project entitlement process and discuss an appropriately scaled Project for the Parnassus campus site. 56 cont.

B. The DEIR Includes Incomplete and Inadequate Baseline Information to Support the Analysis of Project Impacts

The DEIR fails to adequately describe baseline (environmental setting) conditions. Setting or environmental baseline information is as essential to adequately disclosing and analyzing project-related and cumulative impacts as a complete and consistent Project description. Without adequate and complete information about the environmental setting, it is not possible to determine whether the Project improves or makes worse existing environmental conditions or the extent of the Project-related and cumulative impacts. The Project NOP was issued January 14, 2020 after the COVID 19 pandemic was a known crisis. As such, the DEIR's baseline or existing environmental setting information must be updated to reflect conditions Pre-COVID 19 and Post emergence of COVID 19. Another option is to postpone the Project until more is known about the COVID crisis. Both pre- and post- emergence of COVID 19 information is critical if adequate analyses are to be completed for topics ranging from land use, housing and population to transportation. 57

Examples of baseline setting information that is missing from the DEIR includes but is not limited to the following.

1. Students, Faculty and Staff

The DEIR omits information essential to analysis of whether the Project will result in significant impacts to housing supply as well as related impacts of displacement due to increased demand for housing and gentrification. Such information includes at a minimum the general salary ranges of new students, faculty and staff. Such information was provided in the Mission Bay Hospital environmental documents and fiscal impact analysis, hereby incorporated by reference. . In addition, the DEIR should provide information about the current student, staff and faculty to inform analysis of new housing demand (e.g., where do current staff, faculty and students live? Etc.). 58

2. Demographics in the Surrounding Neighborhood and City

Basic demographic information must be part of the DEIR's revised baseline in order to support and inform analysis of Project impacts on housing. The DEIR includes no information about the surrounding area demographics or demographics in the City and study area, making adequate analysis of impacts impossible. 59

3. Affordable, Student, Workforce and Family Friendly Housing

The Project will significantly increase students, staff and faculty at the campus adding to the demand for scarce housing affordable to new students, staff and faculty in the areas surrounding the Project, the City and the region. In addition the Project will nearly double projected new job growth due to the multiplier effect. The DEIR must analyze the potential for the Project to raise housing prices, contribute to gentrification and displacement due to price increases and competition for scarce housing in the surrounding area, San Francisco and the region. Very little setting information is provided to support analysis in the short, 13 page section on Population and Housing and the even shorter, 8-page discussion of growth inducement.

To perform an adequate analysis of Project and cumulative impacts to population and housing and growth inducement, it is essential the DEIR include in the description of the Project baseline (setting) details concerning existing vacancy rates for affordable units, including deed restricted housing, family housing, and housing affordable to the workforce[2] in the surrounding neighborhoods[3], the City as well as the broader five-county study area. Little setting information is provided in support of the DEIR's across the board conclusions that impacts associated with project growth will be less than significant. The DEIR contains no information concerning affordable housing and workforce housing whatsoever.

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Without current and complete information about the existing housing stock in the surrounding neighborhoods, the City and the study area, the DEIR cannot adequately analyze the Project's impact on affordable, workforce and family friendly housing and households, and the DEIR's conclusions concerning the insignificance of Project-related and cumulative impacts cannot be supported by facts and evidence. The DEIR must be revised to include this and other baseline information, including changes in housing stock and availability pre- and post- emergence of COVID 19. While long term effects of COVID 19 maybe speculative, some effects are known and should be disclosed where possible.

In addition to the above information, the DEIR must discuss and include in its revised analysis, the locations of disadvantaged communities. Such information is essential to support analysis of the extent to which the Project could further impact these DACs and exacerbate existing housing inequity. Sources of this information are readily available. See e.g., Urban Displacement Project www.urbandisplacement.org/map/sf. Project such as this one have a high potential to contribute to the gentrification and displacement of disadvantaged communities

[2] Workforce housing is housing at the lower end of market rate serving households with up to 200% of median income and often referred to as the "missing middle" or gap in affordable housing in San Francisco. Voters recently approved funding to build more housing, including for the SF workforce.

[3] Increasingly with the COVID 19 threat, workers and students choosing to avoid transit are increasingly putting pressure on nearby housing. This warrants adjustment of the DEIR's analysis of housing impacts in the surrounding neighborhoods.

due to the influx of additional students, staff and faculty who most likely will be seeking housing within walking and biking distance to the campus in a post COVID world. 60 cont.

4. Existing Jobs-Housing Balance and Fit within the Surrounding Neighborhood, City and Regional Study Area

The DEIR must analyze the potential for the Project to make worse the existing imbalance of jobs and housing. Little information is provided in the DEIR on jobs housing imbalance pre- or post-emergence of COVID 19. The DEIR fails to cite readily available information for San Francisco and Region concerning the growing imbalance. Specifically, San Francisco or more accurately in the SF-Oakland-Hayward census area, created only one new home per 6.8 new jobs between 2010 and 2015. Source: US Census Data. Looking just at San Francisco, it comes out to 8.2 jobs per new home during that same period, further increasing an enormous gap in the already out of balance housing to jobs ratio in the Bay Area. Not surprising rents increased by 43% over the same period due to housing scarcity and competition from new employees. Source: U.S. Census Data 2010 and 2015. This data is readily available and must be included in a revised DEIR to support a credible analysis of the Project's impacts on housing and growth. 61

C. Finding the right jobs-housing balance has long been an important concern for urban planners and an important policy consideration for general and area plans. More recently, attention has turned to jobs-housing fit – the extent to which housing price and rent is well matched to local job salary and quality. The DEIR are silent on the matter of jobs housing fit and fails to adequately address the issue of jobs housing balance. The DEIR should be revised to describe the existing job-housing balance and fit for the surrounding neighborhoods, the City and region. Updated baseline (environmental setting) information must include a description of changes in demand for housing in San Francisco Pre- and Post-Emergence of COVID 19. This information is not only necessary to adequately analyze environmental topics such as displacement and Project demand for new housing, but it is also essential to determining the extent to which the Project will increase commuting, traffic, transit demand, and vehicle miles traveled. Without this information, the full impacts associated with air quality and greenhouse gas emissions, among other impacts cannot be adequately analyzed and conclusions concerning the significance of Project-relation and cumulative impacts cannot be supported by facts and evidence. The DEIR must be revised to include this and other baseline information to inform revised impact analyses and conclusions. The DEIR's Analysis of, and Mitigation for, the Impacts of the Project Are Inadequate 62

The discussion of a project's environmental impacts is at the core of an EIR. See CEQA Guidelines Section 15126(a). As explained below, the DEIR's analysis of the Project's environmental impacts are deficient under CEQA because the DEIR fails to provide the necessary facts and analysis to support informed decisions about the Project, mitigation 63

measures and alternatives. An EIR must contain facts and analysis, not just bare conclusions. A conclusion regarding the significance of an environmental impact that is not based on analysis of the relevant facts fails to fulfill CEQA's information mandate.

Additionally, an EIR must identify feasible mitigation measures to mitigate significant environmental impacts. CEQA Guidelines Section 15126.4. Under CEQA, "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects. . . ." Pub. Res. Code Section 21002.

63 cont.

As explained below, the DEIR fails to provide detailed, accurate information about the full breadth of the Project's potentially significant impacts with respect to growth inducement, population and housing and land use and planning. The DEIR's cumulative analysis of these impacts is also deficient. Where the DEIR fails to adequately analyze the Project-related impacts, the cumulative analysis cannot be adequate. Further, the DEIR does not identify and analyze feasible mitigation measures that would reduce or avoid such impacts.

1. The DEIR's Analysis of the Project's Growth-Inducing and Population and Housing Impacts is Flawed

The DEIR's analysis of growth inducing and population and housing impacts is flawed and conclusions reached by the DEIR that all impacts are less than significant incorrect. These topics are closely related and the two sections contain multiple cross references. Therefore, these impact topics are discussed together in this section.

CEQA requires that an EIR include a detailed statement setting forth the growth-inducing impacts of a proposed project. Pub. Res. Code Section 21100(b)(5). A proposed project is either directly or indirectly growth inducing if it: (1) fosters economic or population growth or requires additional housing; (2) removes obstacles to growth; (3) taxes community services or facilities to such an extent that new services or facilities would be necessary; or (4) encourages or facilitates other activities that cause significant environmental effects. CEQA Guidelines Section 15126.2(d). While growth inducing impacts of a project need not be labeled as adverse, the secondary impacts of growth (e.g., gentrification and displacement, demand for additional housing and services, traffic, air pollution, etc.) may be significant and adverse. In such cases, the secondary impacts of growth inducement must be disclosed as significant secondary or indirect impacts of the project. The analysis required is similar in many respects to the analysis required to analyze impacts associated with population and housing.

64

a. Growth Inducement Analysis is Woefully Lacking

The DEIR contains a short, 3 and 1/2-page discussion of Growth Inducing Effects. The discussion acknowledges the Project will increase the campus population by approximately 4,100 persons by 2030 and an additional 1,080 persons by 2050, including students and faculty and staff. The DEIR also calculates the multiplier of 0.73 for an additional 3,420 jobs that could

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be indirectly caused or induced by the Project. The Project includes construction of 142 net new housing units/beds within the Aldea housing complex and an additional 620 new residential units for a net total of 984 new units by 2050.

The DEIR concedes "[c]ampus population growth under the proposed CPHP would not be entirely accommodated by the existing and new housing on site, and therefore would result in indirect housing demand beyond the campus site." DEIR at 5-5. The discussion provides little real analysis of the Project's potential to induce growth in accordance with CEQA, nor does the discussion reach any conclusions as to the significance of growth inducing impacts instead relying on the assertion that the growth allowed by the Project is not substantial when "compared to the study area growth projections and to the extent that demand for new housing would exceed the capacity of the market area.[4]" DEIR at page 4.12-10. Yet, the discussion does not identify any potentially significant impacts associated with population growth as a result of the elimination of the existing space ceiling and implementation of the Plan.

The DEIR goes on to state:

> "Generally, the housing demand associated with employment growth under the proposed CPHP would be satisfied by the housing that could be added in San Francisco and in other parts of the region." DEIR at 4.12-8.

65 cont.

San Francisco and the region has been grossly underbuilding planned housing while generating significant new jobs; facts not disclosed by the DEIR. There is no information in the DEIR about the current housing crisis in San Francisco and region as summarized below. Nor does the DEIR contain any information about housing availability in the surrounding neighborhood and City, or information about housing affordability. Moreover, the DEIR fails to describe the breakdown of new students, faculty and staff in terms of numbers by typical jobs and salaries; information critical to estimating the percent of new staff, faculty and students who qualify as low income or very low income requiring lower cost housing options. Finally, the DEIR fails to acknowledge that UCSF is a major contributor to the affordable housing crisis, and will exacerbate that crisis by building out its expansion plan without building additional units affordable to new students, faculty, staff and employees of supporting services. See Jobs Housing Nexus Analysis SF, Kaiser Marston Associates, 2018 submitted under separate cover

Instead of the required analysis, the DEIR points to the Population and Housing Section conclusion to support its cursory overview of growth inducement impacts:

> "Implementation of the proposed CPHP would induce population growth in the Bay Area, but the population growth would not be substantial in comparison to growth that is projected and planned for San Francisco and the four study area counties in Plan Bay Area 2040 and the local general plans for the study area communities. Further, the population

[4] Five county study area.

growth would not result in a demand for new housing that would exceed the capacity of the five-county market area." DEIR at 4.12-9. Emphasis added.

By comparing the Project's growth to the entire City and region, the DEIR seeks to diminish the significance of housing demand generated by the Project. There is no question the Project will generate substantial additional growth in a highly constrained neighborhood[5], by increasing the daily average population by approximately 45%, nearly 5,200 students, faculty and staff. DEIR at page 4.12-1. In addition, the Project generates an additional 3,420 jobs based on a multiplier of 0.73%; jobs that will put additional demand on a tight housing market. No information is provided about the nature of these jobs or the associated salary ranges of employees. The Project will also increase likely increase the demand for housing in the immediately surrounding neighborhoods and City as people avoid transit in a COVID worried world and seek to walk and or bike to work.

The Project most certainly will induce growth that will in turn significantly impact housing. Total new housing demand could be as high as 6,000+ units assuming that the majority of students, faculty, staff and indirect job employees are people who need housing. Lower demand for new housing, assuming all new students need housing and only 50% of faculty and staff need housing, at 4,000+ units, would still constitute a significant impact on a highly constrained housing market and could result in displacing local residents due to competition and gentrification. If demand is lower, due to a higher percent of new students, staff, faculty and indirect job employees are already housed (50%) the impact at 4,000+ units will still be significant due to the housing crisis because under either scenario, UCSF would be generating between 4 and 8 jobs for each new unit constructed. Added to the existing jobs-housing deficit in San Francisco and the region and the even greater deficit of housing affordable to low and very low income households, the growth induced by the Project would result in a significant impact on housing. Salaries disclosed for the Mission Bay Project for UCSF's workforce, suggest the majority of new students, staff and faculty will need housing affordable to low incomes. See www.payscale.com/research/USEmployer=UCSFMedicalCenter

65 cont.

Housing Demand Range			
Direct/Multiplier Growth at 2040 DEIR page 4.12-7	Students 504	Faculty and Staff 4,680	Multiplier/Indirect Employees: 3,420
Housing Demand Estimates	High Demand (worst case scenario 100 require housing): 504 units	High Demand: (worst case scenario 80% not housed, net new): 3,744 units	High Demand: 50% not housed, new demand):

[5] Constrained in terms of circulation and housing.

	Low Demand (50% not housed, new demand) 252 units	Low Demand (50% not housed, new demand) 2,340 units	1,760 units

These housing-related impacts are more than glossed over by a discussion that excludes any information about the dire housing crisis.

Substantial new non-residential and residential growth in San Francisco includes total population growth based on household size assumptions[6], in addition to new students, staff and faculty estimated in the DEIR to be as high as 12,220 people by 2050. DEIR at page 4.12-8. This estimate does not include indirect growth associated with the multiplier, but does assume all new growth is in San Francisco. This significant new growth will require additional public services, likely including expansion and therefore construction of facilities in the neighborhood or adjacent neighborhoods of a myriad of services. Yet the DEIR provide cursory information about these services and facilities and fails to analyze the associated impacts, including fiscal impacts. CEQA requires that if new construction of housing will occur to accommodate the Project's employees or services beyond that included in the Project, then the EIR must analyze the environmental impacts of that construction. The appropriate components for an adequate analysis include: (1) estimating the amount, location and time frame for growth that may result from the implementation of the Project (e.g., additional housing); (2) considering whether the new population would place additional demands on public services such as fire, police, recreation, emergency, health, childcare or schools; (3) applying impact assessment methodology to determine the significance of secondary or indirect impacts as a result of growth inducement; and (4) identifying mitigation measures or alternatives to address significant secondary or indirect impacts. CEQA Guidelines Appx. G Section XIII(a). The DEIR must be revised to provide this analysis and based on this analysis, to revise other environmental analyses including but not limited to population and housing, transportation, air quality, among other topics where impacts are derived in part from direct and indirect growth assumptions.

65 cont.

The DEIR dismissal of likely growth inducing impacts because the impacts are "impossible to determine" violates CEQA. Virtually the sum total of the discussion, below, lacks analysis and supporting facts and evidence while at the same time identifying the potential areas of significant impacts associated with significant growth:

> "While it is acknowledged above that the precise nature, location, and magnitude of effects of indirect and induced growth cannot be determined, the proposed CPHP

[6] 2.36 persons per HH; assumes only one student per HH. DEIR at page 4.12-8.

> would likely increase overall demand in the region for housing, commercial and industrial space, and associated infrastructure. Potential effects could include increased traffic congestion; increased air pollutant emissions; loss of agricultural land and open space; loss of habitat and associated flora and fauna; increased demand on public utilities and services, such as fire and police protection, water, recycled water, wastewater, solid waste, energy, and natural gas; and increased demand for housing. An increase in housing demand in the Bay Area region would also require governmental services including, but not limited to schools, libraries, and parks to serve new commercial and residential development." DEIR at 5-7.

65 cont.

The discussion also acknowledges that this growth could contribute to a loss of open space by converting those lands to housing, commercial space and infrastructure, but attempts to discount the many impacts associated with conversion of natural and working lands by pointing out without evidence that "most jurisdictions have adopted smart-growth policies that discourage or prohibit this type of development." DEIR at 5-7.

A revised growth inducing analysis must be included in a recirculated DEIR. The impacts of growth must also be considered in new analysis concerning the social equity impacts of the Project. See Attachment 4, Draft Planning Commission Resolution.

b. The DEIR's Analysis of and Mitigation for the Project's Population and Housing Impacts is Inadequate

The DEIR's approach to analysis of population and housing does not adequately analyze Project-related impacts associated with changes that would occur with Project implementation to the population, including employment and residential growth. Instead of actually analyzing the Project's impacts related to population and housing, the DEIR asserts that all impacts both direct and indirect will be less than significant. The DEIR lacks facts, analysis and evidence to support this conclusion. The result is a lack of information about the actual severity and extent of impacts associated with significant growth in population including students, faculty, staff and patients and visitors. For a Project that will guide development of the campus for 30+years and likely be the basis of streamlined permitting for project facilities and infrastructure, it is especially important that the DEIR comprehensively identify and analyze its impacts on growth, population, housing and employment.

66

In determining impact significance associated with growth in population, employment and housing, CEQA requires analysis of the following topics (substantially similar in DEIR at page 4.12-6):

- Would the project induce substantial population growth in the area, either directly (for example by proposing new homes and businesses) or indirectly (for example, through extension of roads and other infrastructure)?

- Would the project displace substantial number of existing housing units or create demand for additional housing, necessitating the construction of replacement housing?
- Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

In order to analyze the above significance thresholds, the DEIR must also address the following questions:

- Would the project result in the net loss of any existing housing units affordable to very low income or low income households through any means including gentrification?
- What is the net change in affordable versus market rate units in the surrounding neighborhoods as a result of the Project?
- Would the Project impact a disadvantaged community (DAC)?
- Would the project result in a greater imbalance between jobs and housing, including jobs housing fit?[7]

Finally, the DEIR fails to disclose the Project's inconsistency with the UCSF 2014 LRDP Community Planning Principle HI which calls for projects to make a positive contribution to San Francisco's affordable housing stock…in order to relieve housing demand in the local community. DEIR at page 4.12-4.

66 cont.

The DEIR's analysis of these potential impacts associated with population, employment and housing is inadequate starting with the lack of any credible environmental setting or context for the discussion including the following basic facts:

- San Francisco and the region added more jobs than housing over the last decade. Census data shows that San Francisco added 8.2 jobs per home since 2010. Overall, the Bay Area has added 2 jobs for every home built since 1990. See also Plan Bay Area Final Plan 2040, Attachment 5.
- Between 2011 and 2017, the region added 658,000 jobs and 140,000 housing units, or on average 4.7 jobs for every housing unit. SPUR Regional Strategy, Attachment 6.
- The shortfall of housing units is estimated by SPUR to be nearly 700,000 units including units to meet the needs of both middle income and lower income households. Id.

[7] Jobs-Housing fit means the extent to which housing prices or rents are matched to the local job salary ranges. Jobs-Housing balance provides a general sense of how in or out of balance housing to fit the local workforce may be. Jobs-Housing fit provides an essential and more granular sense of whether – even if in balance – local employees are able to reside locally or must commute long distances for housing affordable to them and their families. Without jobs-housing fit information, readily available using Census and other data, it is not possible for the DEIR to adequately analyze many Project-related and cumulative impacts including demand for new housing and vehicle miles traveled, among others.

- In order to meet the unmet past need plus future needs for housing, the Bay Area would need to build 45,000 units per year to produce an additional 2.2 millions units by 2070. Id.
- The production of affordable housing has lagged behind production of housing affordable to higher incomes, with significant shortfalls of housing production for moderate or middle income wage earners and lower income wage earners. From 1999 to 2014, the Bay area issued permits for only about 35% of the units to meet the needs of vulnerable populations such as low-income families. Id.
- Much of the older housing stock located in higher density areas such as San Francisco have experienced gentrification pressures due to competition from new and higher income wage earners. Id.

A revised DEIR must provide baseline information about the housing crisis and re-analyze housing-related impacts of the Project in light of that information. Based on accurate information about the pre-Covid SF and Bay Area housing crisis (summarize above), it can reasonably be concluded that the additional of 5,200 students, faculty and staff by 2050 and only 984 units produced, the housing need generated constitutes a significant impact. Demand for housing is further exacerbated by the job multiplier of 0.73 creating an additional 3,420 jobs induced by the Project. Total new housing demand could be as high as 6,000+ units assuming that the majority of students, faculty, staff and indirect job employees are people who need housing. Lower demand for new housing, based on more new staff and faculty already housed, at an estimated 4,000+ units, would still constitute a significant impact. If demand is lower, due to a higher percent of new students, staff, faculty and indirect job employees are already housed (50%) the impact at 4,000+ units will still be significant due to the housing crisis. Under either scenario, UCSF would be generating between 4 and 8 jobs for each new unit constructed. Added to the existing jobs-housing deficit in San Francisco and the region and the even greater deficit of housing affordable to low and very low income households, the growth induced by the Project would result in a significant impact on housing. 66 cont.

The Project is also inconsistent with the Community Planning Principle HI directed at relieving housing demand on the local community. The DEIR's conclusion that "population growth would not result in a demand for new housing that would exceed the capacity of the five-county market area," and that "CPHP's impact related to population and housing would be less than significant" is clearly incorrect.

c. A Revised DEIR Must Include Feasible Mitigation Measures and Alternatives to Address Significant Impacts to Housing

The DEIR must identify feasible mitigation measures and alternatives capable of reducing or eliminating significant impacts. The DEIR fails to do so. 67

In reaction to the housing crisis, SF voters passed Measure E in March 2020, limiting construction of new office building unless affordable housing goals are met. Measure E is instructive as to the kinds of mitigation measures UCSF should consider in addressing the increased imbalance of housing and jobs the Project would foster.

Feasible mitigation measures that should be included in a revised DEIR include the following:

- Increase Project housing to provide sufficient and affordable housing for new students, faculty and staff as well as a portion of induced demand (multiplier) by increasing housing proposed by the Project and decreasing new jobs.
- Provide sufficient housing in advance of the development and occupation of non-residential buildings (in line with Measure E).
- Adopt a project that adheres to the existing space ceiling thereby reducing increased staff and faculty and associated housing demand.

These and other feasible mitigation measures must be identified in a revised DEIR to address the significant population and housing impacts of the Project and cumulative development on the Project area, the City and region. A Financial Analysis should accompany the revised Plan and DEIR setting forth costs associated with housing, services and other community benefits of the Project and laying out a revised approach to funding implementation of these Project elements.

- Would the project displace substantial number of existing housing units or create demand for additional housing, necessitating the construction of replacement housing?

67 cont.

2. The DEIR's Analysis of Land Use and Planning Is Incomplete and Inadequate, Thereby Failing to Disclose and Mitigate Significant Impacts

The DEIR incorrectly identifies as Less Than Significant the Project's Land Use and Planning impacts. At the heart of the analysis of land use and planning impacts is the question of the Project's consistency with applicable policies and other provisions including UC's as well as the City's. Contrary to the DEIR's conclusions, the Project is incompatible with the surrounding area and conflicts with numerous policies and provisions of San Francisco's General Plan and Planning Code, as well as UC policies. Due to UC's constitutional autonomy, development and uses on property under the control of the University that are in furtherance of the University's educational purposes are not subject to local land use regulations. However, UCSF has indicated its intent to adhere to local policies and regulations to the extent practicable and to review policies germane to the analysis of land use impacts. DEIR at page 4.10-6. In the pertinent topical sections (e.g., Land Use and Planning, Noise, Aesthetics) the DEIR does describe pertinent policies and regulations, finding in each case that the Project is compatible with surrounding land uses and as such would not create any significant impacts. As described below, the analysis of land use and policy consistency is flawed and the conclusions

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unsupported by evidence. Contrary to conclusions reached in the DEIR, there is evidence of policy and regulation inconsistency resulting in significant environmental impacts, only two of which – wind and cultural – are disclosed and acknowledged.

68 cont.

Planning and Land Use Context: The *San Francisco General Plan* provides policies and objectives to guide land use decisions and along with the San Francisco Planning Code prescribes the permitted uses and development standards to carry out the City's policies for the 107-acre Parnassus Campus site. In a 1987 Memorandum of Understanding (MOU), UCSF agree to advise and consult with the City of San Francisco on any proposed construction projects. The MOU states that the City Planning Commission will advise UCSF about the "conformance of such development with the Master Plan of San Francisco and Planning Code Section 304.5 (Institutional Master Plans) with recommendations, of any, for amendment to the proposal… Should the City Planning commission and UCSF disagree on any matter which is the subject of this MOU, either party may request the participation of the Mayor and the Chancellor in attempting to resolve the dispute." (MOU, para. IV). The DEIR must, include a complete and forthright analysis of the Project's consistency with the General Plan and other applicable planning documents, ordinances and regulations so that UCSF can honor its intent to adhere to the extent practicable, the City's policies and "zoning codes related to building use, height, and bulk limitations; floor areas; and parking requirements or restrictions for the purpose of ensuring compatibility with the surrounding uses." DEIR at page 4.10-6. Inconsistencies between the Project and the General Plan or other applicable planning documents that were enacted to protect the environment may constitute significant impacts in themselves and can also be evidence of other significant impacts that must be analyzed in the DEIR. Where elements of the Project are not part of its educational mission, and are inconsistent with the General Plan it may not be lawfully adopted or approved. Additional information is needed about the Project elements in order to describe and document how the entirety of the Project is in support of UCSF's educational mission. It is not possible to determine that without more details about how the new space will be used and occupied and for what specific purposes.

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While not considered by UCSF objectives or regulations, reference is made in the UCSF 2014 LRDP, to the Community Planning Principles which were produced in collaboration with the UCSF Community Advisory Group. These Principles include the following:

- Land Use LU1. Plan for growth and renovations that are substantially consistent with use limitations and height and bulk limitations in the City planning and zoning codes that exist at the time UCSF initiates the site selection process for such growth and renovation projects. The University should consider City planning proposals that are underway. UCSF will endeavor to be consistent with applicable land use plans and mitigation approaches where consistent with UC policy, while respecting specific neighborhood plans and concerns.

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- LU3. Ensure that future UCSF development is compatible with physical surroundings in use, scale, and density, and that do not negatively affect surrounding land uses.
- LU10. Work toward compliance with the Parnassus Heights space ceiling and adhere to boundaries for the Parnassus Heights Campus site.

DEIR at page 4.10-3 to 4.10-4.

The Parnassus Heights campus site, the oldest and largest of the UCSF campuses, is located in among some of the oldest neighborhoods in San Francisco, characterized by unique physical characteristics and mix of land uses including residential areas ranging from single family to multi-family housing and charming neighborhood serving commercial districts such as located along Irving and Judah Streets and 9th Avenue. In addition to Mount Sutro Open Space Reserve, several park and open space areas are located near the campus. This area is characterized by local serving streets fraught with traffic, parking congestion and lack of transit.

Compliance with the City of San Francisco's adopted policies and regulations are a key indicator of whether the Project is or is not compatible with the surrounding neighborhood. UCSF clearly understood the breaking point for compatibility in its 1976 Regents' Resolution. Recognizing the unique and constrained location the Parnassus Heights campus occupies, the Regents adopted a sensible "space ceiling" for the campus in its 1976 Regents Resolution, stating in pertinent part: "The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets) and this limit shall be permanent." See Attachment 2.

In addition, the Resolution recognizes the transportation problems in the area and commits funds to develop a plan to alleviate transportation problems including traffic, parking congestion and lack of transit.

In a letter to Chancellor Hawgood, dated January 16, 2020, Mayor London Breed, President of the Board of Supervisors Norman Yee and Supervisor Dean Preston note the need for a revised MOU to adopt and formalize arrangements for coordination and consideration of both our interests and inputs in the context of land use approvals, transportation needs and ongoing service provisions, noting the common challenges faced include housing supply, affordability and climate and seismic related risks. See Attachment 3.

In this case, after discussing only some of the applicable plans, the DEIR incorrectly concludes across the board that the Project would be compatible with adjacent lands uses and impacts would be insignificant. Some examples of the Project's glaring inconsistencies with the General Plan and Code include, but are not limited to, the following:

70 cont.

San Francisco General Plan and Zoning Code Excerpt	Inconsistency
Land Use and Urban Design Elements LU-2: Plan for growth and renovations that are substantially consistent with use limitations and bulk limitations in City planning and zoning codes that exist at the time UCSF initiates the site selection process for such growth and renovation projects…UCSF will endeavor to be consistent with applicable land use plans and mitigation approaches where consistent with UC policy, while respecting specific neighborhood plans and concerns. LU3. Ensure that future UCSF development is compatible with physical surroundings in use, scale, and density and do not negatively affect surrounding land uses. LU10. Work toward compliance with the Parnassus Heights space ceiling and adhere to boundaries for the Parnassus Heights campus site. Policy 3.5: Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development. Policy 3.6: Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction. San Francisco Planning Code – Use Districts City's P (Public) Zoning District Housing along Third and Fifth Avenues – see also Residential House District, Two-Family (RH-2) Code sections Height and Bulk Districts: 25-X, 40-X, 65-D, 80-D, 130-D and 220-F. Floor areas rations are determined by allowable height and coverage.	The DEIR correctly concludes that the New Hospital, as well as Millberry Union, certain West Side development and the Aldea Housing densification project would not be consistent with City Planning Code height and/or bulk regulations for their respective building sites. DEIR at 4.10-16. The DEIR continues on to incorrectly conclude despite evidence to the contrary, that these conflicts would not result in significant incompatibility with adjacent land uses or impacts on surrounding uses. Taking just the New Hospital as an example, at about 955,000 gross square feet and up to 294 feet in height, the New Hospital clearly demonstrates the Project's incompatibility with the surrounding area resulting in significant adverse environmental impacts including but not limited to, wind, visual and environmental impacts associated with an inadequate supply of housing affordable to new students, faculty and staff. The New Hospital is patently inconsistent with SF Land Use and Design policies and height and bulk requirements in multiple ways. First, the New Hospital is within three height and bulk districts and exceeds height limits for portions of the site within two of these, the 65-D and 22-F Height and Bulk districts, by over 70 feet and X stories. Second, the New Hospital would require use of a portion of the Reserve and would be located even closer to the off-site residences on Edgewood. The DEIR concedes: Impact AES-2 finds that the New Hospital would be the most noticeable visual change under the CPHP program, and would contrast sharply both in height and scale with the nearby residential development…". DEIR at 4.10-17. In justifying the conclusion that the New Hospital is compatible with adjacent land uses, the DEIR points to the proposed amendments to the 2014 LRDP which increase the space ceiling. In addition, the DEIR (Impact AES-3) finds that with implementation of appropriate design standards and exterior materials light and glare and other impacts would be reduced to less than significant.

70 cont.

	Even so, the DEIR concedes that the New Hospital will still result in significant unavoidable wind hazards. Analysis by Jared Ikeda provides clear evidence the New Hospital with also result in significant and unavoidable visual impacts. See Attachment 7. There are clear inconsistencies between the New Hospital and the City's General Plan policies and Code resulting in documented significant and unavoidable impacts associated with wind hazard, visual and housing, among other impacts. <u>These inconsistencies and the associated physical environmental impacts are not resolved by the amendment to the LRDP to raise the space ceiling</u>. Combined with other Project elements – Millberry Union, West Side – and the Project scale and bulk overall, the Project is clearly incompatible with the surrounding area resulting in significant and unavoidable impacts including those omitted from the DEIR but disclosed (wind) and some revealed by expert analysis (e.g., visual, cultural, housing). A revised and recirculated DEIR must re-analyze Project consistency with these and other applicable provisions of the City's Plans and Codes and Impact LU-2 must be found to be a significant and unavoidable impact. In addition, the Project is clearly inconsistent with CPHP Policy 3.6, which states that the height of buildings should be related to the prevailing scale and character of existing development. The New Hospital at nearly 100 feet taller than the tallest existing building on the campus, Moffit Hospital, is clearly inconsistent with this Policy. A revised DEIR must include in a revised Land Use and Planning section a systematic and thorough analysis of inconsistencies with all applicable (City, UC, other) policies and regulations.	70 cont.
Urban Design Element Policy 1.1: Recognize and protect major views in the city, with particular attention to those of open space and water.	The DEIR incorrectly concludes the project will not conflict with these policies and specifically that "[d]evelopment under the CPHP would not have a substantial adverse effect on a scenic vista" (AES-1) or "conflict with the applicable zoning and other	71

Policy 3.4: Promote building forms that will respect and improve the integrity of open spaces and other public areas.	regulations governing scenic quality" (AES-2) and therefore no mitigation is required. In his analysis of visual impacts, Jared Ikeda concludes that the New 16-story Hospital would result in significant visual impacts including specifically that it would block views to Mt Sutro and the Reserve and would block views of the ocean and Golden Gate Park from trails and other public vantage points resulting in policy inconsistencies with direct significant environmental impacts. See Attachment 7. A revised DEIR must change the disposition of these impacts (AES-1 and 2) to significant and unavoidable and identify feasible mitigation measures including alternatives to the Project.	71 cont.
Shadow Proposition M, adopted by the voters in 1986, added section 101.1 to the SF Planning Code and established 8 priority policies. Priority Policy No. 8 calls for the protection of parks and open space and their access to sunlight and vistas.	The DEIR incorrectly states that the implementation of the Project would not create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces. In his analysis of aesthetic impacts, Jared Ikeda reviewed the DEIR's analysis with respect to shadows and reached a different conclusion documented in his letter: "It appears though that certain areas along Parnassus Avenue and Irving Street will be subject to frequent shadows throughout the year." See Attachment 7. These more frequent shadows will clearly affect the use and enjoyment of these public spaces and as such should be called out as a Significant and Unavoidable impacts of the Project as proposed. Feasible mitigation measures must be identified.	72
Regents' Resolution: Space Ceiling of 3.55 Million Gross Square Feet	The DEIR conveniently concludes that the impacts associated with the Project's significant increase in gross square feet (an increase of approximately 1.5 million GSF about the existing space ceiling) and population increase from 18,500 to nearly 25,000, would be less than significant because the LRDP would be amended to increase both space and population. An amendment to the space and population ceiling does not eliminate the physical environmental impacts described in the table above associated with the increased scale of the Project. Such impacts include wind hazard (found SU by the DEIR), cultural (found SU by the DEIR) and additionally,	73

	aesthetic (visual and shadows) and housing, among others. A revised DEIR must identify this as an inconsistency, re-analyze the associated environmental impacts and identify feasible mitigation including alternatives to Project components such as the New Hospital.

73 cont.

A revised DEIR must include expanded and forthright analysis of the Project's potential inconsistencies with applicable plans and policies including the City of San Francisco's, and disclose the significant and significant and unavoidable, environmental impacts associated with those inconsistencies.

In addition, a revised DEIR must include feasible mitigation measures and alternatives to reduce or eliminate the significant impacts associated with those inconsistencies. Mitigation measures including, but not limited to the following should be considered:

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- Retain the space ceiling and adopt an Alternative consistent with the space ceiling and other UCSF commitments.
- Seismically upgrade the existing hospital at Parnassus in combination with a New Hospital off-site (Mission Bay, Hunters Point, see other options in Alternatives discussion below).

3. The DEIR Alternatives Analysis is Legally Deficient

Alternatives are optional ways that the Project could achieve most of the objectives while also reducing or eliminating the environmental impacts of the Project. (California Public Resources Code Section 21002). Typically, alternatives to the Project involve changes to the location, scope, design, and intensity but can also include method of construction and/or operation. Where the Project includes a mix of land use types as in the case of this Project, alternatives may also include alterations in the mix of land uses proposed in order to reduce or eliminate impacts (e.g., increase Project housing to meet demand for growth within the space ceiling).

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The fundamental mandate is that "public agencies should not approve projects if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of the project" (PRC Section 21002, 21081). Government agencies are required to consider alternatives to proposed actions affecting the environment. (PRC Section 21001 (g)).

The DEIR's alternatives analysis is legally deficient because it fails to describe a reasonable range of alternatives, or to the location of the Project, which would feasibly attain most of the basic objectives of the Project but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the merits of the alternatives. "An EIR's discussion of alternatives must contain analysis sufficient to allow informed decision-making." (*Laurel*

Heights I, 47 Cal.3d at 404). An EIR must also include "detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Id. At 405*.)

In developing a list of alternatives for analysis, both project objectives and known or likely significant impacts of the Project must be factored in. Alternatives need not meet all of the objectives and their fundamental purpose is to reduce or eliminate Project impacts. The Project setting can also influence the range and choice of alternatives. Offsite alternatives should be considered. Offsite alternatives must be feasible (e.g., site control by Project proponent or possible for the proponent to acquire the property).

Alternatives may not be rejected merely because they are beyond an agency's authority, would require new legislation or would be too expensive. An alternative may be eliminated from further review where it fails to meet most of the basic project objectives; is infeasible; does not avoid significant environmental impacts; and implementation cannot be reasonably ascertained or is remote and speculative. (CEQA Guidelines Section 15126.6 (f)).

75 cont.

The DEIR's Alternatives Analysis is Legally Deficient Because it Improperly Rejects Feasible Off-Site Alternatives and Omits Others Feasible Off-Site Alternatives

Feasible alternatives to the Project that would reduce or eliminate significant Project impacts including those acknowledged by the DEIR briefly considered but dismissed include:

- No New Hospital at Parnassus Heights Campus Site/Implement Phase 2 of Medical Center at Mission Bay Campus Site
- New Hospital at Mount Zion Campus Site

Omitted from the list of feasible offsite options are:

- Seton Hall Hospital Facility, which stands empty
- New Hospital at Hunters Point, which would provide jobs in and health services to an underserved and disadvantaged community

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The reasons provided in the short approximately one-page discussion dismissing the alternative of a new hospital at Mission Bay comes down to the alternatives' reported failure to meet very focused Project objectives and a purported conflict with the 2014 LRDP and CPHP. Specifically the DEIR states that the alternative would not meet some of the Project objectives (e.g., expansion of some services and other benefits from an interdisciplinary program) and would conflict with several 2014 LRDP and CPHPs objectives for Parnassus Heights campus including but not limited to adequate space to foster collaboration and to facility inter-dependence and connectivity for operational efficiency, adequate clinical and administrative support and aligned with other programs, increase in beds, and modern industry standards including seismic safety. Page 6-55 to 6-55. The discussion concedes that the alternative would reduce the significant

wind impacts, cultural and construction impacts, but that in so doing, it would likely also result in increased cross town traffic between the Parnassus and Mission Bay campus sites. Not analyzed was a combination of a smaller, new hospital at Parnassus in combination with Mission Bay; another feasible option that has the potential to address total need and allow phasing to accommodate patients and services.

Dismissal of these alternatives (New Hospital at Mission Bay and Combination of New Hospital at Mission Bay and Reduced Hospital at Parnassus) is not justified. First, the alternative would meet most of the Project objectives. If a New Hospital at Mission Bay is combined with a rebuilt smaller hospital at Parnassus, the alternative could meet the need for additional beds and services as well. The argument that this alternative would increase cross town traffic is not supported by any evidence or analysis. Finally, the conflicts with the 2014 LRDP are not persuasive since that document is being amended to break the space ceiling and this alternative would not require that significant amendment to the LRDP. In fact, the Mission Bay Hospital was justified in part by the development cap at the Parnassus Campus. These alternatives must be fully analyzed in a revised and recirculated DEIR, including additional facts and analysis to support the arguments concerning the alternatives conflicts.

The DEIR similarly dismisses the alternative of a new hospital at the Mount Zion Campus Site, stating that this alternative would result in UCSF hospitals operating at three different campus sites which would be "less than ideal and inefficient," would not help achieve the benefits realized through interdisciplinary collaboration and convergence between clinical care, research and education, land acquisition would be difficult and citing undisclosed conflicts with LRDP and CPHP objectives. The discussion concedes that the alternative would reduce the significant wind impacts, cultural and construction impacts, but that in so doing, it would likely also result in localized impacts at the Mt. Zion site and increased cross town traffic between the Parnassus and Mission Bay campus sites. This alternative also merits full analysis in a revised and recirculated DEIR because it would reduce or eliminate Project impacts and could be carried out in combination of seismic retrofits to the existing hospital at Parnassus to meet objectives and remain consistent with the space ceiling.

76 cont.

Alternatives may not be rejected merely because they are beyond an agency's authority, would require new legislation or would be too expensive. An alternative may be eliminated from further review where it fails to meet most of the basic project objectives; is infeasible; does not avoid significant environmental impacts; and implementation cannot be reasonably ascertained or is remote and speculative. (CEQA Guidelines Section 15126.6 (f)). Rejection of the Mission Bay and Mt. Zion sites for a new hospital, either in lieu of or in combination with a smaller hospital at Parnassus, is not supported by the evidence and analysis provided and both require full analysis in a revised and recirculated DEIR.

In addition, the revised and recirculated DEIR should also fully analyze a new hospital at Hunters Point and reuse of Seton Hall. A new hospital at Hunters point would eliminate the

significant impacts associated with the Project and provide jobs and health care to a disadvantaged and underserved community.

Since the Mission Bay alternative reduces the Project's significant impacts, while achieving almost all Project objectives, the DEIR is arbitrary and capricious for dismissing this alternative in particular from full review and in rejecting this alternative. In addition, the Mission Bay Campus was justified by the cap at Parnassus, making this alternative essential for full review. In light of the development cap at Parnassus, each of these alternatives warrants review in a revised and recirculated DEIR with priority on Mission Bay and Hunters Point.

76 cont.

III. The DEIR Must be Revised and Recirculated

Decision makers and the public cannot possibly assess the Project's impacts through the present DEIR which is riddled with omissions, errors and inconsistencies. Among other fundamental deficiencies, the DEIR repeatedly understates the Project's significant environmental impacts and therefore fails to formulate feasible mitigation to reduce these impacts. To resolve these issues, a revised DEIR that would necessarily include substantial new information must be prepared and recirculated.

77

Sincerely,

Terry Watt

Terry Watt, ACIP

ATTACHMENTS

Attachment 1: Terry Watt Qualifications

Attachment 2: 1976 Regents' Resolution

Attachment 3: Letter from Mayor and Supervisors to Chancellor Sam Hawgood, 1/16/20

Attachment 4: SF Planning Commission Resolution

Attachment 5: Excerpt Plan Bay Area 2020

Attachment 6: Excerpt SPUR Regional Strategy

Attachment 7: Aesthetic Impact Analysis, Jared Ikeda

Exhibit D

J A R E D M. I K E D A

661 San Felipe St., Salinas, CA 93901 phone (831) 422-6292 e-mail: *jmikeda@earthlink.net*

Tuesday, September 08, 2020

Richard Drury
Lozeau Drury, LLP
410 12th Street, Suite 250
Oakland, CA 94607

RE: Comments on Draft Environmental Impact Report for Proposed UCSF Comprehensive Parnassus Heights Plan

Dear Mr. Drury,

At your request, I have reviewed the Draft Environmental Impact Report ("DEIR") for the proposed UCSF Comprehensive Parnassus Heights Plan ("Project")[1]. My review focused on the DEIR's treatment of visual and shadow impacts. My comments are attached as follows:

[1] See appendix for Jared Ikeda qualifications

VISUAL IMPACT

As described in the Comprehensive Parnassus Heights Plan Draft Environmental Impact Report, the proposed plan would provide 2.9 million gross square feet (gsf) of new building space. Currently, there is approximately 3.92 million gsf of building space. With full implementation of the CPHP, the total gross square feet would be approximately 5.97 million, including instruction, research, clinical and support space, housing and structured parking. This is a substantial increase in building area, mass and height, and will undoubtedly create significant visual impacts.

Within this plan a new 16 story hospital is to be constructed at the far east end of the campus and rise to 294 feet in height. As stated in the Draft EIR, this new hospital will be subject to a subsequent project specific environmental review as more details of this project becomes available. However, the Draft EIR states (*pg 4.1-23*) that development under the CPHP would not have a substantial adverse effect on scenic vistas. A significant effect on a scenic vista as defined in the DEIR, is a substantial block or degrade of scenic view from public vantage points. In review of this plan and DEIR, it is apparent that the proposed building plan and particularly the new 16 story hospital would have significant visual impacts. (*see figure 1 and 2*)

Fig 1 Existing view west from adjacent neighborhood

78

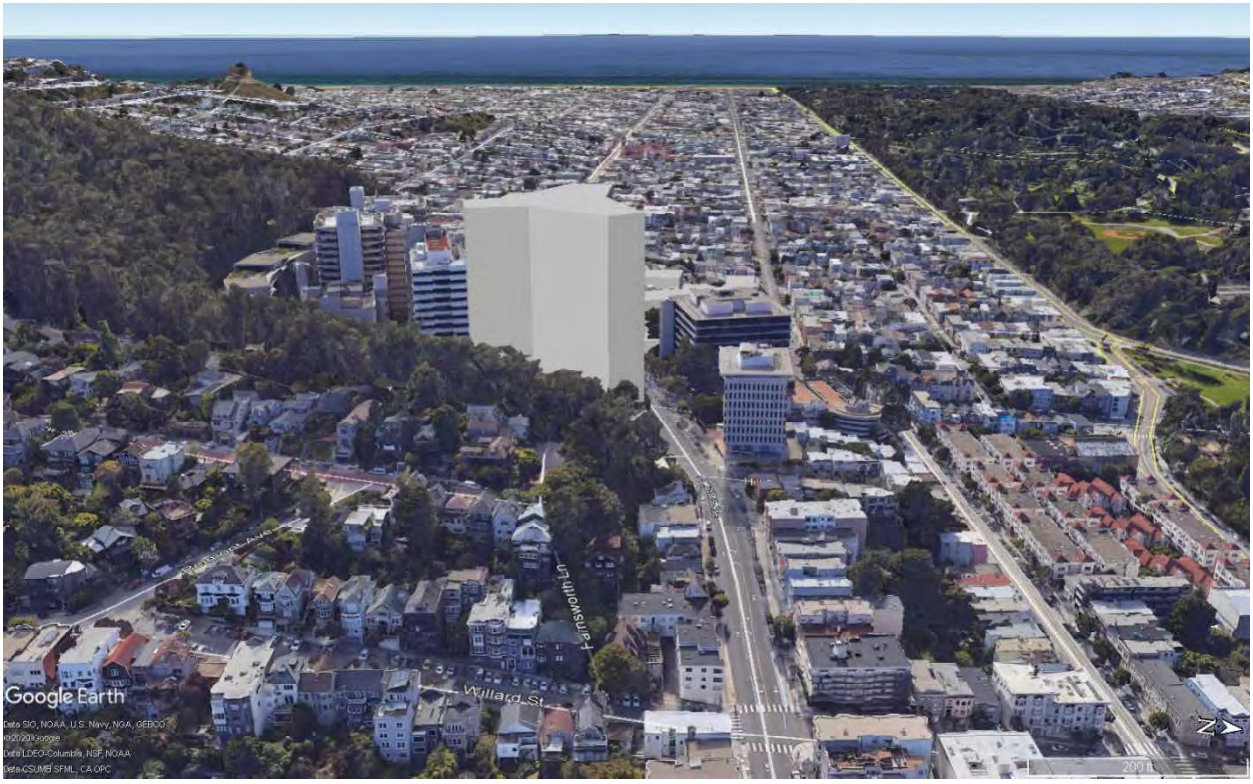


Fig 2 View west with proposed new hospital

78 cont.

By including this new hospital plan within this DEIR and concluding that it would not have a substantial adverse impact on a scenic vista, avoids discussion and possible mitigation measures in subsequent environmental review. This is not the intent of CEQA. Environmental review is a means to avoid or lessen adverse environmental effects at the outset, and by dismissing this issue at this time implies that it will not be address at a project level EIR in the future.

The topography of Mount Sutro and the green of the forested reserve are major elements that visually shape the adjacent neighborhoods as well as the overall city scape as seen from a distance. The views from publically accessible areas in and around the proposed UCSF Parnussus campus to these landmarks are of importance in establishing the quality of the environment here. One particularly significant local view point is the trail head near the intersection of Farnsworth Lane and Edgewood.

Public Trail Head at the end of Farnsworth Lane

79

The proximity and mass of the proposed new hospital will substantially impact this viewpoint. The 294 ft height and form of the proposed building will be seen and will block views to the west. The existing tree masses in this area and subsequently along the trail leading down, may tend to screen and filter the vistas but, the new proposed hospital will entirely block scenic vistas and dominate the view. This is a significant change to the public view and the inherent quality of the trail head and experience of accessing and walking this trail. This impact to the environmental quality of this publically accessible trail is significant and should be taken into account in considering mitigation measures or alternatives.

Furthermore the entire neighborhoods to the east, and views from streets such as Edgewood and Belmont and Willard and areas to the north of Parnassus Ave such as Hill Point Way will also be visually impacted by the large dominant mass of the new hospital. The size and height of the new hospital will also block views to Mt Sutro and the forest reserve from areas north of Parnassus Ave and Irving Street, and the visual experience of seeing a natural setting of a forested hillside from the local sidewalks and streets will be changed to one of a large urban building.

The visual simulations shown here have been constructed within Google Earth and incorporate scale models of the building masses and heights identified in the DEIR.

Figure 3 View west from end of Farnsworth

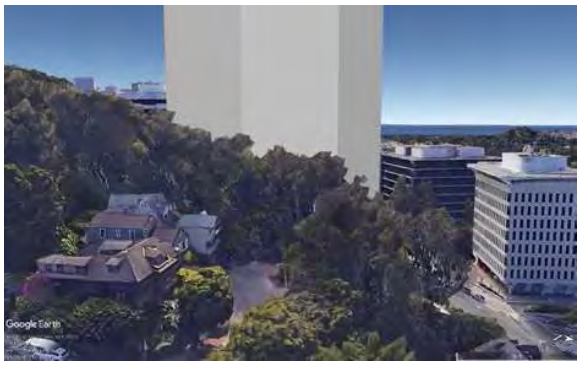


Figure 4 View west from end of Farnsworth with new hospital

Figure 5 View south from Hill Point Way

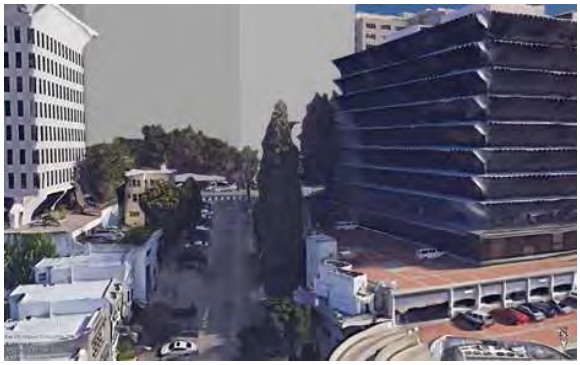


Figure 6 view south from Hill Point Way with new hospital

The views from the trailhead at the end of Farnsworth and adjacent residential neighborhood will become dominated by the mass of the new proposed hospital.

By stating that impacts to publically available scenic vistas are less than significant, the DEIR does not provide any possible mitigation measures or alternatives. This precludes further discussion and possible mitigation measures in future specific project environmental review and essentially allows development of the height and massing of the proposed buildings at this stage of the review process.

79 cont.

Views from other Prominent Vantage Points

The DEIR also identifies several other prominent publically accessible vantage points. These include Tank Hill natural area, Buena Vista Park, and Corona Heights Park. These are all located to the east of the Parnassus Heights campus. The DEIR states that the implementation of the CPHP would not result in a substantial adverse impact to scenic vistas from these publically accessible vantage points. However, in review it is again apparent that the new proposed hospital would change the skyline. (*see figures 7 through 12)*

Fig 7 view westward from Tank Hill natural area

Fig 8 view from Tank Hill natural area with proposed new hospital

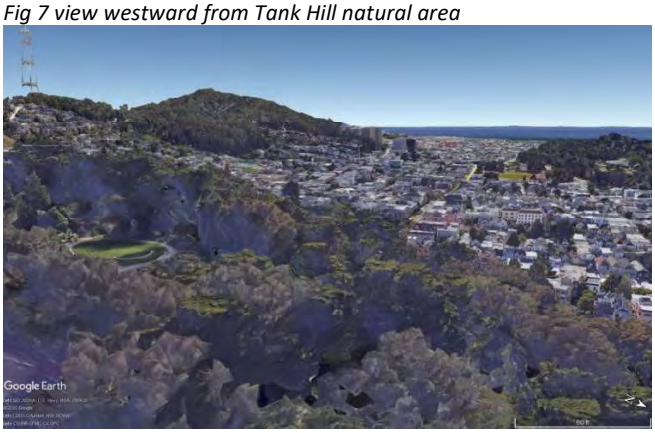


Figure 3 view from Buena Vista Park

Figure 5 view from Buena Vista Park with proposed hospital

Figure 4 View from Corona Heights Park

Figure 6 View from Corona Heights Park with proposed hospital

The development of the CPHP will undoubtedly change the visible skyline by addition of the new 294 foot high hospital. This is a noticeable change and should be addressed in the context of the Urban Design

80

Element of the San Francisco General Plan. The height and mass of the proposed new hospital will be highly visible as a new feature in the skyline from these public parks as well as from various other locations and streets within the surrounding neighborhoods. The Urban Design Element includes a policy to: "*Recognize and protect major views in the city, with particular attention to those of open space and water. Views contribute immeasurably to the quality of the city and to the lives of its residents. Protection should be given to major views whenever it is feasible, with special attention to the characteristic views of open space and water that reflect the natural setting of the city and give a colorful and refreshing contrast to man's development.*"

The Urban Design Element of the city's General Plan states that shape, height and bulk of tall building with respect to views from important vantage points around the city should contribute to the beauty of the skyline. While views from private property are not protected in city regulations, the General Plan does protect specific view corridors from the public realm.

It is not clear in the DEIR whether the CPHP has undergone an initial Preliminary Project Assessment by the city's Urban Design Advisory Team (UDAT) to determine consistency with Urban Design Guidelines and other relevant design regulations, the Planning Code, and other policies in the General Plan. Is this review to come at a later environmental review as the project evolves? If so, does this mean that the height and mass of the new hospital is a given if this plan is approved. Since the proposed new hospital will be seen from several publically accessible view points and parks, it seems that such a major feature that will change the visible skyline should be reviewed and assessed by UDAT prior to further project level environmental review.

80 cont.

Overall Impact on Shadow

The DEIR states that implementation of the CPHP would not create new shadows in a manner that would substantially and adversely affect the use and enjoyment of publically accessible open spaces. The DEIR provides description and diagrams of shadow impacts onto various public locations during different seasons and times of day. These public locations include parks and schools which are some distance away and will receive "occasional shadow". The DEIR states that these areas would not be adversely affected and the impact is considered less than significant.

It appears though that certain areas along Parnassus Ave and Irving St. will be subject to "frequent shadows" throughout the year. (*Fan 1 of the Shadow Study Appendix within the DEIR*) Although these are not officially called out as "publically accessible open spaces" needing to be addressed within the city's Urban Design Element guidelines, they are public sidewalk and streets that are frequented by pedestrians and passerbys. These areas currently receive shadows from existing structures but, it can be expected that the increased height of the proposed new hospital and Milberry Terrace and Irving St Gateway projects will further increase the time and frequency of the shadows along Irving St and Parnassus Ave.
Although shadows do not directly affect change in air temperature, they do affect the direct exposure to sun radiation and the resulting feeling of warmth to a person's body. Further, sun radiation can affect the temperature of a surface struck by sunlight and increase that temperature and it's surroundings. The comfort and attractiveness of these particular areas to pedestrians and passerbys may be adversely affected and should be addressed in the EIR. The city's Urban Design Guidelines state that plazas or parks located in the shadows cast by large buildings can be unpleasant for the user and large buildings can be oriented to minimize shadows falling on public or semi-public open space. The guidelines state that the height and mass of tall, closely packed buildings can be shaped to permit sunlight to reach open spaces.

81

The CPHP does provide new open pedestrian areas within the campus and that is welcomed and appreciated and is a positive. But, discussion of the impact to the existing local areas and circulation patterns should still be noted and made aware to the public. There should be a discussion of how impact to these public areas might be mitigated.

81 cont.

Conclusion

The existing features of Mt Sutro and the Forest Reserve provide form and a sense of place and living within the environment to the UCSF campus and adjacent neighborhoods. The new CPHP with its heights and mass of proposed buildings would alter and change that sense. As noted in the city's Urban Design Element:

"The uses and benefits of the city pattern are many and profound. This pattern is, first of all, bound up in the image and character of the city. To weaken or destroy the pattern would make San Francisco a vastly different place. Second, the city pattern has important psychological effects upon residents of the city. It provides organization and measured relationships that give a sense of place and purpose and reduce the degree of stress in urban life. Outlooks upon a pleasant and varied pattern provide for an extension of individual consciousness and personality, and give a comforting sense of living with the environment."

The visual change from the implementation of the CPHP will be seen from many locations throughout the adjacent neighborhoods as well as other areas and parks within the city including areas of Golden Gate Park. The impact of the shadow patterns to the adjacent neighborhoods will also affect the quality experiences of spaces and pedestrian walkways by the public. These should be considered in the approval process and given recognition in the EIR.

82

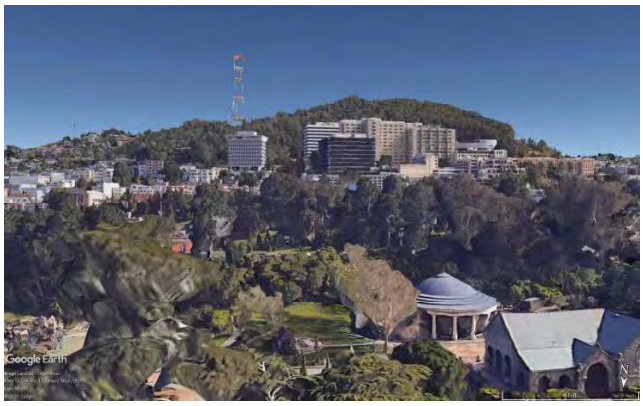


Figure 10 view south from above Golden Gate Park

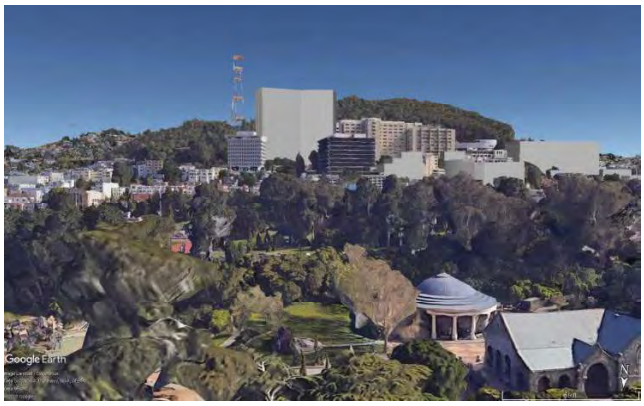


Figure 17 view south from Golden Gate Park with implementation of CPHP

Exhibit E

Shawn Smallwood, PhD
3108 Finch Street
Davis, CA 95616

Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

1 September 2020

RE: Comprehensive Parnassus Heights Plan

Dear Ms. Wong,

I write to comment on UCSF's (2020) Environmental Impact Report ("EIR") prepared for the Parnassus Heights Plan, which I understand would add 2.04 million square feet of new floor space to 168 acres of land between the Parnassus Campus, Aldea Housing, and Mount Sutro Open Space Reserve. The buildings would vary in height, up to 294 feet. Given trends in the use of structural glass on the façades of Bay Area multi-story buildings, and the trend in using extensive glass on University buildings throughout the USA, I anticipate the buildings of the proposed project would add extensive new glass windows that would threaten birds with collision mortality. I write to comment on this and other potential project impacts to special-status species of vertebrate wildlife. 83

My qualifications for preparing expert comments are the following. I hold a Ph.D. degree in Ecology from University of California at Davis, where I subsequently worked for four years as a post-graduate researcher in the Department of Agronomy and Range Sciences. My research has been on animal density and distribution, habitat selection, habitat restoration, interactions between wildlife and human infrastructure and activities, and conservation of rare and endangered species. I perform research on wildlife mortality caused by wind turbines, electric distribution lines, agricultural practices, and road traffic, among other human activities and structures. I authored numerous papers on special-status species issues. I served as Chair of the Conservation Affairs Committee for The Wildlife Society – Western Section. I am a member of The Wildlife Society and the Raptor Research Foundation, and I've been a part-time lecturer at California State University, Sacramento. I was Associate Editor of wildlife biology's premier scientific journal, The Journal of Wildlife Management, as well as of Biological Conservation, and I was on the Editorial Board of Environmental Management. I have performed wildlife surveys in California for thirty-three years, including at many proposed project sites. My CV is attached.

SITE VISIT

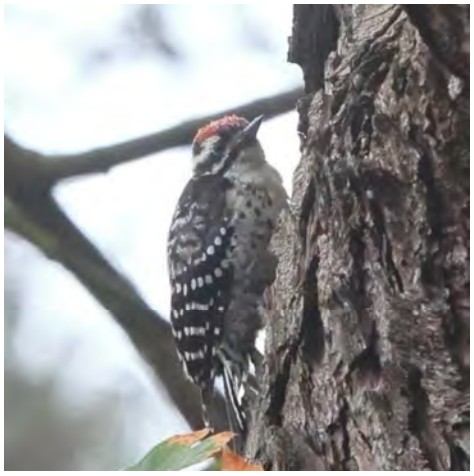
I visited Aldea Housing, Mount Sutro Open Space Reserve, and the Parnassus Campus for 3 hours and 30 minutes, starting at 08:17 hours on 20 August 2020. The Marine Layer dominated the sky until the last 90 minutes or so. I surveyed on foot, using binoculars to scan for wildlife. 84

Campus buildings occur immediately north of the steeply sloped Mount Sutro (Figure 1) and the densely forested environment of Mount Sutro Open Space Reserve (Figure 2). Aldea Housing is likewise tucked into the forested slopes of Mount Sutro, but on the southeast aspect.

Figures 1 and 2. *A building proposed for replacement (left) looms near the densely forested Mount Sutro Open Space Reserve (right).*

Not surprisingly, given its forestation and the fact that Mount Sutro Open Space Reserve is one of the last remaining substantial patches of open space in San Francisco, I saw and heard many birds during my visit. Among other species, I detected Anna's hummingbirds (Figure 3), Nuttall's woodpecker (Figure 4), pygmy nuthatches (Figure 5), common ravens (Figure 6), Wilson's warbler (Figure 7), song sparrows (Figure 8), dark-eyed juncos (Figure 9), and house finches (Figure 10). Many of the birds I detected were fledglings accompanied by their parents, thus proving the site is productive for birds (Figure 11). Foraging on the site was abundantly evident (Figure 12). In all, I detected at least 23 species of vertebrate wildlife (Table 1), including 5 special-status species and only 2 non-native species. Both of the non-native species were within built-over areas, including a rock pigeon on the Parnassus Campus and house sparrows at Aldea Housing.

84 cont.



Figures 3 and 4. *Anna's hummingbird (left) and Nuttall's woodpecker (right) on the project site, 20 August 2020.*

84 cont.

Figures 5 and 6. *Pygmy nuthatch (left) and common raven (right) on the project site, 20 August 2020.*

Figures 7 and 8. *Wilson's warbler (left) and song sparrow (right) on the project site, 20 August 2020.*

84 cont.

Figures 9 and 10. *Dark-eyed junco (left) and house finch (right) on the project site, 20 August 2020.*

Figures 11 and 12. *A fledgling house finch (left) and a song sparrow with worm (right).*

Most of the species of birds I detected had also recently been detected by Golden Gate Audubon Society ("GGAS") (2020), who tallied 47 species of birds on Mount Sutro Open Space Reserve in about 54 hours of surveys between 16 March and 29 December 2019. I detected 5 bird species that GGAS (2020) did not, including peregrine falcon, Nuttall's woodpecker, acorn woodpecker, house sparrow, and American goldfinch. However, the peregrine falcon I detected was atop Sutro Tower, which might not have been detectable from the stations used by GGAS, or alternatively GGAS might have declined to include detections on Sutro Tower due to its location outside the Reserve. The house sparrows I detected were at Aldea Housing, which is another area outside GGAS's survey space. Some of the species detected by GGAS and not by me, and some of those I detected but GGAS did not, could have been represented by birds using the Reserve as stop-over habitat. If the Reserve was surveyed over several years, the number of bird species would likely far exceed the 52 species GGAS and I detected altogether. eBird records further indicate a long list of species use Mount Sutro Open Space Reserve, the Parnassus Campus and Aldea Housing.

84 cont.

GGAS (2020) confirmed breeding by 11 species, and suspected breeding by another 5 species. One of the species suspected of breeding was red-shouldered hawk, which I observed reacting defensively to the arrival of a red-tailed hawk. The red-shouldered hawk's reaction, including sustained calling each time the red-tailed hawk circled close to the red-shouldered hawk's tree, was typical of a breeding member of this species defending its nest. I concur with GGAS that Mount Sutro Open Space Reserve is an important breeding area for birds.

GGAS (2020) also tallied 136 observations of birds foraging on the Reserve, or about 2.5 foraging events per hour of survey. During my site visit I witnessed foraging at a minimum 1.4 events per hour. I was not specifically attempting to record foraging

events, so I did not record how many members of a flock of pygmy nuthatches I observed peel back bark for a food reward; I simply counted their foraging as one event. I also saw foraging by Wilson's warbler, Nuttall's woodpecker, song sparrow, and common raven. The Reserve is obviously an important foraging area for birds.

The western gray squirrel I saw (Table 1) was the only record of this species I could find for Mount Sutro Open Space Reserve. At the time of my observation, I had no doubt of my species identification, but I was unable to capture a photo. Another sighting of western gray squirrel was reported to iNaturalist in 2020 -- along with a photo -- for a site just northwest of the UCSF Parnassus Campus at 10th Ave. and Irving St.

Table 1. *Species of wildlife I observed during my site visit on 20 August 2020.*

Species	***Scientific name***	**Status[1]**	**GGAS 2019**
Red-tailed hawk	*Buteo jamaicensis*	FGC 3503.5	Yes
Red-shouldered hawk	*Buteo lineatus*	FGC 3503.5	Yes
Peregrine falcon	*Falco peregrinus*	CE, CFP, FGC 3503.5	No
Rock pigeon	*Columba livia*	Non-native	Yes
Anna's hummingbird	*Calypte anna*		Yes
Nuttall's woodpecker	*Picoides nuttallii*	BCC	No
Acorn woodpecker	*Melanerpes formicivorus*		No
Steller's jay	*Cyanocitta stelleri*		Yes
California scrub-jay	*Aphelocoma californica*		Yes
Common raven	*Corvus corax*		Yes
Chestnut-backed chickadee	*Poecile rufescens*		Yes
Pygmy nuthatch	*Sitta pygmaea*		Yes
Pacific wren	*Thryomanes pacificus*		Yes
Ruby-crowned kinglet	*Regulus calendula*		Yes
American robin	*Turdus migratorius*		Yes
Yellow warbler	*Setophaga petechia*	SSC2, BCC	Yes
Wilson's warbler	*Wilsonia pusilla*		Yes
House sparrow	*Passer domesticus*	Non-native	No
Lincoln's sparrow	*Melospiza lincolnii*		No
Song sparrow	*Melospiza melodia*		Yes
Dark-eyed junco	*Junco hyemalis*		Yes
House finch	*Carpodacus mexicanus*		Yes
American goldfinch	*Carduelis tristis*		No
Western gray squirrel	*Sciurus griseus*		

[1] BCC = US Fish and Wildlife Serv ice's Birds of Conservation Concern, CE = California Endangered, CFP = California Fully Protected, SSC2 = California Species of Special Concern priority level 2, FGC 3503.5 = California Department of Fish and Wildlife Code -- Birds of prey.

84 cont.

The 23 species of birds I detected represented a fraction of those I would have detected had I been able to devote more time to the effort (Figure 13). The model in Figure 13 predicts I would have detected 47 species – equal to the number detected by GGAS – in

11 hours and 40 minutes. It also predicts I would have detected 117 species of birds had I surveyed as long as GGAS. The difference in detection rates did not result from any differences in skill levels, but rather in method. GGAS applied standard point count methods, which are suited for comparing species detections among locations or time periods; it is a method I often use. The survey method I implemented at Mount Sutro was a more aggressive move-and-encounter approach. Had GGAS implemented this method, they would have detected well over 100 species of birds.

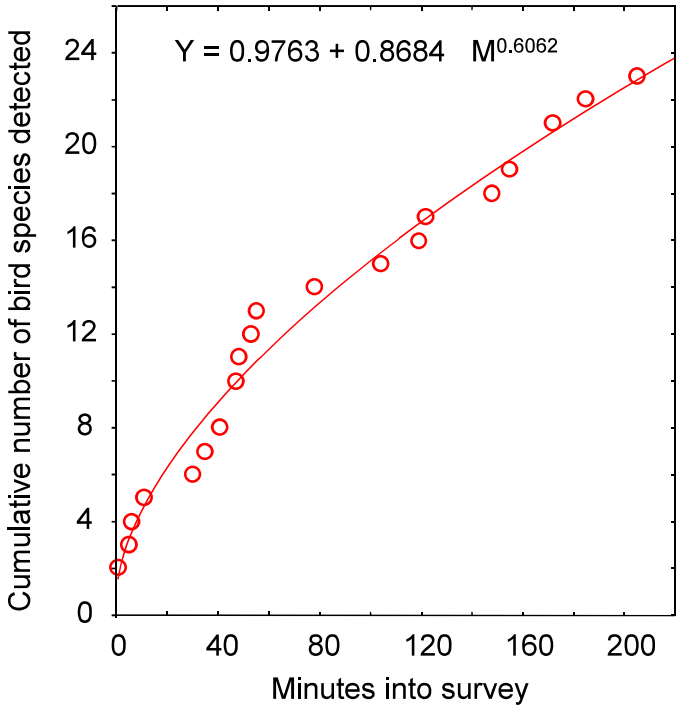


Figure 13. *Cumulative number of bird species detected as a power function of the number of minutes devoted to the survey. The model explained 98% of the variation, with a root mean square error of 17.71. Had I been able to commit more time to the survey, I am confident a different model would have better fit the resulting data – a model more expressive of an asymptote.*

84 cont.

BIOLOGICAL IMPACTS ASSESSMENT

The project would mostly redevelop areas that are already built-up, including new buildings on campus and larger, taller buildings at Aldea Housing. To facilitate the tallest of the proposed buildings on Campus, the project would remove 0.15 acres from the Open Space Reserve, but would re-designate 0.4 acres to Open Space Reserve from another nearby area designated as Support. This other area designated as Support, however, is already forested and otherwise indistinguishable from the forested landscape of the surrounding areas of Mount Sutro Open Space Reserve. From the perspective of wildlife, the swap in land designations results in a 0.15-acre habitat loss.

85

Much more substantial habitat impacts than mere acreage loss would result from the heights, extent, and structural attributes of the proposed new buildings. In my experience, erecting tall structures into the aerohabitat of volant wildlife results in collision mortality and interference with wildlife movement. New, tall structures erected at the proposed locations would intercept many birds attempting to fly to or away from Mount Sutro Open Space Reserve. Most migratory or dispersing birds

86

attempting to stop-over at the habitat island that Mount Sutro represents in San Francisco, and most birds leaving Mount Sutro to continue their migration or dispersal, would expend extra energy – energy needed for long-distance flights – negotiating their way around the buildings, but some would collide with the buildings after becoming disoriented or misled by the buildings' nighttime lights and by transparent and reflective glass windows. Proposed mitigation measures should prevent numerous collisions (more on this later), but they cannot prevent enough of them to lessen the project's impacts to less-than-significant.

An example of what would be in store for birds encountering buildings of the new project was presented in San Francisco's bird-safe building standards (San Francisco Planning Department 2011). On page 15 is a photo of New York City's most dangerous building to birds, which is the Morgan Mail Building located next to a landscaped park. Though the Morgan Mail Building is not particularly tall for Manhattan, nor does it include more window space than other buildings, its location next to the park is what makes it more dangerous to birds than other buildings. The locations of the proposed new buildings on the Parnassus Campus and Aldea Housing would be proximal to a much more substantial habitat area than the small park next to the Morgan Mail Building in Manhattan.

Another example can be found practically next door to the Parnassus Campus, where a bird-window collision study was performed recently at California Academy of Sciences ("CAS") (Kahle et al. 2016). Like the Morgan Mail Building, CAS is located next to landscaped park – Golden Gate Park. Its fatalities were represented by 37 species. Its pre-mitigation bird-window collision rate of 0.0654 fatalities per m^2 of glass per year averaged close to the national average (more on this below). This rate translates to 62 bird-window collision fatalities per year before attempting to adjust the estimate for the proportion of fatalities not found by searchers due searcher error and removals of carcasses by scavengers. Assuming the scavenging community functions at Golden Gate Park as effectively as it does in the Altamont Pass Wind Resource Area, where carcass detection rates were carefully measured, and assuming the fatality searchers were equally skilled, then the 62 bird-window collisions per year estimated for CAS would be adjusted to 835 (95% CI: 429-3,689) bird-window collisions per year.[1] A principal reason for the large difference between adjusted and unadjusted fatality rates at CAS was the preponderance of small-bodied birds among window casualties. The species most often found as fatalities was Anna's hummingbird, including 131 carcasses. Averaging about 4.5 g, Anna's hummingbird carcasses can be picked up and removed by a much larger array of vertebrate scavengers than could a 322-g rock pigeon. A feral cat could consume 25 Anna's hummingbirds per day, but only about a third of a rock

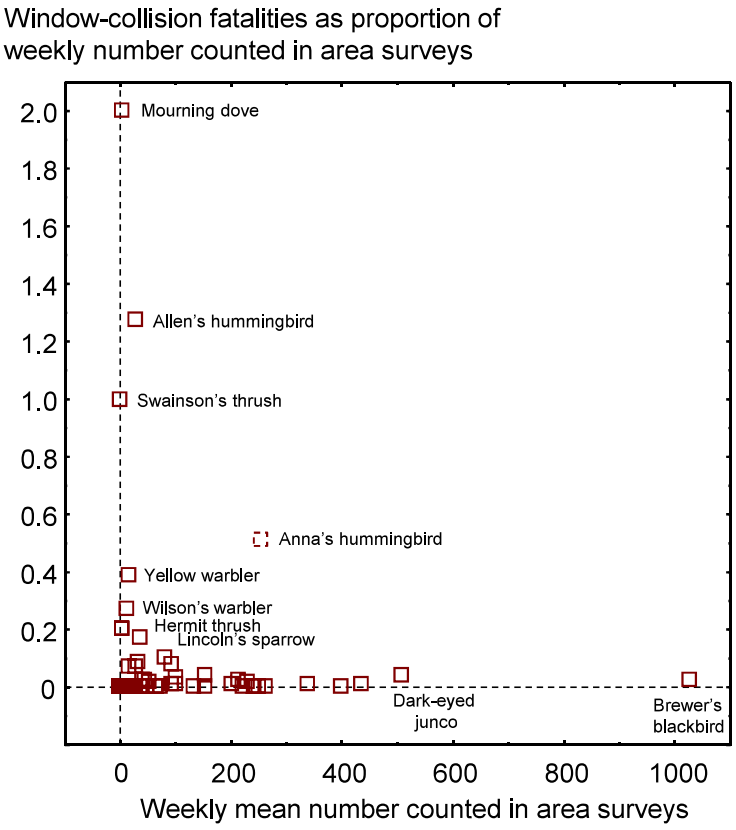
86 cont.

[1] The fatality search interval at CAS was the same as that of half the wind turbines in the Vasco Winds Energy Project in Contra Costa County (Brown et al. 2016). To derive an overall detection rate for weekly search intervals, I selected detection trial carcasses that had been placed on open ground, which I assumed best represented the ground searched for fatalities at CAS. I fit a model to overall carcass detection rates as a function of body mass, and applied the model predictions to the numbers of fatalities of each species found as window collision victims at CAS (see Smallwood et al. 2018 for methodological details).

pigeon. Common ravens likely remove most of the carcasses of small birds around CAS, and likely do so without leaving any trace evidence of the fatality ever having happened.

Although relative abundance of bird species serves as a poor predictor of bird-window collision fatalities (Figure 14), a bird species must use the airspace occupied by a building before the species can become a collision victim of that building. Therefore, learning which species occur in the project area is an important first step in analyzing potential impacts of bird-window collisions. Learning which special-status species occur in the project area is even more important. Learning which species are known to be vulnerable to windows would also inform an analysis of potential project impacts. Table 2 identifies special-status species documented in the project area, as well as species detected as window collision victims at CAS or at other buildings.

Figure 14. *The ratio of window-collision fatalities to relative abundance related inversely to relative abundance, where some of the least abundant species contributed disproportionately to window-collision fatalities and some of the most abundant species contributed least to fatalities (data from Kahle et al. 2016). Data at the o-intercept represent bird species either recorded as fatalities but never seen in relative abundance surveys or counted in relative abundance surveys and never recorded as fatalities.*



86 cont.

The EIR inadequately analyzes potential impacts to wildlife. Of the 40 special-status species of birds documented by eBird, GGAS, and myself, the EIR addresses only 6 (15%) of them. Of the 6 bird species that are addressed, the EIR dismisses the likelihood of occurrence of 2 of them: northern harrier and San Francisco common yellowthroat, both of which have been seen on site (Table 2). The EIR assigns low likelihood of occurrence to another 3 of the 6 species it addresses, even though all 3 have been documented in the area (Table 2). The EIR assigns only moderate occurrence likelihood to peregrine falcon, a species I saw looking down at the project site from Sutro Tower. Furthermore, in a report prepared for UC San Francisco, GGAS reported having seen 7

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special-status species of birds that are not addressed in the EIR (Table 2). I also note that the EIR addresses only 5 of the 8 special-status species of mammals I consider likely to occur at the project site at one time or another (Table 3).

The EIR argues that most special-status species of wildlife in San Francisco would not occur on the project site due to specialized habitat requirements which are lacking at the project site. The EIR summarizes habitat needs of those few species it addresses, but for each species it describes an artificially narrow portion of the environment that defies reality. For example, it says short-eared owls require marsh or meadow habitat, which is not present at the project site. I have certainly encountered short-eared owls in marsh and meadow, but I have also observed them in annual grassland and, more relevant to this project, in oak woodland. The short-eared owl I encountered in oak woodland might have been using the woodland for cover or perhaps it was moving through the area on migration or dispersal. That short-eared owls similarly use Mount Sutro Open Space Reserve is suggested by eBird, which shows sightings very close to the project site.

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In another example, the EIR commits northern harrier to marsh. Most of the northern harriers I have recorded have been on annual grassland, but I have seen them in various environments, including over urban areas. Northern harrier has been documented on the project site (Table 2).

The EIR also argues that the project site lacks nesting habitat for various special-status species. However, the implied distinction between nesting and foraging habitat, or between nesting and stopover habitat, is more contrivance than real, because no animals can successfully breed without also successfully foraging or migrating. To breed successfully, birds must find sufficient forage and they must survive migration and non-breeding seasons by finding suitable stopover habitat and all the other habitat elements needed. Arguing that the habitat value of a place is somehow lesser because it lacks nest substrate is fallacious where the species can satisfy other needs that are critical for successful nesting elsewhere or later in the year.

Of the 40 special-status species of birds that have been documented at or near the project site, 16 (40%) have also been documented as window collision victims. Five of these species were documented as window collision victims at CAS, located very close to the project site. Of these species, I estimated Allen's hummingbird to have died from window collision at a rate of 179 per year until any mitigation measures were implemented. Prior to any mitigation, CAS windows killed an estimated 223 members of special-status species, or 27% of all birds.

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Table 2. *eBird (https://eBird.org) reports of special-status species near the project site and species reported as window-collision victims at the nearby California Academy of Sciences (CAS) buildings (Kahle et al. 2016).*

Species	Scientific name	Status[1]	Occurrences			Number counted at CAS study		Known window deaths
			EIR like-lihood	GGAS 2020	eBird	As window deaths	Alive in survey plots	
American white pelican	*Pelacanus erythrorhynchos*	SSC1			Nearby			
Brown pelican	*Pelecanus occidentalis californicus*	CFP			Nearby			
Double-crested cormorant	*Phalacrocorax auratus*	TWL			Nearby			
California gull	*Larus californicus*	TWL			On site			
Caspian tern	*Hydroprogne caspia*	TWL			On site			
Elegant tern	*Thalasseus elegans*	BCC			Nearby			
Osprey	*Pandion haliaetus*	TWL, FGC 3503.5			On site			
Red-tailed hawk	*Buteo jamaicensis*	FGC 3503.5		Yes	On site		1	Yes
Ferruginous hawk	*Buteo regalis*	TWL, FGC 3503.5			Nearby			
Sswainson's hawk	*Buteo swainsoni*	CT, BCC, FGC 3503.5			Nearby			
Red-shouldered hawk	*Buteo lineatus*	FGC 3503.5		Yes	On site		1	Yes
Rough-legged hawk		FGC 3503.5			Nearby			
Sharp-shinned hawk	*Accipiter striatus*	FGC 3503.5, TWL			On site			Yes
Cooper's hawk	*Accipiter cooperi*	FGC 3503.5, TWL		Yes	On site			Yes
Northern harrier	*Circus cyaneus*	SSC3, FGC 3503.5	None		On site			
White-tailed kite	*Elanus leucurus*	CFP, TWL, FGC 3503.5	Low		Nearby			
American kestrel	*Falco sparverius*	FGC 3503.5			Nearby			Yes
Merlin	*Falco columbarius*	FGC 3503.5, TWL			On site			Yes
Peregrine falcon	*Falco peregrinus*	CFP, BCC	Moderate		On site			Yes
Mourning dove	*Zenaida macroura*			Yes	On site	6	3	Yes
Great-horned owl	*Bubo virginianus*	FGC 3503.5			On site		1	

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Species	Scientific name	Status[1]	Occurrences			Number counted at CAS study		Known window deaths
			EIR like-lihood	GGAS 2020	eBird	As window deaths	Alive in survey plots	
Long-eared owl	*Asio otus*	SSC3, FGC 3503.5			Nearby			
Short-eared owl	*Asio flammeus*	SSC3, FGC 3503.5	Low		Very close			
Western screech-owl	*Megascops kennicotti*	FGC 3503.5			Nearby			
Barn owl	*Tyto alba*	FGC 3503.5			On site			
Vaux's swift	*Chaetura vauxi*	SCC2			Nearby			
Anna's hummingbird	*Calypte anna*			Yes	On site	131	256	Yes
Allen's hummingbird	*Selasphorus sasin*	BCC		Yes	On site	37	29	Yes
Costa's hummingbird	*Calypte costae*	BCC			Nearby	1	0	Yes
Rufous hummingbird	*Selasphorus rufus*	BCC			On site	4	0	Yes
Nuttall's woodpecker	*Picoides nuttallii*	BCC			On site		13	
Pacific-slope flycatcher	*Empidonax difficilis*			Yes	On site	1	5	Yes
Olive-sided flycatcher	*Contopus cooperi*	SSC2		Yes	On site			
Willow flycatcher	*Empidonax trailii*	CE, BCC		Yes	Nearby			
Black phoebe	*Sayornis nigricans*			Yes	On site	3	34	Yes
Oak titmouse	*Baeolophus inornatus*	BCC			Nearby			Yes
Chestnut-backed chickadee	*Poecile rufescens*			Yes	On site	1	203	Yes
Bushtit	*Psaltriparus minimus*			Yes	On site	1	399	Yes
Brown creeper	*Certhia americana*			Yes	On site	1	52	Yes
Pygmy nuthatch	*Sitta pygmaea*			Yes	On site	1	242	Yes
Loggerhead shrike	*Lanius ludovicianus*	BCC, SSC2			Regional			
Purple martin	*Progne subis*	SSC2			Nearby			Yes
Bank swallow	*Riparia riparia*	CT	Low		Nearby			Yes
Swainson's thrush	*Catharus ustulatus*			Yes	On site	1	1	Yes
Hermit thrush	*Catharus guttatus*			Yes	On site	8	82	Yes
American robin	*Turdus vulvaris*				On site	3	389	Yes

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Species	Scientific name	Status[1]	Occurrences			Number counted at CAS study		Known window deaths
			EIR like-lihood	GGAS 2020	eBird	As window deaths	Alive in survey plots	
Warbling vireo	*Vireo gilvus*				On site	1	5	Yes
Yellow-rumped warbler	*Setophaga coronata*			Yes	On site	7	92	Yes
Orange-crowned warbler	*Oreothlypis celata*			Yes	On site	2	29	Yes
Townsend's warbler	*Setophaga townsendi*			Yes	On site	3	101	Yes
Wilson's warbler	*Cardellina pusilla*			Yes	On site	3	11	Yes
Yellow warbler	*Setophaga petechia*	SSC2, BCC		Yes	On site	7	18	Yes
San Francisco common yellowthroat	*Geothlypis trichas sinuosa*	SSC3, BCC	None		Nearby	3	0	Yes
Yellow-breasted chat	*Icteria virens*	SSC3			Nearby			Yes
Song sparrow	*Melospiza melodia*			Yes	On site	5	435	Yes
Golden-crowned sparrow	*Zonotrichia atricapilla*			Yes	On site	3	230	Yes
White-crowned sparrow	*Zonotrichia leucophrys*			Yes	On site	1	249	Yes
Savannah sparrow	*Passerculus sandwichensis*				On site	2	0	Yes
Lincoln's sparrow	*Melospiza lincolnii*				On site	3	35	Yes
Fox sparrow	*Passerella iliaca*			Yes	On site	6	152	Yes
Dark-eyed junco	*Junco hyemalis*			Yes	On site	22	510	Yes
California towhee	*Melozone crissalis*			Yes	On site	1	92	Yes
Brown-headed cowbird	*Molothrus ater*				On site	1	39	Yes
Red-winged blackbird	*Agelaius phoeniceus*				On site	1	261	Yes
Brewer's blackbird	*Euphagus cyanocephalus*				On site	25	1027	Yes

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Species	Scientific name	Status[1]	Occurrences			Number counted at CAS study		Known window deaths
			EIR like-lihood	GGAS 2020	eBird	As window deaths	Alive in survey plots	
Tricolored blackbird	*Agelaius tricolor*	CT, BCC			Nearby		15	
House finch	*Haemorhous mexicanus*			Yes	On site	5	213	Yes
Lesser goldfinch	*Spinus psaltria*			Yes	On site	1	44	Yes
Lawrence's goldfinch	*Carduelis lawrencei*	BCC			Nearby			

[1] Listed as BCC = U.S. Fish and Wildlife Service Bird Species of Conservation Concern, CT or CE = California threatened or endangered, CFP = California Fully Protected (CDFG Code 3511), FGC 3503.5 = California Fish and Game Code 3503.5 -- Birds of prey, and SSC1, SSC2 and SSC3 = California Bird Species of Special Concern priorities 1, 2 and 3, respectively, and TWL = Taxa to Watch List (Shuford and Gardali 2008).

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Table 3. *Special-status species of mammals potentially occurring at the project site, and whether and how assessed in the EIR.*

Species	**Scientific name**	**Status**[1]	**EIR occurrence likelihood**	**Smallwood likelihod**
Pallid bat	*Antrozous pallidus*	SSC, WBWG high	Low	Possible
Townsend's big-eared bat	*Corynorhinus townsendii*	SSC, WBWG high	Low	Probable
Hoary bat	*Lasiurus cinereus*	WBWG moderate	Moderate	Probable
Western red bat	*Lasiurus blossevillii*	SSC, WBWG high	Moderate	Probable
Fringed myotis	*Myotis thysanodes*	WBWG high		Possible
Long-eared myotis	*Myotis evotis*	WBWG moderate		Possible
Small-footed myotis	*Myotis cililabrum*	WBWG		Possible
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	SSC	Low	Probable

[1] SSC = California Bird Species of Special Concern, WBWG = priority listing by Western Bat Working Group

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Project Impact Prediction from Bird-Window Collisions

An empirical basis for robustly predicting bird-window collision mortality exists, not only in the research that was done at the nearby CAS, but also among all of the studies performed across North America. I reviewed reports of avian fatality monitoring among building structures in a wide variety of environmental settings, types of structures, and types of glass on structural façades. Specifically, I reviewed reports of bird collision monitoring at 181 buildings and façades for which bird collisions per m^2 of glass per year could be calculated and averaged (Johnson and Hudson 1976, O'Connell 2001, Somerlot 2003, Hager et al. 2008, Borden et al. 2010, Hager et al. 2013, Porter and Huang 2015, Parkins et al. 2015, Kahle et al. 2016, Ocampo-Peñuela et al. 2016, Sabo et al. 2016, Barton et al. 2017, Schneider et al. 2018). These study results averaged 0.077 bird deaths per m^2 of glass per year (95% CI: 0.04-0.11), before any adjustments were attempted to account for the proportion of fatalities not found due to searcher error and carcass removal by scavengers. This average and its 95% confidence interval provide a robust basis for predicting minimum fatality rates at a proposed new project.

A major shortfall of the EIR is its omission of any details about the design of proposed buildings, including the amount of glass, types of glass, and structural contexts of glass. The only detail I have to work with is the intended 2.04 million square feet of floor space. I applied this figure to an average rate (and 95% CI) of glass extents on 12 recently proposed buildings intended for use as offices hotels and mixed-use in California. The mean was 0.0328 m^2 of glass façade per ft^2 of floor space (95% CI: 0.0052-0.0603). To this extent of glass, I multiplied 2.04 million ft^2 of project floorspace to get 66,838 m^2 of glass façade (95% CI: 8,783-117,327 m^2). However, in my experience, both hospital and university buildings tend to use more glass on their façades (Figure 14). Additionally, recent advances in structural glass engineering have contributed to a proliferation of glass windows on building façades. This proliferation is readily observable in newer buildings, and it is represented by a worldwide 20% increase in glass manufacturing for building construction since 2016. Increasing window-to-wall ratios and glass façades have become popular for multiple reasons, including a growing demand for 'daylighting.' To account for these trends, I increased my estimated extent of glass composing façades of the proejct's buildings by anotehr 20%, to 80,206 m^2 of glass façade (95% CI: 10,594-140,792 m^2).

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To the above prediction of the mean amount of glass composing the project's building façades, I multiplied the mean rate of bird collisions per m^2 of glass façade to predict **6,176 bird deaths per year (95% CI: 3,208-8,823)** at the Parnassus Campus. The 100-year toll from this average annual fatality rate would be **617,586 bird deaths (95% CI: 320,824-882,266)**, which would continue until the buildings are either renovated to reduce bird collisions or they come down. The vast majority of these deaths would be of birds newly protected under Fish and Game Code section 3513 (see above). If the project moves forward as proposed, and annually kills more than half a million birds protected by AB 454, the project will cause significant unmitigated impacts.

If the adjustment factors I applied to the CAS fatality data also apply to the proposed project, then we would predict much higher fatality rates caused by window collisions. The adjustment factors applied to CAS fatalities found by searchers increased the mean estimated annual fatalities by a factor of 13.5. If fatalities at the project's buildings are similarly represented by more small-bodied birds, then the mean annual fatlity rate would be 83,376 birds. Even if the project implemented mitigation measures that were 90% effective, it would still kill >8,000 birds per year.

Given the predicted bird-window fatality predictions for the project, it is understandable why window collisions are often characterized as either the second or third largest source or human-caused bird mortality. The numbers behind these characterizations are often attributed to Klem's (1990) and Dunn's (1993) estimates of about 100 million to 1 billion bird fatalities per year in the USA, or more recently Loss et al.'s (2014) estimate of 365-988 million bird fatalities in the USA or Calvert et al.'s (2013) and Machtans et al.'s (2013) estimates of 22.4 million and 25 million bird fatalities in Canada, respectively. However, these national estimates were based largely on study-specific fatality estimates that were not adjusted for the proportion of fatalities not found. These national estimates, as large as they are, are likely biased low.

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Wildlife Movement

I concur with UCSF's (2020:4.3-3) conclusion, "*The San Francisco Peninsula is an important migratory stopover for birds along the Pacific Flyway—one of the four major migratory routes in North America*." However, I disagree with the EIR where it implies that lack of an established wildlife corridor contributes to its alleged less-than-significant impact on wildlife movement in the region. With this argument, the EIR introduces a false standard. The primary phrase of the CEQA standard goes to wildlife movement regardless of whether the movement is channeled by a corridor. A site such as the proposed project site is critically important for wildlife movement because it composes a diminishing patch of natural cover within an expanse of anthropogenic land uses, forcing more volant wildlife to use the site as stopover and staging habitat during migration, dispersal, and home range patrol (Warnock 2010, Taylor et al. 2011, Runge et al. 2014).

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The other argument leading to the EIR's less-than-significant determination is that proposed mitigation will lessen bird-window collision mortality. Even if mitigation measures *do* succeed in lessening bird-window collision mortality, it will have no effect on the project's impacts to movement of wildlife that survive their encounters with the buildings. The tall buildings on the Campus would pose a barrier to movement that is additional to the threat of window collision. Many birds and bats attempting to fly to or from Mount Sutro would have to detour around the buildings, risking predation by peregrine falcons which exploit these types of situations, and costing valuable energy needed for long-distance travel. Inserting multiple tall buildings into the aerohabitat of birds and bats would cause significant adverse impacts to those birds and bats.

CUMULATIVE IMPACTS

The EIR mischaracterizes cumulative impacts as merely residual impacts of mitigation that was incompletely effective. The EIR claims that because the impacts of the Mount Sutro Open Space Vegetation Management Plan were fully mitigated, there would be no cumulative impacts. If cumulative effects were indeed merely residual impacts of inadequate mitigation, then CEQA would require an inadequate mitigation analysis instead of a cumulative impacts analysis.

The other argument used in the EIR to dismiss cumulative impacts is that the only projects that could be listed or assessed in San Francisco would be redevelopment of areas already built. The EIR claims that redevelopment contributes no cumulative impacts because redeveloped areas already removed all biological resources. But this argument neglects the very impact that is likely the largest posed by the project to biological resources. Just as the project poses potentially severe bird-window collision impacts, so too do new buildings going up in place of older buildings. New buildings in San Francisco are glass-covered. An appropriate cumulative impacts analysis would include a tally of predicted or estimated fatality rates of birds colliding with glass façades of recently built, planned, and foreseeable buildings in San Francisco. 91

The nature of the project's likely impacts, and those of other buildings in San Francisco, warrant a serious cumulative impacts analysis. Bird abundance across North America has declined 29% over the last 48 years (Rosenberg et al. 2019). This decline will result in substantial ecological and economic consequences, the magnitude of which has yet to be understood. Because windows are recognized as one of the principal anthropogenic sources of bird mortality, their cumulative effects among San Francisco's new buildings must be analyzed and mitigated.

MITIGATION

BIO-1c and BIO-1d: Preconstruction Surveys for Bird Nests and Bat Roosts

I understand that the EIR proposes to mitigate potentially significant impacts by having a biologist conduct pre-construction surveys for nesting birds within 250 feet of the construction area and for roosting bats within 50 feet of the construction area within 7 days prior to initiation of construction activities. I disagree, however, that the proposed measures would reduce impacts to less-than-significant. 92

Preconstruction surveys should be performed. However, it needs to be understood that preconstruction surveys, which are also often referred to as take-avoidance surveys, are really just last-minute salvage efforts to prevent injury or death of the most readily detectable individuals. Preconstruction surveys are limited in their mitigation effect as they detect only small fractions of bird nests and roosting bats occurring on a project site. Bird nests are usually concealed so that they are not discovered and their

occupants destroyed by predators. Locating hummingbird nests, for example, can be nearly impossible. Locating roosting bats is likewise very difficult (Kunz and Lumsden 2003). Preconstruction surveys alone fail to prevent the deaths of most of the animals at risk, nor do they do anything to prevent habitat destruction and lost reproductive capacity.

Preconstruction surveys perform better when they are informed by earlier detection surveys, which have been carefully designed by species' experts and natural resource agency biologists. Detection surveys should be performed early enough to not only inform preconstruction surveys, but also the public and decision-makers about potential project impacts. This early timing of detection surveys is also needed to inform the formulation of mitigation measures, including compensatory mitigation for those impacts than cannot be avoided.

Take-avoidance surveys cannot lessen impacts to nesting birds and roosting bats without first informing the public and decision-makers of the magnitudes of potential impacts, nor without informing survey personnel where to look. The effort needs to be made to map out where birds are nesting and bats roosting, and it needs to be made according to biologically appropriate protocols rather than in a rush to stay just ahead of the tractor blade.

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BIO-2b: Bird-Safe Building Treatments

I understand that the EIR proposes to mitigate potentially significant impacts by (1) minimizing unnecessary light emissions from interior and exterior portions of buildings; (2) exploring and adopting window glazing options such as marked glass or UV-reflective glass; and (3) minimizing light and glare of façades through orientation of the building, choice of materials, and landscaping. I disagree, however, that the proposed measures would reduce impacts to less-than-significant.

City of San Francisco (2011) prepared excellent standards for bird-safe buildings, which the EIR cites. City of San Francisco (2011) presents options that include (1) glass and façade treatments to mitigate the effects of transparent and reflective glass; and (2) lighting treatments. But much has been learned by research performed since 2011. For example, mitigation applied to CAS substantially reduced bird-window collision mortality (Kahle et al. 2016), yet the measure implemented was not covered in City of San Francisco (2011). Furthermore, the measures that were recommended in City of San Francisco (2011) were often of uncertain efficacy. Most of the evidence of mitigation efficacy has been anecdotal, although it always helps when the magnitude of effect is very large. As an example of convincing anecdotal evidence, the recent replacement of window panels with fritted glass reduced bird-window collision fatalities by 90% at New York City's Javits Center – a notoriously dangerous building to birds. More often, sound evidence of mitigation efficacy derives from experimentation. I will discuss experimentation further, but first I will recommend mitigation that should precede the measures proposed in the EIR.

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The third of the three proposed measures in the EIR is minimizing light and glare of façades through orientation of the building, choice of materials, and landscaping. However, this approach needs to be informed by how birds would encounter and perceive the buildings. The EIR does not identify materials to be used, but it does illustrate building orientations that appear to have been decided already. The EIR is unclear about whether and how building orientation would be decided to minimize collision risk, nor does it indicate the structural materials to be used on any particular portions of buildings. It seems these decisions are either already decided, in the case of building orientation, or in the case of materials to be used, they are deferred to an unspecified later date. Neither are performance standards are linked to any of these measures.

To inform the third measure, as well as to inform of the relative hazards of building locations and building heights, behavioral ecologists need to survey the project area to adequately characterize flight patterns and reactions to existing buildings. Surveys are needed to learn how many of each bird species fly through the area and at what times of day and night. Nocturnal surveys can be performed using a thermal-imaging camera or radar. Such surveys would inform of collision risk, and could inform mitigation strategies involving light management and design of façades facing the prevailing approach directions of migrating birds.

Once it is better understood how birds use their aerohabitat at the project site, and after reasonable measures have been taken to minimize collision risk due to building location, height and orientation, structural measures need to be considered with the understanding that most remain highly uncertainty in their efficacy. An exception would be the decision to minimize the extent of glass on building façades; minimizing glass is surely the most effective measure other than building locations, heights and orientation. If some other measure is universally applied, and if it later proves ineffective, the cost to wildlife and to the University could be very high. Although I do not know the exact cost of the replacement of clear glass panels with fritted glass at the Javits Center, it was likely a major portion of a $1.5 billion renovation.

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In the face of high predicted fatality rates, and in the face of high uncertainty over mitigation efficacy, erring on the side of caution would be the prudent approach. Informed decisions are needed. Implementation of measures according to tenets of experimental design would most quickly and most convincingly facilitate tests of efficacy. If fatality monitoring was initiated immediately and if it covered both old and new buildings, then opportune before-after, control-impact (BACI) experimental designs could be used to test the efficacy of various measures. As BACI tests are completed, mitigation measures could be revised for buildings yet to be built. Regardless of whether mitigation measures are experimentally tested, post-construction fatality monitoring should be performed.

The predicted magnitude of bird-window collision fatalities is so large that even if one or more mitigation measures reduce fatalities by 90%, the 10% of fatalities that could not be avoided will still be more than enough to warrant compensatory mitigation. UCSF

should mitigate bird-window collision impacts by purchasing easements or fee title to open space to be preserved as wildlife habitat.

Compensatory mitigation ought also to include funding contributions to wildlife rehabilitation facilities to cover the costs of injured animals that will be delivered to these facilities for care. Most of the wildlife injuries will likely be caused by window collisions.

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Recommendations on Siting

For birds encountering tall buildings, the project site is inherently dangerous due to its location at the base of a steeply-sloped, forested open space reserve, which is also one of the last remaining patches of open space for migrating and dispersing birds to find stop-over habitat in San Francisco. Even if mitigation measures could reduce bird collision fatalities by 90%, the unavoidable 10% of fatalities and the energetic costs of the barrier effect of the buildings would cause significant, long-term impacts to birds. What I found to be most effective at minimizing collision fatalities caused by wind turbines was careful siting (Smallwood et al. 2017). The same approach would likely prove most effective at minimizing building impacts on wildlife.

There are two types of siting: Macro and micro. Macro-siting refers to selection of a project site, whereas micro-siting refers to selection of locations for project components within the boundary of a project site. Both levels of siting can substantially mitigate impacts to wildlife, but macro-siting usually offers the greatest opportunity for minimizing impacts. Applying macro-siting to the proposed project would consider impacts to wildlife if the new square footage was located at the site of UCSF's Medical Center at Mount Zion, or in Bayview at the Hunters Point shipyard, as examples. Of course, macro-siting must also consider project objectives but can also consider collateral opportunities for students and host communities. Other factors considered, siting the project farther from Mount Sutro Open Space Reserve would vastly lessen impacts to birds.

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Micro-siting also bears considerable capacity for reducing project impacts to birds, but probably not without reducing the size of the project and minimizing the extent of windows on building façades. Building heights would need to be reduced, both on the Parnassus Campus and Aldea Housing. The tallest of buildings would best be sited as far north as possible on the Parnassus Campus to minimize bird impacts. The tallest building in Aldea Housing would kill fewer birds if it was placed lower on the slope, closer to Clarendon Avenue, and if the shortest buildings were placed higher on the slope. In both cases, the micro-siting strategy would be to site the taller buildings farther from the steep, forested slopes of Mount Sutro in order to give birds more room to negotiate their ways hazard-free to or from Mount Sutro.

Thank you for your attention,

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Shawn Smallwood, Ph.D.

REFERENCES CITED

Barton, C. M., C. S. Riding, and S. R. Loss. 2017. Magnitude and correlates of bird collisions at glass bus shelters in an urban landscape. Plos One 12. (6): e0178667. https://doi.org/10.1371/journal.pone.0178667

Borden, W. C., O. M. Lockhart, A. W. Jones, and M. S. Lyons. 2010. Seasonal, taxonomic, and local habitat components of bird-window collisions on an urban university campus in Cleveland, OH. Ohio Journal of Science 110(3):44-52.

Brown, K., K. S. Smallwood, J. Szewczak, and B. Karas. 2016. Final 2012-2015 Report Avian and Bat Monitoring Project Vasco Winds, LLC. Prepared for NextEra Energy Resources, Livermore, California.

Calvert, A. M., C. A. Bishop, R. D. Elliot, E. A. Krebs, T. M. Kydd, C. S. Machtans, and G. J. Robertson. 2013. A synthesis of human-related avian mortality in Canada. Avian Conservation and Ecology 8(2): 11. http://dx.doi.org/10.5751/ACE-00581-080211

Dunn, E. H. 1993. Bird mortality from striking residential windows in winter. Journal of Field Ornithology 64:302-309.

GGAS (Golden Gate Audubon Society). 2020. UCSF Mount Sutro Open Space Preserve bird monitoring survey preliminary report from survey data collected March-December 2019. Report to University of California, San Francisco, San Francisco, California.

Hager, S. B., H. Trudell, K. J. McKay, S. M. Crandall, and L. Mayer. 2008. Bird density and mortality at windows. Wilson Journal of Ornithology 120:550-564.

Hager S. B., B. J. Cosentino, K J. McKay, C. Monson, W. Zuurdeeg, and B. Blevins. 2013. Window area and development drive spatial variation in bird-window collisions in an urban landscape. PLoS ONE 8(1): e53371. doi:10.1371/journal.pone.0053371

Johnson, R. E., and G. E. Hudson. 1976. Bird mortality at a glassed-in walkway in Washington State. Western Birds 7:99-107.

Kahle, L. Q., M. E. Flannery, and J. P. Dumbacher. 2016. Bird-window collisions at a west-coast urban park museum: analyses of bird biology and window attributes

from Golden Gate Park, San Francisco. PLoS ONE 11(1):e144600 DOI 10.1371/journal.pone.0144600.

Klem, D., Jr. 1990. Collisions between birds and windows: mortality and prevention. Journal of Field Ornithology 61:120-128.

Kunz, T. H., and L. F. Lumsden. 2003. Ecology of cavity and foliage roosting bats. Pages 3–89 in T. H. Kunz and M. B. Fenton, Eds., Bat ecology. The University of Chicago Press, Chicago.

Loss, S. R., T. Will, S. S. Loss, and P. P. Marra. 2014. Bird–building collisions in the United States: Estimates of annual mortality and species vulnerability. The Condor: Ornithological Applications 116:8-23. DOI: 10.1650/CONDOR-13-090.1

Machtans, C. S., C. H. R. Wedeles, and E. M. Bayne. 2013. A first estimate for Canada of the number of birds killed by colliding with building windows. Avian Conservation and Ecology 8(2):6. http://dx.doi.org/10.5751/ACE-00568-080206

Ocampo-Peñuela, N., R. S. Winton, C. J. Wu, E. Zambello, T. W. Wittig and N. L. Cagle . 2016. Patterns of bird-window collisions inform mitigation on a university campus. PeerJ4:e1652;DOI10.7717/peerj.1652

O'Connell, T. J. 2001. Avian window strike mortality at a suburban office park. The Raven 72:141-149.

Parkins, K. L., S. B. Elbin, and E. Barnes. 2015. Light, glass, and bird–building collisions in an urban park. Northeastern Naturalist 22:84-94.

Porter, A., and A. Huang. 2015. Bird collisions with glass: UBC pilot project to assess bird collision rates in Western North America. UBC Social Ecological Economic Development Studies (SEEDS) Student Report. Report to Environment Canada, UBC SEEDS and UBC BRITE.

Rosenberg, K. V., A. M. Dokter, P. J. Blancher, J. R. Sauer, A. C. Smith, P. A. Smith, J. C. Stanton, A. Panjabi , L. Helft , M. Parr, and P. P. Marra. 2019. Decline of the North American avifauna. Science 10.1126/science.aaw1313 (2019).

Rössler, M., E. Nemeth, and A. Bruckner. 2015. Glass pane markings to prevent bird-window collisions: less can be more. Biologia 70: 535—541. DOI: 10.1515/biolog-2015-0057

Runge, C. A., T. G. Martin, H. P. Possingham, S. G. Willis, and R. A. Fuller. 2014. Conserving mobile species. Frontiers in Ecology and Environment 12(7): 395–402, doi:10.1890/130237.

Sabo, A. M., N. D. G. Hagemeyer, A. S. Lahey, and E. L. Walters. 2016. Local avian density influences risk of mortality from window strikes. PeerJ 4:e2170; DOI 10.7717/peerj.2170

San Francisco Planning Department. 2011. Standards for bird-safe buildings. San Francisco Planning Department, City and County of San Francisco, California.

Schneider, R. M., C. M. Barton, K. W. Zirkle, C. F. Greene, and K. B. Newman. 2018. Year-round monitoring reveals prevalence of fatal bird-window collisions at the Virginia Tech Corporate Research Center. *PeerJ* 6:e4562 https://doi.org/10.7717/peerj.4562

Shuford, W. D., and T. Gardali, [eds.]. 2008. California bird species of special concern: a ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California.

Smallwood, K. S., L. Neher, and D. A. Bell. 2017. Siting to Minimize Raptor Collisions: an example from the Repowering Altamont Pass Wind Resource Area. M. Perrow, Ed., Wildlife and Wind Farms - Conflicts and Solutions, Volume 2. Pelagic Publishing, Exeter, United Kingdom. www.bit.ly/2v3cR9Q

Smallwood, K. S., D. A. Bell, E. L. Walther, E. Leyvas, S. Standish, J. Mount, B. Karas. 2018. Estimating wind turbine fatalities using integrated detection trials. Journal of Wildlife Management 82:1169-1184.

Somerlot, K. E. 2003. Survey of songbird mortality due to window collisions on the Murray State University campus. Journal of Service Learning in Conservation Biology 1:1–19.

UCSF (University of California San Francisco). 2020. UCSF Comprehensive Parnassus Heights Plan Environmental Impact Report, State Clearinghouse Number 2020010175. University of California, San Francisco.

Taylor, P. D., S. A. Mackenzie, B. G. Thurber, A. M. Calvert, A. M. Mills, L. P. McGuire, and C. G. Guglielmo. 2011. Landscape movements of migratory birds and bats reveal an expanded scale of stopover. PlosOne 6(11): e27054. doi:10.1371/journal.pone.0027054.

Warnock, N. 2010. Stopping vs. staging: the difference between a hop and a jump. Journal of Avian Biology 41:621-626.

Exhibit F

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September 10, 2020

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Subject: Comments on UCSF Comprehensive Parnassus Heights Plan (SCH No. 2020010175)

Dear Mr. Drury,

We have reviewed the July 2020 Draft Environmental Impact Report ("DEIR") for the UCSF Comprehensive Parnassus Heights Plan ("Project") located in the City of San Francisco ("City"). The Project proposes to demolish 287,000-SF of existing buildings and construct the Irving Street Arrival Project, which includes 25,000-SF of multi-story vertical circulation space; a 270,000-SF Research and Academic Building ("RAB"); a 955,000-SF New Hospital; and the Initial Aldea Housing Densification, including 184 residential dwelling units and 184 parking spaces, all on the 107-acre Project site.

Our review concludes that the DEIR fails to adequately evaluate the Project's air quality, health risk, and greenhouse gas impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project are underestimated and inadequately addressed. An updated EIR should be prepared to adequately assess and mitigate the potential air quality, health risk, and greenhouse gas impacts that the project may have on the surrounding environment. 95

Air Quality

Unsubstantiated Input Parameters Used to Estimate Project Emissions

The DEIR's air quality analysis relies on emissions calculated with CalEEMod.2016.3.2.[1] CalEEMod provides recommended default values based on site-specific information, such as land use type, 96

[1] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4.

meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.[2] Once all of the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These output files disclose to the reader what parameters were utilized in calculating the Project's air pollutant emissions and make known which default values were changed as well as provide justification for the values selected.[3]

96 cont.

Review of the Project's air modeling demonstrates that the DEIR underestimates emissions associated with Project activities. As previously stated, the DEIR's air quality analysis relies on air pollutant emissions calculated using CalEEMod. When reviewing the Project's CalEEMod output files, provided as Appendix AIR to the DEIR, we found that several model inputs were not consistent with information disclosed in the DEIR. As a result, the Project's construction and operational emissions are underestimated. An updated EIR should be prepared to include an updated air quality analysis that adequately evaluates the impacts that construction and operation of the Project will have on local and regional air quality.

Unsubstantiated Utility Company and Intensity Factors

Review of the Project's CalEEMod output files demonstrates that the utility company was modeled as "User Defined" with a manually-inputted CO_2 intensity factor of 605.78 pounds per megawatt hour ("lbs/MWh"), a CH_4 intensity factor of 0 lbs/MWh, and an N_20 intensity factor of 0 lbs/MWh (see excerpt below) (Appendix AIR, pp. 1172, 1250, 1264, 1282, 1357, 1371).

97

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[4] According to the "User Entered Comments & Non-Default Data" table, the CO_2, CH_4, and N_20 intensity factors reflect the "UCSF specific CO2 EF prior to 2025 net zero" (Appendix AIR, pp. 1250). However, this is incorrect for two (2) reasons. First, this justification fails to provide a source for the intensity factors assumed by the model and as a result, we cannot verify the updated intensity factors. Second, the CH_4 and N_20 were *not* inputted and instead incorrectly left as 0 lbs/MWh. According to the CalEEMod User's Guide:

[2] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 1, 9.
[3] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, fn 1, p. 11, 12 – 13. A key feature of the CalEEMod program is the "remarks" feature, where the user explains why a default setting was replaced by a "user defined" value. These remarks are included in the report.
[4] CalEEMod User Guide, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 2, 9

"[I]f the utility for the project is not in the drop down list, the user may select User Defined and *the user will need to manually enter the various intensity factors*" (emphasis added).[5]

As you can see in the excerpt above, if "User Defined" is selected as the utility company, the CO_2, CH_4, and N_20 intensity factors should be manually inputted. Here, however, the CH_4 and N_20 values were incorrectly left as 0 lbs/MWh. Inputting an unsupported CO_2 intensity factor, as well as failing to input CH_4 and N_20 intensity factors, presents an issue, as CalEEMod uses the CO_2, CH_4, and N_20 intensity factors to calculate the Project's greenhouse gas ("GHG") emissions associated with electricity use. [6] As a result, the models may underestimate the Project's GHG emissions and should not be relied upon to determine Project significance. 97 cont.

Failure to Include All Proposed Land Uses

According to the DEIR, the Project would include a temporary construction office between 25,000- and 45,000-SF in size (p. 3-27). However, review of the Project's CalEEMod output files demonstrates that this land use was not modeled or evaluated whatsoever (Appendix AIR, pp. 1085, 1112, 1146, 1172, 1297, 1327, 1357, 1371). This presents an issue, as the land use type and size features are used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations.[7] For example, the square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts). Furthermore, CalEEMod assigns each land use type with its own set of energy usage emission factors.[8] Thus, by failing to include the proposed temporary construction office in any of the CalEEMod models, the DEIR fails to account for the Project's construction-related and operational emissions associated with this land use and should not be relied upon to determine Project significance. 98

Failure to Model Parking

According to the DEIR, the Initial Aldea Housing Densification component of the Project would include one parking space per unit (p. 3-28). Given that the Initial Aldea Housing Densification includes 184 student housing units, the corresponding model should have included 184 parking spaces (p. 3-28).[9] However, review of the Project's CalEEMod output files demonstrates that the models fail to include any amount of parking (see excerpt below) (Appendix AIR, pp. 1085, 1357). 99

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area
Apartments High Rise	184.00	Dwelling Unit	2.97	184,000.00

[5] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 17.
[6] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* CalEEMod.com, p. 17.
[7] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2, p. 17
[8] "CalEEMod User's Guide, Appendix D." CAPCOA, September 2016, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/05_appendix-d2016-3-1.pdf?sfvrsn=2
[9] Calculated: (184 residential units) * (1 parking space per residential unit) = 184 parking spaces.

This presents an issue, as the land use type and size features are used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations.[10] For example, the square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts). Furthermore, CalEEMod assigns each land use type with its own set of energy usage emission factors.[11] Thus, by failing to include the proposed parking associated with the Initial Aldea Housing Densification, the models underestimate the Project's construction-related and operational emissions and should not be relied upon to determine Project significance.

99 cont.

Incorrect Land Use Sizes

According to the DEIR, 24,000-SF of demolition would be required for the construction of new student housing structures associated with the Initial Aldea Housing Densification component of the Project (p. 3-37). Thus, the "Existing Emissions Aldea Housing Initial Phase Demolition" should have included 24,000-SF of residential land use space to be demolished. However, review of the Project's CalEEMod output files demonstrates that the "Existing Emissions Aldea Housing Initial Phase Demolition" model incorrectly includes 145,000-SF of "Research & Development" land use space (see excerpt below) (Appendix AIR, pp. 1282).

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area
Research & Development	145.00	1000sqft	3.33	145,000.00

100

As you can see in the excerpt above, the existing land use to be demolished for the Initial Aldea Housing Densification is overestimated in size and modeled using an incorrect land use type. This presents an issue, as the land use type and size features are used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations.[12] For example, the square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts). Furthermore, CalEEMod assigns each land use type with its own set of energy usage emission factors.[13] By including an overestimated existing land use size and incorrect land use type, the model overestimates the emissions associated with the existing land use. As a result, the DEIR may *underestimate the net increase* in operational emissions resulting from the Initial Aldea Housing Densification component of the Project and the air quality significance determination should not be relied upon.

[10] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2, p. 17
[11] "CalEEMod User's Guide, Appendix D." CAPCOA, September 2016, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/05_appendix-d2016-3-1.pdf?sfvrsn=2
[12] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2, p. 17
[13] "CalEEMod User's Guide, Appendix D." CAPCOA, September 2016, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/05_appendix-d2016-3-1.pdf?sfvrsn=2

Incorrect Operational Land Use Types & Sizes

Review of the Project's CalEEMod output files demonstrates that the land use types and sizes were inputted incorrectly into the Project's four (4) operational models. Specifically, review of the "CPHP Operational Existing" model demonstrates that that ***all*** of the Project's existing land use space was modeled as "Hospital" (see excerpt below) (Appendix AIR, pp. 1217).

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	3,900.00	1000sqft	89.53	3,900,000.00	0

As you can see in the excerpt above, all 3,900,000-SF of the existing land use space was modeled as "Hospital" in the "CPHP Operational Existing" model. Second, review of the "CPHP Operational CPHP Campus Wide 2050" model demonstrates that ***all*** of the Project's land use space was again modeled as "Hospital" (see excerpt below) (Appendix AIR, pp. 1297).

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	6,000.00	1000sqft	137.74	6,000,000.00	0

As you can see in the excerpt above, all 6,000,000-SF of the land use space was modeled as "Hospital" in the "CPHP Operational CPHP Campus Wide 2050" model. Third, review of the "CPHP Operational 2050 No Project" model demonstrates that ***all*** of the Project's land use space was again modeled as "Hospital" (see excerpt below) (Appendix AIR, pp. 1387).

101

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	3,900.00	1000sqft	89.53	3,900,000.00	0

As you can see in the excerpt above, all 3,900,000-SF of the land use space was modeled as "Hospital" in the "CPHP Operational 2050 No Project" model. However, modeling ***all*** of the proposed and existing Projects' 3.9 million and 6 million square feet of land use space, respectfully, as "Hospital" in these three (3) operational models is incorrect. According to the DEIR:

> "Currently, there is approximately 3.92 million gsf of building space on the campus site. The total amount of campus building space upon full implementation of the CPHP would be approximately 5.97 million gsf (*including instruction, research, clinical, and support space; housing; and structured parking*), when accounting for existing campus site development, demolition, and proposed new development" (emphasis added) (p. 2-2 – 2-3).

As you can see in the excerpt above, modeling the ***entirety*** of the existing and proposed Projects' operational space as "Hospital" is incorrect and unsubstantiated. Instead, these models should have included ***all*** of the land use spaces described, including Housing, University/College, Library, Parking, Hospital, Medical Office Building, and Research and Development space.

Furthermore, review of the "UCSF Initial Phase Projects Operational" model demonstrates that the model only includes a total of 270,000-SF of "Research & Development" land use space and 142,000-SF of "Apartments High Rise" land use space (see excerpt below) (Appendix AIR, pp. 1327).

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	270.00	1000sqft	2.50	270,000.00	0
Apartments High Rise	142.00	Dwelling Unit	2.29	142,000.00	406

As you can see in the excerpt above, that the model only includes a total of 270,000-SF of "Research & Development" land use space and 142,000-SF of "Apartments High Rise" land use space *in total*. However, only including these two (2) land use types for the Project's Initial Phase is incorrect. Specifically, according to the DEIR:

> "The Plan includes an "Initial Phase" that comprises: 1) Irving Street Arrival improvements, 2) RAB, 3) New Hospital, and 4) initial Aldea Housing Densification, and as well as other Initial Phase improvements. The Initial Phase would account for approximately 1.43 million gsf of new building development" (p. 2-3).

As you can see in the excerpt above, the Project's Initial Phase comprises a total of approximately 1.43 million gsf of new development, including Hospital, Research & Development, Residential, and Parking land use space. However, as previously described, the "UCSF Initial Phase Projects Operational" model only includes a *total* of 412,000-SF, comprised of *only* Research & Development and Residential space. This is incorrect, as the model underestimates the proposed Project's Initial Phase's land use space by approximately 1,018,000-SF and fails to include any Hospital or Parking space.

The incorrect land use type and size inputs throughout these four (4) models present an issue, as the land use type and size features are used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations.[14] The square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts). By underestimating the floor surface area and failing to model the correct land use types as indicated by the DEIR, the models may underestimate the Project's construction-related and operational emissions and should not be relied upon to determine Project significance.

101 cont.

Unsubstantiated Changes to Construction Phase Lengths

The Project's CalEEMod output files demonstrate that three (3) of the models include unsubstantiated changes to the Project's anticipated individual construction phase lengths. As a result, the models may underestimate the Project's construction-related emissions.

First, the "New Hospital Construction" model includes five (5) changes to the Project's anticipated construction schedule (see excerpt below) (Appendix AIR, pp. 1113-1114).

102

New Hospital Construction, Annual:

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	521.00

[14] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.caleemod.com/, p. 18.

tblConstructionPhase	NumDays	200.00	522.00
tblConstructionPhase	NumDays	200.00	1,043.00
tblConstructionPhase	NumDays	4.00	152.00
tblConstructionPhase	NumDays	2.00	152.00

Specifically, the architectural coating phase was increased by approximately 5,110%, from the default value of 10 to 521 days; the "Foundations/Concrete Pour" building construction phase was increased by approximately 161%, from the default value of 200 to 522 days; the "Building Construction" phase was increased by approximately 422%, from the default value of 200 to 1,043 days; the grading phase was increased by approximately 3,700%, from the default value of 4 to 152 days; and the site preparation phase was increased by approximately 7,500%, from the default value of 2 to 152 days.

Second, the "UCSF Irving Street Arrival Construction Only" model includes five (5) changes to the Project's anticipated construction schedule (see excerpt below) (Appendix AIR, pp. 1147-1148).

UCSF Irving Street Arrival Construction Only, Annual:

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	66.00
tblConstructionPhase	NumDays	5.00	132.00
tblConstructionPhase	NumDays	1.00	66.00
tblConstructionPhase	NumDays	100.00	326.00
tblConstructionPhase	NumDays	5.00	152.00

102 cont.

Specifically, the architectural coating phase was increased by approximately 2,940%, from the default value of 5 to 152 days; the building construction phase was increased by approximately 226%, from the default value of 100 to 326 days; the paving phase was increased by approximately 2,540% from 5 to 132 days; the grading phase was increased by approximately 560%, from the default value of 10 to 66 days; and the site preparation phase was increased by approximately 6,500%, from the default value of 1 to 66 days.

Third, the "UCSF CPHP RAB Construction" model includes six (6) changes to the Project's anticipated construction schedule (see excerpt below) (Appendix D, pp. 1173-1174).

UCSF CPHP RAB Construction, Annual:

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	523.00
tblConstructionPhase	NumDays	220.00	130.00
tblConstructionPhase	NumDays	220.00	675.00
tblConstructionPhase	NumDays	20.00	66.00
tblConstructionPhase	NumDays	6.00	219.00
tblConstructionPhase	NumDays	3.00	66.00

Specifically, the architectural coating phase was increased by approximately 5,130%, from the default value of 10 to 523 days; the "Foundations/Concrete Pour" building construction phase was decreased by approximately 41%, from the default value of 220 to 130 days; the "Building Construction" phase was increased by approximately 207%, from the default value of 220 to 675 days; the grading phase was increased by approximately 3,550%, from the default value of 6 to 219 days; the site preparation phase was increased by approximately 2,100%, from the default value of 3 to 66 days; and the demolition phase was increased by approximately 230%, from the default value of 20 to 66 days.

Thus, as you can see in the excerpts above, the "New Hospital Construction" model, the "UCSF Irving Street Arrival Construction Only" model, and the "UCSF CPHP RAB Construction" model contain several unsubstantiated changes to the individual construction phase lengths. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[15] According to the corresponding "User Entered & Comments & Non-Default Data" tables for the models, the justifications provided for these changes are: "Construction Schedule per applicants RFI response. LPPI Demo in 2014 LRDP," Construction schedule per applicant RFI response," and "Construction schedule provided by applicant," respectively (Appendix AIR, pp. 1112, 1146, 1172). However, the DEIR and associated documents fail to disclose the referenced RFI response, as indicated by the above justifications, or the Project's anticipated construction schedule, including individual phase lengths. Furthermore, while the DEIR mentions the tentative start and end date of each Project component, the DEIR fails to provide the specific *individual construction phase lengths* (p. 3-36 – 3-37). As a result, we cannot verify the reivsed construction schedules and individual construction phase lengths included in the models.

102 cont.

These unsubstantiated changes improperly spread out construction emissions over a longer period than is expected for the Project, which results in an underestimation of the maximum daily emissions associated with construction. In addition, according to the CalEEMod User's Guide, each construction phase is associated with different emissions activities (see excerpt below).[16]

> *Demolition* involves removing buildings or structures.
>
> *Site Preparation* involves clearing vegetation (grubbing and tree/stump removal) and removing stones and other unwanted material or debris prior to grading.
>
> *Grading* involves the cut and fill of land to ensure that the proper base and slope is created for the foundation.
>
> *Building Construction* involves the construction of the foundation, structures and buildings.
>
> *Architectural Coating* involves the application of coatings to both the interior and exterior of buildings or structures, the painting of parking lot or parking garage striping, associated signage and curbs, and the painting of the walls or other components such as stair railings inside parking structures.
>
> *Paving* involves the laying of concrete or asphalt such as in parking lots, roads, driveways, or sidewalks.

[15] CalEEMod User Guide, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 2, 9

[16] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 31.

As such, by disproportionately altering individual construction phase lengths without proper justification, the models' calculations are altered and underestimate emissions. Thus, by including unsubstantiated changes to the Project's anticipated individual construction phase lengths, the model may underestimate the Project's maximum daily construction-related emissions and should not be relied upon to determine the significance of the Project's air quality impacts.

102 cont.

Failure to Include Total Amount of Demolition

According to the DEIR, 254,000-SF of demolition would be required for the construction of the proposed RAB component of the Project (p. 3-37). However, review of the Project's "UCSF CPHP RAB Construction" CalEEMod model demonstrates that the model fails to include the total amount of required demolition for RAB construction. As a result, the model underestimates the Project's construction-related emissions and should not be relied upon to determine Project significance.

According to the CalEEMod User's Guide, "[h]aul trips are based on the amount of material that is demolished, imported or exported assuming a truck can handle 16 cubic yards of material."[17] Therefore, the air model calculates a default number of hauling trips based upon the amount of demolition material inputted into the model. Inputting 254,000-SF of building demolition would result in a default demolition hauling truck trip number of 1,155 trips. However, review of the Project's "UCSF CPHP RAB Construction" CalEEMod output files demonstrates that the model calculated a default value of only 1,060 hauling truck trips (see excerpt below) (Appendix AIR, pp. 1179).

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length
Demolition	5	13.00	0.00	1,060.00	10.80	7.30	20.00
Site Preparation	3	8.00	0.00	4,954.00	10.80	7.30	20.00
Grading	4	10.00	0.00	3,420.00	10.80	7.30	20.00
Drainage/Utilities/Subgrade			0.00	0.00	10.80	7.30	
Foundations/Concrete Pour	8	86.00	44.00	0.00	10.80	7.30	20.00
Building Construction	8	86.00	44.00	0.00	10.80	7.30	20.00
Architectural Coating	1	17.00	0.00	0.00	10.80	7.30	20.00

As you can see in the excerpt above, the model for RAB construction fails to account for the full amount of demolition required for the Project. This presents an issue, as the total amount of demolition material is used by CalEEMod to determine the fugitive dust emissions associated with this phase of construction.[18] By failing to account for the demolition of all existing structures, the model underestimates the Project's fugitive dust emissions associated with demolition. Thus, the model underestimates the Project's construction-related emissions and should not be relied upon to determine the significance of air quality impacts.

[17] http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14
[18] CalEEMod User Guide, Appendix A, *available at:* http://www.caleemod.com/, p. 34.

Unsubstantiated Changes to Acres of Grading Values

Review of the Project's CalEEMod output files demonstrates that the "New Hospital Construction" and "UCSF CPHP RAB Construction" models include unsubstantiated reductions to the anticipated acres of grading values and as a result, the models may underestimate the Project's construction-related emissions.

First, the "New Hospital Construction" model includes reductions to the default acres of grading values (see excerpt below) (Appendix AIR, pp. 1114).

Table Name	Column Name	Default Value	New Value
tblGrading	AcresOfGrading	76.00	2.00
tblGrading	AcresOfGrading	228.00	3.00

As you can see in the excerpt above, the acres of grading value was reduced by roughly 97% during the grading phase of construction, from a default value of 76 acres to 2 acres, and by roughly 99% during the site preparation phase of construction, from a default value of 228 acres to 3 acres.

Second, the "UCSF CPHP RAB Construction" model includes reductions to the default acres of grading values (see excerpt below) (Appendix AIR, pp. 1174).

Table Name	Column Name	Default Value	New Value
tblGrading	AcresOfGrading	109.50	3.00
tblGrading	AcresOfGrading	99.00	4.50

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As you can see in the excerpt above, the acres of grading value was reduced by roughly 97% during the grading phase of construction, from a default value of 109.5 acres to 3 acres, and by roughly 96% during the site preparation phase of construction, from a default value of 99 acres to 4.5 acres.

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[19] According to the "User Entered Comments & Non-Default Data" table for the "New Hospital Construction" model, the justification provided for these changes is: "Project site is two acres" (Appendix AIR, pp. 1112). Furthermore, according to the "User Entered Comments & Non-Default Data" table for the "UCSF CPHP RAB Construction" model, the justification provided for these changes is: "Excavation volume provided by applicant" (Appendix AIR, pp. 1172). However, these justifications are insufficient, as neither the dimensions of the Project site, nor the excavation volume, are utilized to determine the correct acres of grading values. According to the CalEEMod User's Guide:

> "[T]he dimensions (e.g., length and width) of the grading site have no impact on the calculation, only the total area to be graded. In order to properly grade a piece of land multiple passes with equipment may be required. The acres is based on the equipment list and days in grading or site

[19] CalEEMod User Guide, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 2, 9

> preparation phase according to the anticipated maximum number of acres a given piece of equipment can pass over in an 8-hour workday."[20]

As you can see in the excerpt above, the acres of grading value is calculated based on the equipment list and grading or site preparation phase length, not the dimensions of the Project or grading site or excavation volume. As a result, these justifications are insufficient, and we cannot verify the revised acres of grading values. This presents an issue, as the acres of grading values are used by CalEEMod to estimate the dust emissions associated with grading.[21] Thus, by including unsubstantiated reductions to the Project's default acres of grading values, the models may underestimate the Project's construction-related emissions and should not be relied upon to determine the significance of air quality impacts.

104 cont.

Unsubstantiated Reduction of Hauling Trips

Review of the Project's CalEEMod output files demonstrates that the number of hauling trips required for construction of the Initial Aldea Housing Densification was reduced from 313- to 312-acres in the "UCSF Aldea Housing Initial Phase Construction" model (see excerpt below) (Appendix AIR, pp. 1087).

Table Name	Column Name	Default Value	New Value
tblTripsAndVMT	HaulingTripNumber	313.00	312.00

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[22] However, no justification is provided in the corresponding "User Entered Comments & Non-Default Data" table (Appendix AIR, pp. 1086). Furthermore, the DEIR fails to mention or substantiate this change whatsoever, and as a result, we cannot verify the revised hauling trip number. This unsubstantiated reduction presents an issue, as the number of hauling trips and associated vehicle miles traveled ("VMT") are used by CalEEMod to determine both the exhaust emissions associated with on-road vehicle use and fugitive dust emissions.[23] By including an unsubstantiated reduction to the Project's anticipated hauling trip number, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance.

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Incorrect Application of Tier 4 Final Mitigation

According to the DEIR, the Project would implement CPHP Mitigation Measure AIR-1a, which states:

> "All mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the project site for more than two days continuously shall be equipped with engines meeting USEPA emissions standards for ***Tier 4 engines*** or equivalent" (emphasis added) (p. 2-13, Table 2-3).

As the above excerpt demonstrates, CPHP Mitigation Measure AIR-1a requires the use of *Tier 4* equipment, but does not specify whether the Project would implement Tier 4 *Interim* or Tier 4 *Final*

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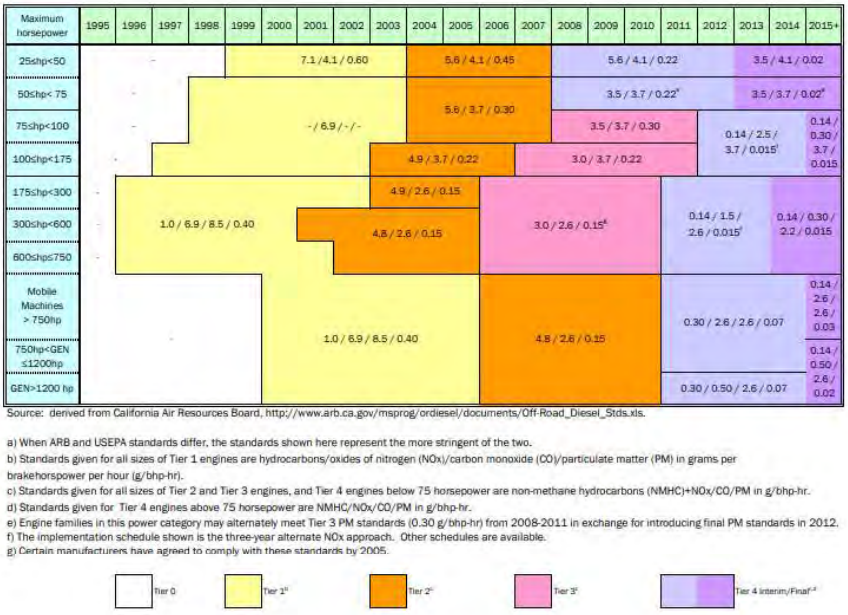
[20] "Appendix A Calculation Details for CalEEMod." *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 9.
[21] "Appendix A Calculation Details for CalEEMod." *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 9.
[22] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[23] CalEEMod User Guide, Appendix A, *available at:* http://www.caleemod.com/, p. 13.

mitigation. However, review of the Project's CalEEMod output files demonstrates that the models estimated emissions assuming that the more efficient Tier 4 *Final* equipment would be used (Appendix AIR, pp. 1086-1087, 1113, 1147, 1173). This presents an issue, as the DEIR does not commit to the use of the more efficient Tier 4 *Final* equipment. The United States Environmental Protection Agency ("U.S. EPA") has slowly adopted more stringent standards to lower the emissions from off-road construction equipment since 1994. Since that time, Tier 1, Tier 2, Tier 3, Tier 4 *Interim*, and Tier 4 *Final* construction equipment has been phased in over time. Tier 4 *Final* represents the *cleanest* burning equipment and therefore has the lowest emissions compared to other tiers, including Tier 4 *Interim* equipment (see excerpt below):[24]



Source: derived from California Air Resources Board, http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road_Diesel_Stds.xls.

a) When ARB and USEPA standards differ, the standards shown here represent the more stringent of the two.
b) Standards given for all sizes of Tier 1 engines are hydrocarbons/oxides of nitrogen (NOx)/carbon monoxide (CO)/particulate matter (PM) in grams per brakehorspower per hour (g/bhp-hr).
c) Standards given for all sizes of Tier 2 and Tier 3 engines, and Tier 4 engines below 75 horsepower are non-methane hydrocarbons (NMHC)+NOx/CO/PM in g/bhp-hr.
d) Standards given for Tier 4 engines above 75 horsepower are NMHC/NOx/CO/PM in g/bhp-hr.
e) Engine families in this power category may alternately meet Tier 3 PM standards (0.30 g/bhp-hr) from 2008-2011 in exchange for introducing final PM standards in 2012.
f) The implementation schedule shown is the three-year alternate NOx approach. Other schedules are available.
g) Certain manufacturers have agreed to comply with these standards by 2005.

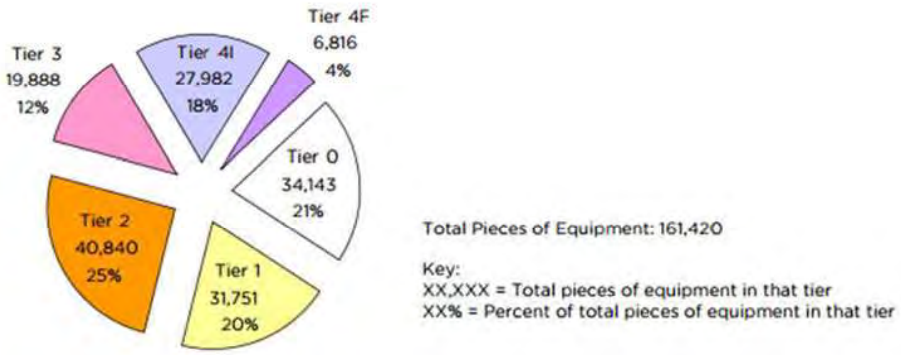
As demonstrated in the figure above, Tier 4 *Interim* equipment has greater emission levels than Tier 4 *Final* equipment. Therefore, by modeling construction emissions assuming nearly a full Tier 4 *Final* equipment fleet, the DEIR failed to account for higher emissions that may occur as a result of the use of Tier 4 *Interim* equipment. Since CPHP Mitigation Measure AIR-1a fails to specify whether the Project will use Tier 4 *Interim* or Tier 4 *Final* equipment, it is incorrect to model emissions assuming that the *more efficient* Tier 4 *Final* equipment will be used. Until the DEIR demonstrates that the Project will actually use Tier 4 *Final* engines during all phases of construction, and not Tier 4 *Interim* equipment, the DEIR's modeling should not be relied upon to determine Project significance.

106 cont.

[24] "San Francisco Clean Construction Ordinance Implementation Guide for San Francisco Public Projects." August 2015, *available at:* https://www.sfdph.org/dph/files/EHSdocs/AirQuality/San_Francisco_Clean_Construction_Ordinance_2015.pdf, p. 6

Furthermore, the DEIR failed to evaluate the *feasibility* of obtaining Tier 4 equipment. Due to the limited amount of Tier 4, especially Tier 4 ***Final***, equipment available, the DEIR should have assessed the feasibility in obtaining equipment with Tier 4 engines (see excerpt below).[25]

Figure 4: 2014 Statewide All Fleet Sizes (Pieces of Equipment)



As demonstrated in the figure above, the Tier 4 *Final* and *Interim* equipment only account for 4% and 18%, respectively, of all off-road equipment currently available in California. Thus, emissions are modeled assuming that the Project will be able to obtain Tier 4 ***Final*** equipment even though this equipment only accounts for 4% of available off-road equipment currently available in California. As a result, the model represents the best-case scenario even though obtaining these types of equipment may not be feasible. Until the Project evaluates the feasibility of obtaining Tier 4 equipment, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance.

106 cont.

Unsubstantiated Changes to Vehicle Emission Factors

Review of the Project's CalEEMod output files demonstrates that numerous operational vehicle emission factors were manually altered in several of the models (Appendix AIR, pp. 1218-1232, 1298-1312, 1329-1343, 1389-1402). As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[26] According to the "User Entered Comments & Non-Default Data" table, the justification provided for these changes is: "EMFAC 2017" (Appendix AIR, pp. 1327). Furthermore, the DEIR states:

> "Operational emissions for the Irving Street Arrival, RAB and initial Aldea Housing Densification projects were estimated using the CalEEMod (version 2016.3.2) adjusted with recently EPA-approved Emfac2017 emissions factors" (p. 4.2-23).

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However, these justifications are insufficient, as EMFAC refers to an ***entire database***, not a specific set of vehicle emission factors.[27] Thus, the DEIR and associated appendices should have either specified which

[25] "San Francisco Clean Construction Ordinance Implementation Guide for San Francisco Public Projects." August 2015, *available at:* https://www.sfdph.org/dph/files/EHSdocs/AirQuality/San_Francisco_Clean_Construction_Ordinance_2015.pdf.
[26] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[27] "EMFAC2017 Web Database." CARB, *available at:* https://arb.ca.gov/emfac/2017/.

input parameters were used to obtain the vehicle emission factors inputted in the model or disclosed the specific set of emission factors inputted into the model from the database. Without specific input parameters or a specific set of emission factors, we cannot verify the revised operational vehicle emission factors inputted into the models. This presents an issue, as the vehicle emission factors are used by CalEEMod to calculate the Project's emissions associated with operational on-road vehicles.[28] Thus, by including unsubstantiated changes to the Project's operational vehicle emission factors, the models may underestimate the Project's operational emissions and should not be relied upon to determine Project significance.

107 cont.

Unsubstantiated Change to Consumer Product Emission Factors

Review of the Project's CalEEMod output files demonstrates that the models include a manual reduction to the Project's anticipated consumer product reactive organic gas/volatile organic compound ("ROG/VOC") emission factor ("ROG_EF") value (see excerpt below) (Appendix AIR, pp. 1218, 1251, 1298, 1388).

Table Name	Column Name	Default Value	New Value
tblConsumerProducts	ROG_EF	2.14E-05	1.51E-05

As you can see in the excerpt above, the ROG_EF value was reduced by 29%, from 2.14E-05 to 1.51E-5 pounds of ROG/VOC per square foot per day ("lb ROG/SF/day"). As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[29] According to the "User Entered Comments & Non-Default Data" table, the justification provided for these changes is: "SF specific ROG Factor" (Appendix AIR, pp. 1218, 1250, 1297, 1388). However, this justification fails to provide a source for the revised emission factor or disclose what "SF specific" even means. In addition, the DEIR fails to mention this change whatsoever. As a result, we cannot verify the updated emission factor. This presents an issue, as consumer product emission factors are used by CalEEMod to calculate the Project's ROG/VOC emissions.[30] Thus, by including an unsubstantiated change to the Project's anticipated consumer product emission factor, the models underestimate the Project's area-source operational emissions and should not be relied upon to determine Project significance.

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Unsubstantiated Reduction to Road Silt Loading Value

Review of the Project's CalEEMod output files demonstrates that the road silt loading value was manually reduced from the default value of 0.1- to 0.048-grams per square meter ("g/m^2") in the "CPHP Operational Existing," "CPHP Operational CPHP Campus Wide 2050," "UCSF Initial Phase Projects Operational," and "CPHP Operational 2050 No Project" models (see excerpt below) (Appendix AIR, pp. 1218, 1298, 1329, 1388).

Table Name	Column Name	Default Value	New Value
tblRoadDust	RoadSiltLoading	0.1	0.048

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[28] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[29] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[30] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

As you can see in the excerpt above, the Road Silt Loading value was reduced from the default value of 0.1- to 0.048-g/m^2. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[31] According to the "User Entered Comments & Non-Default Data" table, the justification provided for this change is "CARB Method 7.9" (pp. 1218, 1297, 1328, 1388). However, review of the DEIR demonstrates that neither the road silt loading value nor CARB Method 7.9 is mentioned whatsoever.

Furthermore, review of CARB's *Miscellaneous Process Methodology 7.9* ("CARB Method 7.9") reveals that this change is unsubstantiated and incorrect for two (2) reasons. First, CARB Method 7.9 demonstrates that the Road Silt Loading values provided are outdated and have not been updated since 2008. As CalEEMod was most recently updated in 2016, values from 2008 would already be considered and should not be used to "update" the model. Second, review of CARB Method 7.9 reveals that a Road Silt Loading value of 0.048 applies to *San Diego*, not San Francisco (see excerpt below).[32]

109 cont.

Air Basin	County	Air District	2012 VMT (million VMT per year)	2008 HPMS Travel Fractions (2)			
				Freeway	Major	Collector	Local, Local Urban (3)
SD	San Diego	SD	30,297	0.553	0.319	0.080	0.048

As you can see in the excerpt above, the Road Silt Loading value of 0.048, as manually inputted into the models for the proposed Project, applies to *San Diego*, not San Francisco. As a result, we cannot verify the revised road silt loading value.

This presents an issue, as the road silt loading value is used by CalEEMod to calculate the fugitive dust emissions associated with operational vehicle trips on paved roads.[33] Thus, by including an unsubstantiated reduction to the Project's anticipated road silt loading value, the models may underestimate the Project's operational emissions and should not be relied upon to determine Project significance.

Unsubstantiated Changes to Trip Rates

Review of the Project's CalEEMod output files demonstrates that the operational vehicle trip rates were manually reduced in the "UCSF Initial Phase Project's Operational" model (see excerpt below) (Appendix AIR, pp. 1343).

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Table Name	Column Name	Default Value	New Value
tblVehicleTrips	ST_TR	10.18	9.00
tblVehicleTrips	SU_TR	8.91	8.55
tblVehicleTrips	WD_TR	13.22	12.00

[31] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[32] https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf, Table 6, pp. 18.
[33] "Appendix A Calculation Details for CalEEMod." *available at:* http://www.caleemod.com/, p. 29.

As a result, the model calculated Weekday, Saturday, and Sunday daily trip numbers of 2,734.28 (see excerpt below) (Appendix AIR, pp. 1349).

Land Use	Weekday	Saturday	Sunday
Apartments High Rise	147.68	147.68	147.68
Research & Development	2,586.60	2,586.60	2586.60
Total	2,734.28	2,734.28	2,734.28

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[34] According to the "User Entered Comments & Non-Default Data" table, the justification provided for these changes is: "Rate changes to match Adavant VMT" (Appendix AIR, pp. 1327). However, while the DEIR provides estimates of daily vehicle miles traveled ("VMT") per capita, the DEIR fails to indicate the *number of daily trips* that the Initial Phase of the proposed Project is expected to generate (p. 4.15-37, 4.15-42, 4.15-45). Furthermore, the DEIR indicates that the CPHP Future Phase would generate 52,200 daily trips, which is 1,809% higher than the number of trips included in the CPHP Initial Phase model (p. 4.15-29). As a result, we cannot verify the revised trip rates utilized in the model. By including unsubstantiated reductions to the Project's operational vehicle trip rates, the model may underestimate the Project's mobile-source operational emissions and should not be relied upon to determine Project significance.

110 cont.

Unsubstantiated Changes to Energy Use Values

Review of the Project's CalEEMod output files demonstrates that two (2) of the Project's operational models include unsubstantiated reductions to the Project's anticipated energy use values. As a result, the models may underestimate the Project's operational emissions.

First, the operational energy use values were manually reduced to 0 kilowatt hours per land use size per year ("KWhr/size/yr") in the "UCSF Initial Phase Project's Operational" model (see excerpt below) (Appendix AIR, pp. 1328).

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	741.44	0.00
tblEnergyUse	LightingElect	2.99	0.00
tblEnergyUse	NT24E	3,054.10	0.00
tblEnergyUse	NT24E	3.36	0.00
tblEnergyUse	T24E	426.45	0.00

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As you can see in the excerpt above, the lighting electricity ("LightingElect"), Nontitle-24 electricity energy intensity ("NT24E"), and Title-24 electricity energy intensity ("T24E") values were each reduced to 0 KWhr/size/yr. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[35] According to the "User Entered Comments & Non-Default Data" table for the

[34] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[35] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

"UCSF Initial Phase Project's Operational" model, the justification provided for these changes is: "UCSF Net zweo electricity by 2030" (Appendix AIR, pp. 1328). Furthermore, regarding the Project's energy use, the DEIR states:

> "UCSF has committed to net zero electricity by 2025 and no GHG emissions are predicted from electrical usage under full buildout of the CPHP" (p. 4.7-36, Table 4.7-3).

However, simply because UCSF has a zero net electricity *goal* for *2025* or *2030*, does not guarantee that it will be achieved locally on the Project site. Furthermore, without a substantial justification, the proposed Project cannot claim that the *campus-wide* zero net electricity *goal* will result in a project-level reduction in electricity use. Moreover, we are unable to verify if this goal is for 2025 or 2030, as the DEIR and "User Entered Comments & Non-Default Data" table provide contradictory years. Finally, the DEIR acknowledges that this goal is for 2025, which is 5 years away, and the "User Entered Comments & Non-Default Data" table acknowledges that this goal is for 2030, which is 10 years away. As a result, we cannot verify that the Project would result in zero electricity use throughout the Project's *entire* operation.

Second, the operational energy use values were manually reduced in the "RAB Energy Emissions Only" model (see excerpt below) (Appendix AIR, pp. 1371-1372).

Table Name	Column Name	Default Value	New Value
tblEnergyUse	T24E	1.21	0.97
tblEnergyUse	T24NG	17.85	14.28

111 cont.

As you can see in the excerpt above, the T24E and Title-24 natural gas energy intensity ("T24NG") values were each reduced by 20%. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[36] According to the "User Entered Comments & Non-Default Data" table for the "RAB Energy Emissions Only" model, the justification provided for these changes is: "UCSF to meet 20% reduction over Title 24. ADjuste T24 demand 20%" (Appendix AIR, pp. 1371). Furthermore, while CPHP Mitigation Measure AIR-2a requires the Project to "[i]ncrease building energy efficiency below Title 24," CPHP Mitigation Measure AIR-2a fails to specify *what specific percentage below Title 24 standards would be required* (p. 2-15, Table 2-3). The DEIR and associated documents also fail to disclose any of the assumptions or calculations used to conclude this 20% reduction. Without disclosing this information, including an analysis of the feasibility of achieving this reduction, we are unable to confirm that it will actually be achieved on the Project site. As a result, we cannot verify the revised T24E and T24NG energy use values.

These unsubstantiated changes present an issue, as the energy use values are used by CalEEMod to calculate the Project's emissions associated with building electricity and natural gas usage.[37] Thus, by including unsubstantiated reductions to the Project's anticipated energy use values, the models

[36] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[37] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 43

underestimate the Project's operational emissions and should not be relied upon to determine Project significance. 111 cont.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The DEIR includes health risk assessments ("HRAs") for construction of the Irving Street Arrival, RAB, New Hospital, and Initial Aldea Housing Densification components of the Initial Phase of the Project and concludes that the resulting cancer risks would be 1.17, 2.91, 4.72, and 0.67 in one million, respectively, after the implementation of CPHP Mitigation Measure AIR-1a (see excerpts below) (p. 4.2-53-56, Table 4.2-15, Table 4.2-16, Table 4.2-17, Table 4.2-18). 112

Irving Street Arrival Construction:

TABLE 4.2-15
MITIGATED PROJECT HEALTH IMPACTS ESTIMATED, IRVING STREET ARRIVAL CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	1.17	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

RAB Construction:

TABLE 4.2-16
MITIGATED PROJECT HEALTH IMPACTS ESTIMATED, RAB CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	2.91	<0.01	0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

New Hospital Construction:

TABLE 4.2-17
MITIGATED PROJECT HEALTH IMPACTS ESTIMATED, NEW HOSPITAL CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	4.72	<0.01	0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

Initial Aldea Housing Densification Construction:

TABLE 4.2-18
MITIGATED PROJECT HEALTH IMPACTS ESTIMATED, INITIAL ALDEA HOUSING DENSIFICATION CONSTRUCTION

Receptor Type[a]	Cancer Risk	Chronic Hazard Index[b,c]	$PM_{2.5}$ Concentration ($\mu g/m^3$)[c]
Resident – Offsite Receptor			
Project Construction[d]	0.67	<0.01	<0.01
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No

As you can see in the excerpts above, the DEIR concludes that the construction of Irving Street Arrival, RAB, New Hospital, Initial Aldea Housing Densification components of the Project would result in mitigated cancer risks of 1.17, 2.91, 4.72, and 0.67 in one million, respectively. As a result, the DEIR concludes that the Project's mitigated construction-related cancer risks would not exceed the BAAQMD threshold of 10 in one million (p. 4.2-53-56, Table 4.2-15, Table 4.2-16, Table 4.2-17, Table 4.2-18). Furthermore, regarding the Project's operational health risk impacts, the DEIR states:

> "[P]otential incremental cancer risks associated with operation of the RAB were estimated. As discussed below, no new TAC sources such as emergency generators are included in the Irving Street Arrival or for the Aldea Housing Densification projects and therefore, these projects are not analyzed below for potential cancer risk from operational TAC sources" (p. 4.2-61).

Thus, as a result of an operational HRA prepared to evaluate the health risk impacts associated with the *emergency generators* included in the RAB component of the Project *only*, the DEIR concludes that the Project would result in an operational cancer risk of 0.26 in one million (see excerpt below) (p. 4.2-62, Table 4.2-19).

112 cont.

TABLE 4.2-19
ESTIMATED OPERATIONAL HEALTH IMPACTS OF THE RAB

Receptor Type	Cancer Risk	Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ Concentration ($\mu g/m3$)[d]
Resident – Offsite Receptor				
Project Operations	0.26	<0.01	<0.01	0.01
Significance Threshold	10	1.0	1.0	0.3
Significant (Yes or No)?	No	No	No	No
Resident – Onsite Residence				
Project Operations	0.04	<0.01	<0.01	<0.01
Significance Threshold	10	1.0	1.0	0.3
Significant (Yes or No)?	No	No	No	No

As a result, the DEIR concludes that the Project's operational cancer risk would not exceed the BAAQMD threshold of 10 in one million (p. 4.2-62, Table 4.2-19). However, the DEIR's evaluation of the Project's health risk impacts, as well as the subsequent less-than-significant impact conclusion is incorrect for four (4) reasons.

First, as previously discussed, the DEIR's mitigated construction-related cancer risks rely upon the implementation of CPHP Mitigation Measure AIR-1a, which is included in the Project's CalEEMod models

as Tier 4 *Final* construction equipment. However, this is incorrect, as CPHP Mitigation Measure AIR-1a fails to indicate whether Tier 4 *Interim* or Tier 4 *Final* construction equipment would be required and as such, impacts may be reduced by an overestimated amount. Furthermore, as discussed above, the DEIR fails to evaluate the feasibility of obtaining a construction fleet of entirely Tier 4 *Final* equipment. As a result, the application of Tier 4 *Final* mitigation in the DEIR's CalEEMod models is unsupported, and the DEIR's reliance upon this mitigation measure is incorrect. As such, without specifying which type of Tier 4 mitigation would be implemented and evaluating the feasibility of obtaining this equipment, the DEIR should not rely on CPHP Mitigation Measure AIR-1a to reduce the health risk impacts associated with Project construction to a less than significant level.

Second, while DEIR includes an HRA assessing the health risk impacts associated with the *emergency generators* associated with the operation of the RAB component of the Initial Phase of the Project, the DEIR fails to evaluate the health risk impacts resulting from the Project's *entire* operation. This is incorrect, as the DEIR indicates that the CPHP would result in 52,200 daily vehicle trips throughout operation, which will result in additional exhaust (p. 4.15-29, Table 4.15-7). Furthermore, while the DEIR indicates that operational emissions of toxic air contaminants ("TACs") would occur as a result of mobile sources, in addition to stationary sources, the DEIR fails to provide any evaluation of the potential health risk impacts associated with these emissions whatsoever (p. 4.2-58). As such, this *partial* operational HRA cannot be used to determine impacts from the *entire* Project's operations, and the DEIR's less than significant health risk impact should not be relied upon. As such, we recommend that an updated assessment of health risk impacts posed to nearby sensitive receptors from Project operation be included in an updated EIR for the Project.

Third, review of the DEIR demonstrates that, while the Project did conduct several *partial* construction HRAs, as well as one *partial* operational HRA, that evaluate the health risk impacts to nearby, existing receptors, the HRA fails to evaluate the *cumulative* lifetime cancer risk to nearby, existing receptors as a result of Project construction and operation *together*. According to OEHHA guidance, as referenced by the DEIR, "the excess cancer risk is calculated separately for each age grouping and then summed to yield cancer risk at the receptor location".[38] However, the HRAs conducted in the DEIR fail to sum each age bin to evaluate the total cancer risk over the course of the Project's construction and operation, as is required by the guidance. This is incorrect and thus, an updated analysis should quantify the Project's construction and operational health risks and then sum them to compare to the BAAQMD threshold of 10 in one million, as referenced by the DEIR (p. 4.2-16).

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Greenhouse Gas

Failure to Adequately Evaluate Greenhouse Gas Impacts

The DEIR concludes that the Project would result in an annual increase in greenhouse gas ("GHG") emissions of 61,815 metric tons of carbon dioxide equivalents per year ("MT CO_2e/year"), as well as a service population efficiency of 10.9 metric tons of carbon dioxide equivalents per service population

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[38] "Guidance Manual for preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf p. 8-4

per year ("MT CO_2e/SP/year"), which indicates a significant GHG impact (p. 4.7-36). As a result, the DEIR includes CPHP Mitigation Measure GHG-1c, which states:

> "[Mitigation Measure GHG-1c] is identified to reduce GHG emissions under the CPHP to a net zero increase and a less than significant impact with mitigation. To achieve the net zero increase, CPHP Mitigation Measure GHG-1c sets forth a numerical performance standard based on the existing GHG emissions inventory for the Parnassus Heights campus site and requires any GHG emissions in excess of the existing inventory of 125,426 MT CO2e per year to be offset" (p. 4.7-37).

Furthermore, the DEIR relies upon the Project's consistency with CARB's 2017 *Scoping Plan* and the Plan Bay Area 2040 in order to conclude that the Project would result in a less than significant GHG impact (p. 4.7-44 – 4.7-45). Specifically, the DEIR states:

> "By implementing the updated GHGRS and CPHP Mitigation Measures GHG-1a through 1c, thereby achieving consistency with UCSF's CNI, the CPHP would be consistent with CARB's 2017 Scoping Plan Update and with Executive Order S-3-05, which established a goal of reducing California's GHG emissions to 80 percent below the 1990 level by the year 2050. The CPHP would also be consistent with Plan Bay Area 2040, which includes the Regional Transportation Plan, and was adopted as the Bay Area's Sustainable Communities Strategy pursuant to California Senate Bill 375" (p. 4.7-44 – 4.7-45).

However, the DEIR's quantitative and qualitative GHG analyses, as well as the subsequent less than significant impact conclusion, are incorrect for the following three (3) reasons:

1) The DEIR's quantitative analysis of the Project's GHG emissions relies upon an incorrect and unsubstantiated air model;
2) The DEIR incorrect relies upon the Project's consistency with CARB's 2017 *Scoping Plan* to determine Project significance; and
3) The DEIR incorrect relies upon the Project's consistency with the Plan Bay Area 2040 to determine Project significance.

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1) Incorrect and Unsubstantiated Analysis of Emissions

As discussed above, the DEIR concludes that the proposed Project would generate net annual GHG emissions of 61,815 MT CO_2e/year, as well as a service population efficiency of 10.9 MT CO_2e/SP/year. However, the DEIR's quantitative GHG analysis is underestimated and unsubstantiated. As previously discussed, when we reviewed the Project's CalEEMod output files, provided as Appendix AIR to the DEIR, we found that several of the values inputted into the model are not consistent with information disclosed in the DEIR and associated documents. As a result, the model underestimates the Project's GHG emissions, and the DEIR's quantitative GHG analysis should not be relied upon to determine Project significance. An updated EIR should be prepared that adequately assesses the potential GHG impacts that construction and operation of the proposed Project may have on the surrounding environment.

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2) Incorrect Reliance upon CARB's 2017 Scoping Plan

As previously discussed, the DEIR relies upon the Project's consistency with CARB's *Scoping Plan* to determine the Project's GHG significance. However, this is incorrect for two (2) reasons.

First, many of the measures include future reduction targets at the city, state, and local levels. However, just because the *state/region/agency* have these *goals* does not mean that they will be achieved locally on the Project site. As such, the DEIR cannot claim that the Project complies with these measures, when they may not even be achieved.

Two, review of CARB's *Scoping Plan* demonstrates that the proposed Project is inconsistent with several measures, including but not limited to the analysis below:

CARB 2017 Scoping Plan[39]	
Measures – Construction	
Divert and recycle construction and demolition waste, and use locally-sourced building materials with a high recycled material content to the greatest extent feasible	Here, the DEIR fails to mention or discuss the feasibility of diverting and recycling construction and demolition waste. Furthermore, the DEIR also fails to mention or discuss the feasibility of using locally-sourced building materials with a high recycled material content. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Utilize existing grid power for electric energy rather than operating temporary gasoline/diesel powered generators	Here, the DEIR fails to mention the use of existing grid power for electric energy rather than operational gasoline or diesel powered generators. Furthermore, the DEIR discusses how the Project site contains two gas turbine generators and 14 diesel generators (Table 4.2-4, p. 4.2-13). As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Measures – Operation	
Allow for new construction to install fewer on-site parking spaces than required by local municipal building code, if appropriate	Here, the DEIR fails to mention or allow the Project to install fewer on-site parking spaces than required by local municipal building code. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.

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[39] California Air Resources Board ("CARB") (Jan. 2017) 2017 Scoping Plan, Appendix B-Local Action, *available at:* https://ww3.arb.ca.gov/cc/scopingplan/2030sp_appb_localaction_final.pdf, p. 8-10.

Require on-site renewable energy generation	Here, the DEIR states that "CPHP operations would require long-term consumption of energy in the form of electricity, natural gas, gasoline, and diesel fuel" and that "the CPHP would not require additional power generation plants… to be constructed" (p. 4.5-20, 4.5-25). Thus, the DEIR fails to require or discuss the feasibility of on-site renewable energy generation. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Require solar-ready roofs	Here, the DEIR fails to mention or require solar-ready roofs. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Require low-water landscaping in new developments (see CALGreen Divisions 4.3 and 5.3 and the Model Water Efficient Landscape Ordinance [MWELO], which is referenced in CALGreen). Require water efficient landscape maintenance to conserve water and reduce landscape waste.	Here, while the DEIR states that UCSF "shall *strive* to reduce potable water used for irrigation by converting to recycled water, implementing efficient irrigation systems, drought tolerant planting selections, and/or by removing turf," the Project fails to require or commit to the implementation of water efficient landscape. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Achieve Zero Net Energy performance building standards prior to dates required by the Energy Code	Here, the DEIR fails to mention or discuss the feasibility of achieving Zero Net Energy performance building standards prior to dates required by the Energy Code. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Develop a rideshare program targeting commuters to major employment centers	Here, the DEIR fails to mention developing a rideshare program to target commuters to major employment centers. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Require gas outlets in residential backyards for use with outdoor cooking appliances such as gas barbeques if natural gas service is available	Here, the DEIR fails to mention or discuss the feasibility of requiring gas outlets in residential backyards for use with outdoor cooking appliances. As such, the proposed Project is not consistent

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	with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Require the installation of electrical outlets on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment	Here, the DEIR fails to mention or discuss the feasibility of requiring the design of electric outlets on the exterior walls of both the front and back of residences to promote electric landscape maintenance equipment. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Require the design of the electric outlets and/or wiring in new residential unit garages to promote electric vehicle usage	Here, the DEIR fails to mention or discuss the feasibility of requiring the design of electric outlets and/or wiring in residential unit garages to promote electric vehicle usage. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Provide electric outlets to promote the use of electric landscape maintenance equipment to the extent feasible on parks and public/quasi-public lands	Here, the DEIR fails to mention or discuss the feasibility of providing electric outlets to promote the use of electric landscape maintenance equipment. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Require each residential unit to be "solar ready," including installing the appropriate hardware and proper structural engineering	Here, the DEIR fails to mention or discuss the feasibility of requiring each residential unit to be "solar ready." The DEIR also fails to mention or discuss the feasibility of requiring the appropriate hardware and proper structural engineering to be "solar ready." As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Require the installation of energy conserving appliances such as on-demand tank-less water heaters and whole-house fans	Here, the DEIR discusses Energy Efficiency Reduction Measures, specifically that "UCSF *could* establish energy efficiency criteria for appliances installed on the Parnassus Heights campus site" (p. 4.7-37). While the DEIR states that the Project will comply with this measure because "CPHP [is] considered to have net zero electricity by 2025" (p. 4.7-37), this is incorrect. Net zero electricity by 2025 is in reference to the UC system-wide Carbon Neutrality Initiative goal of carbon neutrality across all UC campuses by 2025. Because this is a UC system-wide *goal* for net zero carbon emissions,

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	we are unable to verify that this will result in energy efficient appliances locally at the Project site. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Require each residential and commercial building equip buildings with energy efficient AC units and heating systems with programmable thermostats/timers	Here, while the DEIR discusses "improvements that involve building renovations are likely to improve building efficiency with potential reduction of operational emissions of the CUP for heating and cooling," DEIR fails to mention or discuss the feasibility of requiring Project to include energy efficient AC units and heating systems (p. 4.2-43). The DEIR also fails to mention or discuss the feasibility of requiring these AC units and heating systems to include programmable thermostats/timers. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Require large-scale residential developments and commercial buildings to report energy use, and set specific targets for per-capita energy use	Here, the DEIR fails to mention or require the Project to report energy use or set specific targets for per-capita energy use. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Require the use of energy-efficient lighting for all street, parking, and area lighting	Here, the DEIR fails to provide any explanation of how this measure would be implemented, monitored, and enforced on the Project site. As such, we cannot verify that the proposed Project is consistent with this measure, and the DEIR lacks substantial evidence to support its consistency determination.
Require the landscaping design for parking lots to utilize tree cover and compost/mulch	Here, the DEIR fails to mention or discuss the feasibility of requiring the landscape design for the Project's proposed parking to utilize tree cover and compost/mulch. As such, the proposed Project is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency determination.
Incorporate water retention in the design of parking lots and landscaping, including using compost/mulch	Here, the DEIR fails to mention or discussion the incorporation of water retention in the design of parking lots and landscaping, specifically including using compost or mulch. As such, the proposed Project is not consistent with this measure and the

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	DEIR lacks substantial evidence to support its consistency determination.

As the table above indicates, the DEIR fails to provide sufficient information and analysis to determine Project consistency with numerous measures under CARB's *Scoping Plan*. Thus, we cannot verify that the proposed Project will result in less than significant GHG impacts, as claimed in the DEIR. As a result, we recommend that an updated EIR include further information and analysis in order to conclude that the proposed Project would be consistent with CARB's *Scoping Plan*.

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3) Failure to Demonstrate Consistency with Plan Bay Area 2040

As discussed above, the DEIR relies upon the Project's consistency with the Plan Bay Area 2040 (p. 4.7-45). However, this is incorrect for two (2) reasons.

First, according to the Plan Bay Area 2040:

> "It is important to emphasize that the region's cities and counties retain local land use authority and that local jurisdictions will continue to determine where future development occurs. Plan Bay Area 2040 is supported through implementation efforts such as neighborhood-level planning grants for PDAs and local technical assistance. *The plan does not mandate any changes to* local zoning rules, general plans *or processes for reviewing projects; nor is the plan an enforceable direct or indirect cap on development locations or targets in the region*. As is the case across California, the Bay Area's cities, towns and counties maintain control of all decisions to adopt plans and to permit or deny development projects" (emphasis added).[40]

As you can see in the excerpt above, the Plan Bay Area 2040 does not have the jurisdiction to *require* any changes. The Plan instead states that it *cannot* be used for reviewing projects or as an enforceable cap on development targets. As such, the DEIR's claim that the Project is consistent with the Plan Bay Area 2040 and can be used to determine less than significant impacts is incorrect and unsubstantiated.

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Second, the Plan Bay Area 2040 does not qualify as an adequate GHG reduction plans or Climate Action Plan ("CAP"). CEQA Guidelines §§ 15064.4(b)(3) and 15183(b) allows a lead agency to consider a project's consistency with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. When read in conjunction, CEQA Guidelines §§ 15064.4(b)(3) and 15183.5(b)(1) make clear qualified GHG reduction plans or CAPs should include the following features:

(1) **Inventory**: Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities (e.g., projects) within a defined geographic area (e.g., lead agency jurisdiction);

[40] "Plan Bay Area 2040." Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), July 2017, *available at:* http://2040.planbayarea.org/sites/default/files/2020-02/Final_Plan_Bay_Area_2040.pdf, p. 44.

(2) **Establish GHG Reduction Goal**: Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
(3) **Analyze Project Types**: Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
(4) **Craft Performance Based Mitigation Measures**: Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
(5) **Monitoring**: Establish a mechanism to monitor the CAP progress toward achieving said level and to require amendment if the plan is not achieving specified levels;

Collectively, the above-listed features tie qualitative measures to quantitative results, which in turn become binding via proper monitoring and enforcement by the jurisdiction—all resulting in real GHG reductions for the jurisdiction as a whole, and substantial evidence demonstrating that a project's incremental contribution is not cumulatively considerable. Here, however, the DEIR fails to demonstrate that the Plan Bay Area 2040 includes the above-listed requirements to be considered a qualified GHG Reduction Plan for the City. As such, the DEIR leaves an analytical gap showing that compliance with said plan can be used for a project-level significance determination. Thus, the DEIR's GHG analysis regarding the Plan Bay Area 2040 should not be relied upon.

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Third, the Plan Bay Area 2040's EIR discloses potential environmental impacts of the Plan, and provides mitigation measures in a Mitigation, Monitoring, and Reporting Program ("MMRP") for the Project. However, review of the Plan Bay Area 2040 EIR reveals that the proposed Project fails to address and is inconsistent with numerous mitigation measures, including but not limited to those listed below:

Plan Bay Area 2040[41]
EIR Mitigation Measures
Transportation
Mitigation Measure 2.1-3-3(b) Transportation demand management (TDM) strategies shall be incorporated into individual land use and transportation projects and plans, as part of the planning process. Local agencies shall incorporate strategies identified in the Federal Highway Administration's publication: Integrating Demand Management into the Transportation Planning Process: A Desk Reference (August 2012) into the planning process (FHWA 2012). For example, the following strategies may be included to encourage use of transit and non-motorized modes of transportation and reduce vehicle miles traveled on the region's roadways:

[41] "Plan Bay Area 2040 Draft Environmental Impact Report." MTC and ABAG, April 2017, *available at:* http://2040.planbayarea.org/sites/default/files/2017-07/PBA%202040%20DEIR_0_1.pdf, p. ES-11, Table ES-2.

- incorporate supporting infrastructure for non-motorized modes, such as, bike lanes, secure bike parking, sidewalks, and crosswalks;
- provide incentives to use alternative modes and reduce driving, such as, universal transit passes, road and parking pricing;
- implement parking management programs, such as parking cash-out;
- develop TDM-specific performance measures to evaluate project-specific and system-wide performance;
- incorporate TDM performance measures in the decision-making process for identifying transportation investments;
- implement data collection programs for TDM to determine the effectiveness of certain strategies and to measure success over time; and
- set aside funding for TDM initiatives.

The increase in per capita VMT on facilities experiencing LOS F represents a significant impact compared to existing conditions. To assess whether implementation of these specific mitigation strategies would result in measurable traffic congestion reductions, implementing actions may need to be further refined within the overall parameters of the proposed Plan and matched to local conditions in any subsequent project-level environmental analysis.

Mitigation Measure 2.1-7

Implementing agencies and/or project sponsors shall implement the following measure, where feasible and necessary based on project- and site-specific considerations. Implementing agencies shall require implementation of best practice strategies regarding construction activities on the transportation system and apply recommended applicable mitigation measures as defined by state and federal agencies. Examples of mitigation measures include, but are not limited to, the following:

- prepare a transportation construction plan for all phases of construction;
- identify arrival/departure times for trucks and construction workers to avoid peak periods of adjacent street traffic and minimize traffic affects;

encourage construction workers to use transit, carpool, and other sustainable transportation modes when commuting to and from the site.

Air Quality

Mitigation Measure 2.2-2)

When screening levels are exceeded (see Table 2.2-8 or those most currently updated by BAAQMD), implementing agencies and/or project sponsors shall implement measures, where applicable, feasible, and necessary based on project- and site-specific considerations, that include, but are not limited to the following:

Construction Best Practices for Exhaust:

- The applicant/general contractor for the project shall submit a list of all off-road equipment greater than 25 horsepower (hp) that would be operated for more than 20 hours over the entire duration of project construction, including equipment from subcontractors, to BAAQMD for

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review and certification. The list shall include all information necessary to ensure the equipment meets the following requirement:

1. Be zero emissions OR
2. have engines that meet or exceed either EPA or ARB Tier 2 off-road emission standards; and
3. have engines that are retrofitted with an ARB Level 3 Verified Diesel Emissions Control Strategy (VDECS), if one is available for the equipment being used. Equipment with engines that meet Tier 4 Interim or Tier 4 Final emission standards automatically meet this requirement; therefore, a VDECS would not be required

- All construction equipment shall be maintained and properly tuned in accordance with the manufacturers' specifications.
- Portable diesel generators shall be prohibited. Grid power electricity should be used to provide power at construction sites; or propane and natural gas generators may be used when grid power electricity is not feasible.

Construction Best Practices for Dust:

- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
- Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
- All trucks and equipment, including their tires, shall be washed off before leaving the site.
- Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.

These BMPs are consistent with recommendations in BAAQMD's CEQA guidelines and Planning Healthy Places (BAAQMD 2010b, BAAQMD 2016). Applicable mitigation measures shall be required at the time grading permits are issued.
Here, the

As such, the DEIR is not consistent with this measure and the DEIR lacks substantial evidence to support its consistency evaluation.

Mitigation Measure 2.2-5(a)

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When locating sensitive receptors in TAC risk areas, implementing agencies and/or project sponsors shall implement measures, where feasible and necessary based on project- and site-specific considerations that include, but are not limited to the following:

- Install, operate and maintain in good working order a central heating, ventilation and air conditioning (HVAC) system or other air intake system in the building, or in each individual unit, that meets or exceeds a minimum efficiency reporting value (MERV) of 13 (MERV-16 for projects located in the West Oakland Specific Plan area) or higher. The HVAC system shall include the following features: Installation of a high efficiency filter and/or carbon filter to filter particulates and other chemical matter from entering the building. Either high efficiency particulate air (HEPA) filters or American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) certified 85% supply filters shall be used.
- Maintain, repair and/or replace HVAC system on an ongoing and as needed basis or shall prepare an operation and maintenance manual for the HVAC system and the filter. The manual shall include the operating instructions and the maintenance and replacement schedule. This manual shall be included in the Covenants, Conditions and Restrictions (CC&Rs) for residential projects and/or distributed to the building maintenance staff. In addition, the applicant shall prepare a separate homeowners manual. The manual shall contain the operating instructions and the maintenance and replacement schedule for the HVAC system and the filters.
- Install passive electrostatic filtering systems with low air velocities (i.e., less than 1 mph).
- Individual and common exterior open space and outdoor activity areas proposed as part of individual projects shall be located as far away as possible within the project site boundary, face away major freeways, and shall be shielded from the source (i.e., the roadway) of air pollution by buildings or otherwise buffered to further reduce air pollution for project occupants.
- Locate air intakes and design windows to reduce PM exposure (e.g., windows nearest to the roadway do not open).
- If sensitive receptors are located near a distribution center, residents shall not be located immediately adjacent to a loading dock or where trucks concentrate to deliver goods.
- Sensitive receptors within buildings shall be located in areas upwind of major roadway traffic to reduce exposure to reduce cancer risk levels and exposure to PM2.5.
- Planting trees and/or vegetation between sensitive receptors and pollution source. Trees that are best suited to trapping PM shall be planted, including one or more of the following species: Pine (Pinus nigra var. maritima), Cypress (X Cupressocyparis leylandii), Hybrid popular (Populus deltoids X trichocarpa), California pepper tree (Schinus molle) and Redwoods (Sequoia sempervirens).
- Loading docks shall be required to include electric hookups for visiting trucks.
- Idling of heavy duty diesel trucks at these locations shall be prohibited or limited to no more than 2 minutes.
- If within the project site, existing and new diesel generators shall meet ARB's Tier 4 emission standards.

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• Emissions from diesel trucks shall be reduced through establishing truck routes to avoid residential neighborhoods or other land uses serving sensitive populations, such as hospitals, schools, and child care centers. A truck route program, along with truck calming, parking and delivery restrictions, shall be implemented to direct traffic activity at non-permitted sources and large construction projects. These BMPs are consistent with recommendations in BAAQMD's CEQA guidelines and Planning Healthy Places (BAAQMD 2011, BAAQMD 2016).
Climate Change and Greenhouse Gases
Mitigation Measure 2.5-4(b) Implementing agencies and/or project sponsors shall implement measures, where feasible and necessary based on project- and site-specific considerations that include, but are not limited to, coordination with BCDC, Caltrans, local jurisdictions (cities and counties), and other transportation agencies to develop Transportation Asset Management Plans that consider the potential impacts of sea level rise over the life cycle of threatened assets.
Mitigation Measure 2.5-4(c) Implementing agencies shall require project sponsors to incorporate the appropriate adaptation strategy or strategies to reduce the impacts of sea level rise on specific local transportation and land use development projects, where feasible, based on project- and site-specific considerations. Potential adaptation strategies are included in the Adaptation Strategies (see Appendix F of this Draft EIR).

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As the above table indicates, the DEIR fails to provide sufficient information and analysis to determine Project consistency with the required mitigation measures of the Plan Bay Area 2040. Thus, we cannot verify that the Project is consistent with the Plan, as claimed in the DEIR. As a result, we recommend that the Project not be approved until an updated EIR provide further information and analysis in order to conclude consistency for the proposed Project.

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

Matt Hagemann, P.G., C.Hg.

Paul E. Rosenfeld, Ph.D.

Responses to Comments from Lozeau Drury LLP

O-LD2-1 The commenter raises general comments, including that the Draft EIR fails as informational document, and fails to impose mitigation measures. The commenter is referred to the individual responses to the comment letter that follow; see also Master Response 2: General Comments on EIR and Environmental Topics.

The commenter also makes a general comment that a revised draft EIR be prepared and recirculated. As demonstrated in the individual responses provided to the comments raised, and further in Section 8.1.4 in this Comments and Responses document, none of the specific issues identified in the comments, or response to these comments, result in any of the conditions of Section 15088.5(a) being met. Thus, UCSF has determined that recirculation of the Draft EIR on the issues raised by the comments is not warranted.

O-LD2-2A The commenter briefly summarizes certain historical aspects of the 2014 LRDP and development of the CPHP, and describes certain CPHP project characteristics. No response is required; see Master Response 1: Non-CEQA Comments.

O-LD2-2B The commenter asserts the CPHP reneges on the promise made by the UC Regents in 1976 to the City of San Francisco and the community to resolve a CEQA lawsuit that he Parnassus campus site would never exceed 3.55 million square feet, and the proposed exceedance of this space ceiling by over 2 million square feet would make a mockery of this false promise. Please refer to Master Response 4: Space Ceiling and Population.

O-LD2-3 The commenter references certain CEQA Guidelines sections and cites several court decisions on CEQA, but which do not specifically comment on the Draft EIR. No response is required to these comments; see Master Response 1: Non-CEQA Comments.

The commenter also makes a general comment that comments included in Comment Letter O-LD2-2 find that the EIR adequately analyzes and mitigates the CPHP impacts. The commenter is referred to the individual responses to the comment letter that follow; see also Master Response 2: General Comments on EIR and Environmental Topics.

O-LD2-4 The commenter asserts the CPHP reneges on the UC Regents promise to City of San Francisco and the community never to exceed the 3.55 million square feet at the Parnassus Heights campus site. The commenter also summarizes the historical aspects of the 1976 Regents' Resolution and subsequent revisions to it. Please refer to Master Response 4: Space Ceiling and Population.

O-LD2-5 The commenter asserts that the space ceiling is enforceable under the doctrine of promissory estoppel. Please refer to Master Response 4: Space Ceiling and Population.

O-LD2-6 The commenter asserts that the space ceiling does not impair the police power. Please refer to Master Response 4: Space Ceiling and Population.

O-LD2-7 The commenter asserts that the space ceiling is enforceable under the doctrine of equitable estoppel. Please refer to Master Response 4: Space Ceiling and Population.

O-LD2-8 The commenter makes a number of claims regarding the lawsuit over the 1975 LRDP. Please refer to Master Response 4: Space Ceiling and Population.

O-LD2-9 The commenter asserts that the Regents may not rely on the rule of relating to the conduct of government officials because its application would result in a grave injustice in this case. Please refer to Master Response 4: Space Ceiling and Population.

O-LD2-10 The commenter claims that the violation of the space ceiling policy is a significant impact under CEQA. Please refer to Master Response 4: Space Ceiling and Population.

O-LD2-11 The commenter asserts the Draft EIR fails to consider the impacts of COVID-19 in the baseline. The commenter is referred to Master Response 4: COVID-19.

O-LD2-12 The commenter summarizes various case law regarding EIR alternatives. The commenter is referred to Master Response 5: EIR Alternatives.

O-LD2-13 The commenter asserts UCSF failed to adopt the environmentally superior alternative. EIRs do not adopt alternatives, it is the responsibility of the lead agency to approve the project or an alternative and to make findings regarding feasibility. The commenter is referred to Master Response 5: EIR Alternatives.

O-LD2-14 The commenter asserts the Draft EIR fails to select the 2014 LRDP Alternative. The commenter is referred to Master Response 5: EIR Alternatives.

O-LD2-15 The commenter asserts the Draft EIR alternatives analysis is legally deficient because fails describe a reasonable range of alternatives. The commenter is referred to Master Response 5: EIR Alternatives.

O-LD2-16 The commenter asserts the Draft EIR alternatives analysis fails to mention the Hunters Point site. The commenter is referred to Master Response 5: EIR Alternatives.

O-LD2-17 The commenter claims the Draft EIR rejects many of the off-site alternatives because they are off-site. The commenter is referred to Master Response 5: EIR Alternatives.

O-LD2-18 The commenter asserts that the Draft EIR fails to describe details of several elements of the proposed New Hospital, despite the Draft EIR presenting information on the height and size of the building. The commenter does not identify what specific details of the New Hospital are not described in the Draft EIR. Regardless, as described in the Draft EIR Chapter 1, Introduction page 1-7, a program EIR has been prepared for the CPHP that establishes a framework for tiered or project-program environmental review. Accordingly, this EIR provides a program-level analysis of the environmental impacts that could result from the development of the entire space program under the CPHP (including the New Hospital), and identifies Plan-level mitigation measures to reduce potential significant effects of the CPHP. UCSF has begun to plan the New Hospital, and broad parameters for the New Hospital project (location, size, mass, height, and projected population) are accounted for at a program level in the CPHP and analyzed in this EIR. Further details of the New Hospital are being developed, including the specific design. Those elements of the New Hospital will be the subject of a subsequent project-specific environmental review when more details become available. It is anticipated that sufficient detail will be available to publish a project-level Draft EIR for the New Hospital in the summer of 2021.

O-LD2-19 The commenter references certain CEQA case law, and then makes a general comment that the Draft EIR contains impermissible deferred mitigation for several impacts. Please see the responses to specific comments made by the commenter regarding deferral of mitigation of wind impacts (Response O-LD2-20), cultural resource impacts (Response O-LD2-21), hazards and hazardous materials impacts (Response O-LD2-22), noise impacts (Response O-LD2-23), and travel conditions (Response O-LD2-24).

O-LD2-20 The comment states that the Draft EIR defers mitigation of effects related to pedestrian wind conditions. Please refer to Master Response 8: Wind Impacts.

O-LD2-21 The commenter asserts that the Draft EIR improperly defers CPHP Mitigation Measures CUL-1a, 1b, 1c, and 1d. The mitigation measures specify that they shall be implemented prior to demolition work or alterations to historic resources; however, the commenter claims that this results in improper deferral to an uncertain time and the measures should be implemented prior to project approval. With regard to CPHP Mitigation Measure CUL-1c, the commenter claims that the Draft EIR's conclusion of significant and unavoidable impacts on cultural resources cannot be supported without the preparation of a salvage plan. The commenter also claims that CPHP Mitigation Measure CUL-1d stands in place of mitigation that would preserve the murals and questions UCSF's explanation that the cost to preserve and relocate the murals is prohibitive. Please

refer to Master Response 11: Toland Hall Murals. Please also refer to Response A-SFP-10.

O-LD2-22 With respect to CPHP Mitigation Measure HAZ-1 in the Draft EIR, the commenter inquires why the Excavation Management Plan included in the measure has not already been conducted in order to inform decision-makers and the public reviewing the Draft EIR. This CPHP mitigation is identical to Mitigation Measure HAZ-LRDP-1 included in the 2014 LRDP Final EIR, and implemented for projects under the 2014 LRDP. CPHP Mitigation Measure HAZ-1 is not intended to be implemented prior to project approval, but rather, would be implemented prior to any excavation, demolition or construction activities. Regardless, the measure provides the appropriate mechanisms to ensure that the Excavation Management Plan would be prepared, and that the California Air Resources Board (CARB) Airborne Toxic Control Measures (ATCM) would be implemented. The ATCM measures address minimizing asbestos emissions from such activities where naturally-occurring asbestos is found or is likely to be found, and minimizing the release of asbestos fibers during activities involving the handling of asbestos. Implementation of CPHP Mitigation Measure HAZ-1 would reduce naturally-occurring asbestos exposure risks to a less than significant level.

With respect to CPHP Mitigation Measure HAZ-4 in the Draft EIR, the commenter inquires why the Soil Management Plan is not prepared prior to the Draft EIR. This CPHP mitigation measure is similar to Mitigation Measure HAZ-LRDP-2 included in the 2014 LRDP Final EIR, but modified for use at the Parnassus Heights campus site for construction activities that would occur under the CPHP. CPHP Mitigation Measure HAZ-4 is not intended to be implemented prior to the Draft EIR, but rather, would be implemented prior to any excavation, demolition or construction activities at the campus site under the CPHP. As specified in CPHP Mitigation Measure HAZ-4, the Soil Management Plan would include measures to address protocols for identifying, handling, and characterizing suspect contaminated soils, and if needed, removal and remediation, in accordance with the applicable overseeing agency requirements. Implementation of CPHP Mitigation Measure HAZ-4 would reduce exposure risks to previously unknown contamination or hazardous release sites to a less than significant level.

O-LD2-23 This comment asserts that CPHP Mitigation Measures NOI-1a and NOI-1b defer mitigation because the mitigation measures requires that a Noise Control Plan be implemented without presenting the Plan in detail within the EIR for decision-makers and the public to review, and therefore that it cannot be concluded that these mitigation measures will mitigate the impact of construction noise.

CPHP Mitigation Measure NOI-1a as presented on Draft EIR page 4.11-18 requires UCSF contractors to employ site-specific noise attenuation measures during construction of projects under the CPHP to reduce the generation of

construction noise. This mitigation measure specifies, at a minimum, four commonly used and practical construction noise control measures to be included within the Noise Control Plan that are consistent with the standards set forth in the City's Noise Ordinance, and does not preclude the incorporation of additional measures. It should be noted that the commenter does not suggest any additional measures to be incorporated into the required Noise Control Plan. CPHP Mitigation Measure NOI-1b addresses restrictions in construction hours to prohibit construction noise during the most noise sensitive periods for surrounding receptors. Although the commenter does not assert that CPHP Mitigation Measure NOI-1c is deferred mitigation, note that this measure is included in the mitigation proposal to address pile installation noise-reducing techniques during project construction.

The Draft EIR sets forth a program-level analysis and mitigation measures that would be implemented as applicable when specific projects are proposed for construction on the campus site. It is for that reason that the Draft EIR does not include a Noise Control Plan. Each Noise Control Plan will be developed specific to the project that is approved for construction and will be designed to include noise control measures that address that project's specific noise producing activities and take into account the project's relationship to the nearest sensitive receptors. As stated above, the mitigation measure does identify the standard construction noise control measures that are commonly used, including on projects in the City. Therefore, none of the mitigation measures included in CPHP Mitigation Measure NOI-1 are deferred mitigation.

Note that the Draft EIR does not conclude that the impact associated with construction activities under the CPHP would be reduced to a less than significant level. The Draft EIR on page 4.11-19 acknowledges that while implementation of CPHP Mitigation Measure NOI-1a and NOI-1b are projected to reduce noise levels associated with demolition and construction activities for CPHP construction by 5 to 10 dBA, and that CPHP Mitigation Measure NOI-1c would reduce noise levels associated with pile installation activities by 17 dBA, it would still be likely that during peak construction activities, noise levels in excess of the 10 dBA over ambient significance criterion may occur at some sensitive receptors on or near the Parnassus Heights campus site after mitigation. Therefore, the CPHP's construction noise impact is identified as significant and unavoidable with mitigation.

O-LD2-24 This comment asserts that CPHP Mitigation Measure NOI-2 defers mitigation by requiring that an acoustical study be prepared because the mitigation measure only identifies a menu of potential noise control measures, rather than requiring specific noise control measures. The commenter also asserts that based on this mitigation measure, the Draft EIR cannot conclude the operational noise impact to be less than significant.

As stated above, the Draft EIR sets forth a program-level analysis of campus development under the CPHP. Impact NOI-2 on Draft EIR page 4.11-28 addresses potential stationary source (mechanical equipment) noise impacts that includes the programmatic analysis of the entire CPHP. As discussed in Impact NOI-2, it is not possible to perform a project-specific quantitative assessment of noise impacts because there are no specific building details available that might make such an analysis possible. Such details would include the location (lateral and vertical) of necessary fixed mechanical equipment, as well as noise emission specifications of such equipment. Accordingly, CPHP Mitigation Measure NOI-2 identifies potential noise control measures that could be instituted to mitigate noise from fixed mechanical equipment, and also identifies a performance standard to be achieved in order to reduce the impact to a less than significant level. As this performance standard is tied directly to the City Police Code requirements, because effective sound control features can be incorporated into proposed CPHP development in the form of mechanical penthouses, acoustical shielding, baffles and silencers,[1] and there is substantial evidence that noise from mechanical equipment can be effectively controlled, it is reasonable to assume that this performance standard will be met. Therefore, the Draft EIR appropriately finds the stationary source operational noise impact to be less than significant with mitigation.

O-LD2-25 This comment claims that CPHP Mitigation Measure NOI-3b defers mitigation. The commenter states that because the location of construction is already known, the evaluation of vibration-sensitive equipment should be included in the EIR, and by not doing so UCSF is depriving decision-makers and the public of the opportunity to evaluate the impact and mitigation measures.

As stated above, the Draft EIR sets forth a program-level analysis of campus development under the CPHP. There is no detailed construction plan for all of the proposed CPHP development available at this time. As indicated in Impact NOI-3, the generalized development scheme for CPHP Future Phase projects does not lend itself to a direct assessment of specific construction activity and location for determining specific construction-generated vibration effects at sensitive land uses, including uses involving sensitive equipment. Therefore, the Draft EIR concludes that future construction projects on the campus site could result in construction-phase vibration that could affect nearby sensitive uses, including vibration-sensitive equipment. To address this potential impact, CPHP Mitigation Measure NOI-3b on Draft EIR page 4.11-31 clearly lays out a distance of concern for equipment to be considered (within 150 feet of construction and demolition areas). This measure provides UCSF with a tool with which to consider and address the potential impacts on the operation of its own equipment. As discussed in the Response O-SM-37, CPHP Mitigation Measure NOI-3b is

[1] As an example of the effectiveness of silencers, industrial grade silencers can reduce exhaust noise by 12-18 dBA; residential grade silencers can reduce exhaust noise by 18-25 dBA; and critical grade silencers can reduce exhaust noise by 25-35 dBA (ASREAE, 2006).

modified to provide UCSF the option to suspend use of vibration-sensitive equipment during substantial vibration-generating activities within 150 feet. Please refer to Section 8.5 of this Comments and Responses document for this modification.

O-LD2-26 The comment states that UCSF cannot rely on CPHP Mitigation Measure TRANS-5 to conclude that the CPHP will have a less than significant impact on travel conditions along sidewalks and roadways serving the campus site during construction as the traffic control plan for major phases that serves as the foundation of the mitigation has not been developed yet and thus cannot be considered by decision-makers as part of the environmental review process. It is important to note that the CPHP will be developed over a 30-year timeline. The mitigation measure provides the structure for the traffic control plan which will be developed and shared with stakeholders at the appropriate time before and during each major phase during implementation. UCSF's contractor would be required to comply with the City of San Francisco's Regulations for Working in San Francisco Streets, which establish rules and permit requirements so that construction activities can be done safely and with the least possible interference with pedestrians, bicyclists, transit, and vehicular traffic. This process follows past precedent for construction activities at the campus site and is appropriate for both a plan- and program-level EIR.

O-LD2-27 The commenter disputes the Draft EIR's determination of the CPHP meeting the definition in Section 21099 of being an employment center. Please see Master Response 6: Public Resources Code 21099.

O-LD2-28 The comment states that the Draft EIR's analysis of aesthetic impacts is inadequate, particularly with respect to views from the trailhead at the west end of Farnsworth Lane and from Edgewood and Belmont Avenues and Willard Street. The comment also states that the Draft EIR fails to acknowledge alleged conflicts with the San Francisco General Plan Urban Design Element. Please refer to Master Response 7: Aesthetic Impacts.

O-LD2-29 The comment states that the Draft EIR's analysis of shadow impacts is inadequate. The comment states that the Draft EIR fails to properly account for the uses of park areas that would be shaded and that the Draft EIR should consider shadow effects on streets and sidewalks and/or the neighborhoods surrounding the UCSF campus, including changes in solar radiation. The comment also states that "a project over 40 feet in height has a significant impact if it will cause shadows on a property under the jurisdiction of San Francisco's Department of Recreation and Parks." Please refer to Master Response 9: Shadow Impacts.

O-LD2-30 These paragraphs are introductions to the biological resource comments from the commenter, and do not comment on the adequacy of the Draft EIR.

O-LD2-31 The commenter details results of a bird survey conducted by the commenter's consultant in the Reserve on August 20, 2020, which identified 23 bird species. All these birds with the exception of Lincoln's sparrow (*Melospiza lincolnii*) are known to occur in the Reserve and listed in eBird (2020), which includes 99 species for the Reserve. The commenter also cites a Golden Gate Audubon study from 2019 which identified 47 species in the Reserve. The commenter states that the Draft EIR includes only 6 birds; that is incorrect as the Draft EIR mentions 20 species of birds, but only considers one special-status bird, peregrine falcon (*Falco peregrinus*) to have moderate or higher potential to occur in the project area. The commenter states that the Draft EIR neglects to include birds known to occur in the Reserve. The Draft EIR project area includes bordering areas of the Reserve, but does not include the entire Reserve; birds such as northern harrier (*Circus hudsonius*) which have been observed in the Reserve, are unlikely in the areas of the campus site where CPHP development is proposed.

The commenter claims that the Draft EIR omitted discussion of certain special-status birds and bats. Special-status birds were identified as such in the Draft EIR if they were federal or State listed species, or state species of special concern in California. All native migratory bird species are protected under the Migratory Bird Treaty Act, both special-status and common birds. Thus, all bird species identified by the commenter, eBird, Audubon, and others, are included in the environmental baseline and will be protected from impacts to active nests, consistent with State and federal regulations, as provided under CPHP Mitigation Measure BIO-1c in the Draft EIR. Nevertheless, for informational purposes, the Draft EIR Environmental Setting discussion has been revised to include the eBird bird observations for the Reserve. Please refer to Section 8.5 of this Comments and Responses document for the proposed revision.

O-LD2-32 The commenter states that the Draft EIR discussion of bird strike impacts is insufficient because it lacks quantitative estimation of collision risk. The commenter estimates that more than 6,000 birds could strike the campus buildings annually. Please refer to Master Response 10: Bird Strikes.

O-LD2-33 The commenter states that the Draft EIR discussion of wildlife movement corridors lacks sufficient discussion of the energetic expense to birds and bats of navigating around the campus site. Please refer to Master Response 10: Bird Strikes.

O-LD2-34 The commenter states that the cumulative effects analysis should address the issue of bird window strikes by quantifying bird fatalities from recent, planned or foreseeable buildings in San Francisco. Although window strikes are a major source of bird mortality nationwide, no federal or State law protects birds from strike impacts. As discussed in the Draft EIR, Section 4.3, page 4.3-12, the City of San Francisco published bird-safe guidance in 2011. As noted in Section 4.3, UCSF is not subject to local land use regulation whenever using land under its

control in furtherance of its educational mission. However, UCSF has voluntarily elected to implement mitigation (CPHP Mitigation Measures BIO-2a and 2b) that is generally consistent with the City's *Standards for Bird-Safe Buildings* for new construction in order to protect birds from window strikes to the maximum extent feasible, and would reduce this impact to a less than significant level. While buildout of the CPHP would increase the likelihood of bird strikes from the larger structures, in the context of the Pacific Flyway, used by an estimated billion birds per year, these impacts are minor, and not cumulatively considerable. A study estimating fatality rates for birds for all San Francisco buildings recently built, planned, or foreseeable, is not required for this EIR.

O-LD2-35 The commenter asserts that CPHP Mitigation Measures BIO-1c and -1d are inadequate because preconstruction surveys are limited in their mitigation effect and they detect only small fractions of bird nests and roosting bats occurring on a project site. While the commenter is correct regarding the difficulty of identifying bird nests and bat roosts in dense vegetation, however, CPHP Mitigation Measures BIO-1c and BIO-1d require a qualified biologist to perform the survey, who is experienced in identification of active nests and roosts. Furthermore, for the CPHP, tree and shrub removal would primarily occur in developed areas of the campus site where nests and roosts are less likely and are easier to observe. For additional protection in the Reserve, CPHP Mitigation Measure BIO-1c has been revised to require a qualified biologist to monitor all vegetation removal in the Reserve during the nesting season. Please refer to Section 8.5 of this Comments and Responses document for the proposed revision.

The preconstruction bat surveys identified in CPHP Mitigation Measure BIO-1d will detect signs of current or recent bat use, or potential for bat presence, and are based on survey methodologies that meet California Department of Fish and Wildlife guidance. Any potential bat habitat areas will be removed using bat-safe two-stage approach in CPHP Mitigation Measure BIO-1d. These mitigation measures will protect nesting birds and roosting bats in the path of construction.

O-LD2-36 The commenter believes that CPHP Mitigation Measure BIO-2b would be inadequate to reduce impacts of bird window strikes to a less than significant level. Please refer to Master Response 10: Bird Strikes.

O-LD2-37 The commenter requests consideration of alternative locations for large buildings (macro-siting) and reducing building size (micro-siting) in order to reduce the risk of bird strikes. Please refer to Master Response 10: Bird Strikes.

O-LD2-38 The commenter states that an examination of the Draft EIR air quality modeling by Soil Water Air Protection Enterprise (SWAPE) shows that a number of adjustments were made to default modeling values, which, the commenter asserts, makes the air quality modeling inaccurate. The commenter lists these

adjustments in a series of bullets under this comment. This list is the same as the list of adjustments identified by SWAPE in Comments O-LD2-97 through O-LD2-112. Please see Responses O-LD2-97 through O-LD2-112 below where each item is specifically addressed. As those responses show, the adjustments made were appropriate and are supported by substantial evidence. Further, to the extent that there were minor errors of reporting or presentation, they do not increase the estimated construction or operational emissions of both criteria pollutants and greenhouse gases above levels reported in the Draft EIR where the adjustments do not affect the emissions used in a particular model run (e.g., GHG emissions for electricity are not salient to the EIR inventories, as UCSF will use only carbon free electricity by completion of Initial Phase projects). Therefore, the air quality modeling is accurate, and the air quality impacts that are based on the modeling are accurately analyzed in the Draft EIR. A revised Draft EIR is not required.

O-LD2-39 This comment summarizes specific comments from SWAPE that suggests that the Court of Appeal decision in *Golden Door v. San Diego* (2018) 27 Cal.App.5th 892 held that emission offsets alone cannot justify a finding of a less than significant impact. The Golden Door court decision held that offset credits may not adequately mitigate GHG emissions since they may be generated out of state or even out of country and may not represent real, verifiable, and quantifiable emission reductions. Additionally, this comment asserts that the Draft EIR inappropriately relies on consistency with the 2017 California Air Resources Board ("CARB") Scoping Plan to evaluate the significance of the impact related to GHG emissions. The comment also disputes that Plan Bay Area 2040 is a GHG reduction plan or a Climate Action Plan for the purpose of evaluating consistency with GHG reduction plans.

With regard to the assertion that the offset mitigations identified in the Draft EIR may not adequately mitigate CPHP's GHG emissions impact since they may be generated out of state or even out of country and may not represent real, verifiable and quantifiable emission reductions, CPHP Mitigation Measure GHG-1c on pages 4.4-39 and 4.7-40 specifically states "Prioritize local (within the air district) and in-state offset credits over in-nation offset credits. Offset credits shall be third-party verified by a major registry recognized by CARB such as CAR (Climate Action Reserve). If sufficient local and in-state offset credits are not available, UCSF will purchase CARB conforming national offset credits registered with an approved registry."

Please refer to Response O-LD2-115 with regard to the appropriateness of inclusion of the 2017 CARB Scoping Plan in the Draft EIR's assessment of whether the CPHP would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Please refer to Response O-LD2-116 with regard to the appropriateness of inclusion of the Plan Bay Area 2040 in the Draft EIR's assessment of whether the CPHP

would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

O-LD2-40 The commenter asserts that the Draft EIR's conclusion about a less than significant impact on energy resources is based on a reliance of compliance with the UC Sustainable Practices Policy and that the EIR analysis does not quantify the reductions in energy use that would be achieved through compliance with UC policy and therefore the less than significant impact conclusion is not supported by substantial evidence. This assertion is incorrect for several reasons, as explained below.

The Draft EIR provides an extensive analysis of the CPHP's energy demand, and reports conservative estimates of various types of energy use that would be associated with the CPHP development, and does not rely on one analysis alone to demonstrate a less than significant impact. The commenter is referred to Draft EIR pages 4.5-19 through -28, which present a detailed analysis of the CPHP's energy demand relative to each impact guidance factor in Appendix F of the CEQA Guidelines. The impact conclusion is based on the entirety of the analysis, and not just the one analysis that is highlighted in the comment.

With regard to the UC Sustainable Practices Policy, please note that the policy is discussed in the context of consumption of purchased electricity and natural gas on the campus site under existing and future conditions. The Draft EIR qualitatively describes reductions in energy use that are anticipated due to compliance with the Sustainable Practices Policy. As stated on Draft EIR page 4.5-23, the CPHP's operational electricity demand estimates exclude the benefits of LEED design that would occur pursuant to the CPHP's commitment that all new buildings achieve a LEED silver certification at a minimum, as well as due to future revisions to Title 24 energy standards, which would further reduce electricity demand. Therefore, the energy analysis is conservative in that it considers an energy demand that may be greater than what would actually occur under the proposed CPHP at final buildout. Quantification of the reductions from compliance with the Sustainable Practices Policy is not required as it was not relied upon to arrive at the impact conclusion.

While compliance with the Sustainable Practices Policy was not used in the quantification of energy demand, it should be noted that key energy-related goals in the policy are incorporated into all development at UCSF via UCSF's *Greenhouse Gas Reduction Strategy (GHGRS)*. As stated on Draft EIR, Project Description page 3-44, UCSF's 2014 Long Range Development Plan (LRDP) included *Appendix E: UCSF Greenhouse Gas Reduction Strategy (GHGRS)* to ensure that the LRDP is implemented in alignment with UC Sustainable Practices Policy. Additionally, as stated on page 4.7-28 of the Draft EIR, an updated GHGRS was prepared and is contained as Appendix GHGRS to the Draft EIR to be considered as part of the proposed amendment of the LRDP. The requirement

for all projects to achieve a minimum LEED silver certification or equivalent is therefore a part of the CPHP. As a result, and as stated on Draft EIR page 4.5-29, UCSF has committed to implement the energy reduction measures within its GHGRS as part of the LRDP and the CPHP to improve efficiency of existing buildings, including the requirement that new buildings be designed to surpass Title 24 energy efficiency standards and, at a minimum, attain LEED "Silver" certification or equivalent. Therefore, the energy analysis for the proposed CPHP does not solely rely on the Sustainable Practices Policy goals; but, is instead based on substantial evidence that the CPHP development would achieve at a minimum LEED silver certification or equivalent since this is also a requirement of the proposed CPHP by virtue of UCSF's commitment to implement energy reduction measures within its GHGRS. The Draft EIR analysis appropriately concludes that the CPHP would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of fuel or energy.

O-LD2-41 The commenter asserts that the Draft EIR fails to analyze the project's land use impacts, and that the CPHP is inconsistent with City General Plan policies and objectives. Please refer to Master Response 13: Land Use Impacts.

O-LD2-42 The commenter disputes the Draft EIR's assessment of the CPHP's consistency with the City General Plan policies, Planning Code and 2014 LRPD Community Planning Principles. Please refer to Master Response 13: Land Use Impacts.

O-LD2-43 The comment states that the Draft EIR incorrectly concludes that the project would not conflict with the San Francisco General Plan Urban Design Element and that the proposed New Hospital would have significant visual impacts, including blocking views to Mount Sutro and the Mount Sutro Open Space Reserve and views of the ocean and Golden Gate Park from trails and other public vantage points. The comment states that the Draft EIR fails to acknowledge the policy inconsistencies from these environmental impacts and fails to identify mitigation measures for these impacts. Please refer to Master Response 7: Aesthetic Impacts.

O-LD2-44 The comment states that the Draft EIR incorrectly concludes that the project would not result in adverse shadow impacts on public open spaces and streets and sidewalks and would therefore not comply with San Francisco Planning Code Section 101.1. Please refer to Master Response 9: Shadow Impacts.

O-LD2-45 The comment states that the EIR fails to identify wind and shadow impacts of the proposed increase in the Parnassus Heights space ceiling. Please refer to Master Response 8: Wind Impacts; and Master Response 9: Shadow Impacts.

O-LD2-46 The commenter asserts that a revised DEIR must include an expanded analysis of the Project's potential inconsistencies with applicable plans and policies, and disclose the significant unavoidable environmental impacts associated with those

inconsistencies. The commenter further asserts that the revised Draft EIR must also include feasible mitigation measures and alternatives to reduce or eliminate these impacts. Alternatives should include alternative project proposals to conform to land use and zoning requirements to the maximum extent feasible, including height limitations. Please see Responses O-LD2-41 through O-LD2-45. Please also see Master Response 5: EIR Alternatives. As demonstrated in the responses provided to the comments raised, and further in Section 8.1.4 in this Comments and Responses document, none of the specific issues identified in the comments, or response to these comments, result in any of the conditions of Section 15088.5(a) being met. Thus, UCSF has determined that recirculation of the Draft EIR on the issues raised by the comments is not warranted.

O-LD2-47 The commenter cites Public Resources Code (PRC) Sections 21093(b)(3), and (d), then proceeds to state CEQA requirements related to growth inducing impacts and cites PRC 21100(b)(5), and also reproduces Appendix G Section XII related to population and housing. The commenter further states that the City of San Francisco Public Health Department has issued a policy paper concluding that a Housing Impact Assessment should be conducted under CEQA.

PRC Sections 21093(b)(3), and (d) are part of the CEQA statute that directs and guides the Office of Planning and Research in its development of CEQA guidelines. These sections do not guide the analysis of a project's growth inducing or population and housing impacts. With regard to growth inducing impacts vs population and housing impacts under CEQA, please refer to Master Response 14: Population and Housing Impacts which explains the distinct differences in the CEQA requirements related to evaluation and disclosure of a project's population and housing impacts, and a project's growth inducing effects. Please note that the University, a constitutionally created State entity, is not subject to municipal regulations, plans, and policies of the City of San Francisco for uses on property owned or controlled by UCSF that are in furtherance of the University's educational purposes, including any policy papers prepared by the City stating that a Housing Impact Assessment should be conducted under CEQA.

O-LD2-48 The commenter asserts that the Draft EIR does not accurately analyze the growth inducing impacts of the proposed CPHP, that it does not reach any conclusions as to the significance of the growth inducing impacts, and that a revised analysis must be prepared. The commenter switches back and forth between the project's direct population and housing impacts and the project's growth inducing impacts, transferring conclusions from one analysis to the other. The commenter argues that the Draft EIR does not talk about the housing crisis in the Bay Area, that it does not analyze the availability and affordability of housing near the campus site and in the City, that the EIR uses the entire City and the region to analyze the "significance of the housing demand generated by the project" and thereby uses a

"drop in the bucket" approach which is discouraged under CEQA (Note that this comment relies on and summarizes Comment O-LD2-65).

The commenter improperly conflates two separate types of analyses required under CEQA. Please see Master Response 14: Population and Housing Impacts which explains why the analysis of the CPHP's direct population and housing impacts is presented in Draft EIR Section 4.12, and the CPHP's indirect and induced growth impacts are appropriately presented in Draft EIR Section 5.4, Growth Inducing Effects. That master response also explains what the requirements are for each type of analysis, and that CEQA does not require a significance conclusion with regard to a project's growth inducing impacts. Please also see Responses O-LD2-58 through O-LD2-67 below. Response O-LD2-65 is particularly relevant as it addresses all the issues listed in this comment and explains why it is appropriate for the project's population and housing effects to be evaluated within a five-county study area. CEQA supports the use of an accurately defined study area to analyze a project's impact, and therefore the analysis in the Draft EIR does not represent a drop in the bucket approach.

An analysis of the supply of affordable housing or an analysis of the income levels of the projected new population at the Parnassus Heights campus site to determine if they would require low cost housing options is not required under CEQA. There is no CEQA requirement to evaluate whether a project would cause or contribute to an affordable housing crisis.

O-LD2-49 The commenter asserts that the Draft EIR did not adequately analyze the CPHP effects on public services, including fire protection facilities. It should be noted that the San Francisco Fire Department (SFFD) was consulted to assist in determining potential effects of the CPHP on the City's fire protection services, and the SFFD is appropriately cited. In consultation with the SFFD, based on the CPHP description, the modest anticipated increase in calls for service, and the adequacy of SFFD's fire protection services and facilities, Impact PUB-1 in the Draft EIR determined that the anticipated population increase associated with implementation of the proposed CPHP would neither adversely affect SFFD service standards nor require an increase in SFFD staff and/or equipment that would require the construction of new fire protection facilities. Accordingly, implementation of the proposed CPHP would have a less than significant impact regarding the construction of new or physically altered fire protection facilities.

The commenter also asserts that the Draft EIR did not analyze the impact to schools from children of students or employees not living on campus. The Draft EIR Section 5.4 Growth-Inducing Effects, acknowledges that potential effects would be associated with an increase in students, faculty and staff living off-site, including but not limited to, effects on public schools. It is assumed that a proportion of this off-campus population is already living in the Bay Area, and consequently, creating a demand for public schools. However, it would be

speculative to characterize the specific environmental effects resulting from this component of the project population on public schools.

O-LD2-50 The comment asserts that the finding of less than significant for Impact TRANS-1 (pages 4.15-37 through 4.15-70 of the Draft EIR) is based on incomplete analysis, as it does not include an adequate discussion of the effects of additional workers and patients associated with the CPHP. As discussed in Master Response 19, the EIR fully accounts for the effects of increased employment, visitors, and residents in assessing CPHP's transportation impacts. The comment further asserts that the Draft EIR's assumptions for transit use are flawed as they do not account for the effect of additional passengers on public transit, especially CPHP-related increases in ridership on the N-Judah. This comment is addressed in Master Comment TR-5, which notes that Muni operations are not a CEQA concern. As such, the analysis presented in the Draft EIR is adequate and complete for purposes of identifying transportation impacts.

O-LD2-51 The commenter asserts that a revised draft EIR be prepared and recirculated to address the issues discussed in the comment letter and propose feasible mitigation measures. As demonstrated in the individual responses provided to the comments raised, and further in Section 8.1.4 in this Comments and Responses document, none of the specific issues identified in the comments, or response to these comments, result in any of the conditions of Section 15088.5(a) being met. Thus, UCSF has determined that recirculation of the Draft EIR on the issues raised by the comments is not warranted.

O-LD2-52 The commenter makes a general comment that the Draft EIR is wholly inadequate, and that a revised Draft EIR be prepared to address concerns raised in the letter. The commenter is referred to the individual responses prepared to this comment letter. See also Response O-LD2-51, above, regarding why recirculation of the Draft EIR is not required.

O-LD2-53 The comment makes general introductory comments that the Draft EIR fails to adequately analyze the significant environmental impacts of the CPHP; fails to propose sufficient mitigation measures, fails to inform decision-makers and the public of the environmental consequences of the proposed actions; and must be revised and recirculated. The commenter is referred to the responses to specific issues raised, below.

As demonstrated in the individual responses provided to the comments raised, below, and further in Section 8.1.4 in this Comments and Responses document, none of the specific issues identified in the comments, or response to these comments, result in any of the conditions of Section 15088.5(a) being met. Thus, UCSF has determined that recirculation of the Draft EIR on the issues raised by the comments is not warranted.

O-LD2-54 The commenter asserts that UCSF should honor the space ceiling and other commitments, including the 1976 Regents' Resolution and 2014 LRDP Community Planning Principles. Please refer to Master Response 4: Space Ceiling and Population.

O-LD2-55 The commenter indicates that COVID-19 warrants changes and updates to the environmental setting, and to the Project Description. Please see Master Response 3: COVID-19.

O-LD2-56 The commenter indicates that the project is fundamentally changing due to COVID-19, including telework and telehealth, such that UCSF should pause the CPHP process. Please see Master Response 3: COVID-19.

O-LD2-57 The commenter indicates the Draft EIR fails to describe baseline conditions that includes COVID-19. Please see Master Response 3: COVID-19.

O-LD2-58 The commenter asserts that the Draft EIR should include information regarding the income levels of the new employees and students at Parnassus Heights and about the current pattern of residence of existing employees and students, as this information would inform the analysis of potential displacement impacts due to housing demand and gentrification near the campus site.

Please see Master Response 15: Indirect Displacement and Gentrification Impacts.

O-LD2-59 The commenter asserts that demographic data must be presented for the City and the neighborhood surrounding the campus site.

Demographic data for the City and the five-county study area are presented in the Draft EIR; see pages 4.12-1 through 4.12-3. Please see Master Response 15: Indirect Displacement and Gentrification Impacts, which explains why the analysis of such impacts is not within the scope of a CEQA document. Therefore, demographic data at a neighborhood level is not needed in the EIR.

O-LD2-60 The commenter asks that the Draft EIR include a vast amount of baseline information regarding vacancy rates for affordable housing, deed restricted housing, workforce housing and disadvantaged communities at the City, study area, and neighborhood levels, so that the project's effects on affordable housing and housing prices can be evaluated at both the broader study area level and at the local (neighborhood) level.

CEQA does not require an environmental document to analyze effects on affordable housing or housing prices. Please see Master Response 1: Non-CEQA Comments regarding socio-economic impacts. Please also see Master Response 15: Indirect Displacement and Gentrification Impacts, which explains why the analysis of such impacts is not within the scope of a CEQA document, and

Master Response 14: Population and Housing which sets forth the CEQA requirements with respect to the scope of the CPHP's impacts on population and housing. Therefore, demographic data and data regarding affordable and deed restricted housing is not needed in the EIR.

O-LD2-61 The commenter states that the Draft EIR should include more information about jobs housing imbalance in order to provide an analysis of the project's impacts on housing and growth.

CEQA does not stipulate that an environmental document include a project's effect on the jobs-housing balance in an area. As explained in Master Response 14: Population and Housing Impacts, according to the guidance provided in the CEQA Appendix G Checklist, a lead agency is required to evaluate whether a project would "induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)." That CEQA checklist question does not ask for an evaluation of the project's effect on housing or the jobs-housing balance.

The Draft EIR does include an analysis of the CPHP's effect on housing based on a significance threshold put forth in the 2014 LRDP EIR by UCSF. As presented on Draft EIR page 4.12-6, the significance threshold asks whether implementation of the CPHP would "exceed the LRDP EIR standard of significance by creating a demand for housing outside the market area where the facilities or site are located?" The analysis under that threshold does not require a consideration of the CPHP's effect on the jobs-housing balance.

O-LD2-62 The commenter asks that the Draft EIR include baseline information (both pre- and post Covid-19) on the existing jobs-housing balance and jobs-housing fit in the surrounding neighborhoods, City and the region as that information is needed to analyze indirect displacement impacts and impacts on housing.

Please see Response O-LD2-61 above regarding jobs-housing balance and Master Response 14: Population and Housing, regarding the scope of the analysis of a project's population and housing impacts. Please see Master Response 15: Indirect Displacement and Gentrification Impacts which explains why the analysis of such impacts is not within the scope of a CEQA document. With respect to the request for baseline information regarding housing conditions existing before and since the outbreak of COVID-19 and the commenter's concerns about the analysis of transportation, air quality, and greenhouse gas emissions impacts, please Master Response 3: COVID-19.

O-LD2-63 The commenter asserts that the Draft EIR analysis of population and housing and growth inducement is inadequate as it does not provide necessary facts, that the cumulative impact analysis is also deficient, and that the EIR does not identify mitigation measures that would avoid or reduce impacts.

Please see Master Response 14: Population and Housing Impacts regarding the analysis of population and housing impacts in the Draft EIR, including cumulative population and housing impacts. That master response also provides evidence that the growth inducing impacts of the project are analyzed consistent with the CEQA Guidelines. The commenter inaccurately asserts that Draft EIR presents bare conclusions and does not contains facts and analysis. The Draft EIR presents data that is relevant to the analysis and does not put forth baseline information that does not inform the impact analysis. Please also see Responses O-LD2-64 through O-LD2-67 below. As no significant impacts are identified, the Draft EIR does not include any mitigation measures for population and housing impacts of the proposed CPHP.

O-LD2-64 The commenter asserts that the Draft EIR's analysis of growth inducement and population and housing impacts is flawed, summarizes the CEQA requirements related to growth inducing impact analysis, and then argues that the secondary effects of growth may be significant and adverse, and that they must be acknowledged as significant secondary/indirect impacts of a project.

As with other similar comments above, the commenter conflates the analysis of growth inducement with the analysis of the project's impact on population and housing. Please see Master Response 14: Population and Housing Impacts regarding the distinctions between the analysis of population and housing impacts and a project's growth inducing impacts. The growth inducing effects analysis appropriately cross-references the population impact analysis to discuss the direct population increase due to the project; both analyses depend on the same set of population estimates. Beyond that, the two analyses are different in their focus and approach. Note that CEQA does not require that an EIR include a significance conclusion regarding a project's growth impacts; it simply requires that they be disclosed. Regarding issues listed by the commenter as secondary impacts of growth (gentrification and displacement, demand for housing and services, traffic, air pollution), please see Master Response 15: Indirect Displacement and Gentrification Impacts.

O-LD2-65 The commenter asserts that the Draft EIR does not accurately analyze the growth inducing impacts of the proposed CPHP, that it does not reach any conclusions as to the significance of the growth inducing impacts, and that a revised analysis must be prepared. The commenter switches back and forth between the project's direct population and housing impacts and the project's growth inducing impacts, transferring conclusions from one analysis to the other. The commenter argues that the Draft EIR does not talk about the housing crisis in the Bay Area, that it does not analyze the availability and affordability of housing near the campus site and in the City, that the Draft EIR uses the entire City and the region to analyze the significance of the housing demand generated by the project in order to diminish the significance of the impact.

Please see Master Response 14: Population and Housing Impacts regarding the distinctions between the analysis of population and housing impacts and a project's growth inducing impacts. The commenter is conflating the two analyses, transferring the conclusions of one analysis to the other, and making assertions that are not made in the Draft EIR.

An analysis of the supply of affordable housing or an analysis of the income levels of the projected new population at Parnassus Heights to determine if they would require low cost housing options is not required under CEQA. There is no CEQA requirement to evaluate whether a project would cause or contribute to an affordable housing crisis.

The commenter asserts that by comparing the CPHP's population growth to the entire City and region, the Draft EIR seeks to diminish the significance of the housing demand generated by the CPHP. The Draft EIR analyzes the population growth effects of the proposed project within a five-county study area, which includes San Francisco, Alameda, Marin, San Mateo, and Contra Costa Counties. This is appropriate because as stated in the Draft EIR, based on the latest (2018) UCSF Transportation Commute Survey, approximately 60 percent of UCSF students and employees commute from places within San Francisco, and therefore likely reside in San Francisco, and besides San Francisco, employee commuters largely travel from four other Bay Area counties: Alameda, Contra Costa, Marin, and San Mateo. The new students and employees would be expected to reside in a similar manner and therefore the population growth effects would be experienced in the five-county area.

The commenter asserts that the project would add 5,200 students and employees to a "highly constrained neighborhood." While the CPHP would add that population to the campus site's daytime population, most of that population would not reside on the campus or necessarily in the adjoining neighborhoods and would be expected to live in the five-county study area, similar to the pattern of residence of the current UCSF employees and students. Please also see Master Response 15: Indirect Displacement and Gentrification Impacts.

The commenter then brings up the 3,420 indirect and induced jobs (estimated and reported in the section on growth inducing effects) and asserts that they would create a demand for housing. Please note that the indirect and induced jobs are created in a much wider area than where the primary jobs are created. The Draft EIR explains what constitutes an indirect job and what is considered an induced job, and states "As an additional example, when a staff member from the campus site goes out to lunch, the person who serves the student or employee lunch holds a job that was indirectly caused by the proposed CPHP. When the server then goes out and spends money in the economy, the jobs generated by this third-tier effect are considered induced." In this example, while the server's job may be in San Francisco, the server may not necessarily reside in the City, and the server's

expenditures may, in turn, occur in the community he/she lives in, creating induced jobs in that community. Therefore, the employment multiplier effects (and any resultant demand for housing) are typically experienced over an area that is larger than the area affected by a project's direct jobs. Further, many of the indirect and induced jobs are typically filled by people already living in the study area and do not result in an influx of new workers into a city or region. As a result, induced growth does not necessarily result in a demand for housing that equals the number of indirect and induced jobs.

The commenter proceeds to develop estimates of the total number of housing units that would be demanded by the direct, indirect and induced job holders and reports a high estimate of over 6,000 housing units and a low estimate of about over 4,000 units, and asserts that these housing impacts are not discussed in the Draft EIR. As explained in Master Response 14: Population and Housing Impacts, Impact POP-1 focuses on the direct jobs associated with the project and the effect of those jobs on housing in the five-county study area, and not on indirect and induced jobs which appropriately belong under the discussion of growth inducing effects. With respect to the combined direct, indirect and induced employment effects, those are addressed in Section 5.4, Growth Inducing Effects in the Draft EIR. The Draft EIR section does not quantify the number of housing units that could be associated with the indirect and induced jobs as several simplifying assumptions would need to be made to develop any estimates and any estimates that are developed could be questioned for their accuracy (CEQA discourages analysis that requires speculation). The Draft EIR complies with CEQA and report the general types of environmental effects that could occur in the communities in the five-county study area from the development of housing and other services to serve the direct, indirect, and induced population related to the CPHP.

The commenter cites Appendix G, Section XIII (a) and asserts that this section of the checklist requires that a population and housing analysis include an estimate of the amount of growth/housing that would be required due to the project, that the effects of the project population on public services be analyzed, and that indirect and secondary effects due to growth inducement be analyzed and mitigation measures be put forth. That is not accurate. The scope of the analysis under Appendix G, Section XIII (a) does not extend to these types of analyses. Please see Master Response 14: Population and Housing Impacts for the scope of analysis under Section XIII (a). Also note that Appendix G, Section XV sets forth the requirements regarding the analysis of a project's impact on public services. Consistent with that section of the checklist, the CPHP's effects on public services are analyzed in Section 4.13 of the Draft EIR.

The growth inducing effects of the CPHP are fully addressed in Section 5.4 in the Draft EIR and a new analysis is not needed. The University, as a constitutionally created State entity, is not subject to municipal regulations, plans, and policies of the City of San Francisco for uses on property owned or controlled by UCSF that

are in furtherance of the University's educational purposes, including any resolution passed by the City concerning social equity impacts.

O-LD2-66 The commenter lists the CEQA checklist questions related to population and housing (Section XIII), and then argues that to analyze the project's impacts based on these thresholds, the EIR must include an analysis of loss of affordable housing through gentrification, effects of the project on cost of housing in surrounding neighborhoods, effects on a disadvantaged community, and on jobs-housing balance. The commenter asserts that the impact on housing must be reanalyzed taking into account the housing crisis in the Bay Area.

Please see Master Response 14: Population and Housing Impacts regarding the scope of population and housing impacts under CEQA and the consistency of the analysis of these impacts in the Draft EIR with CEQA requirements. With regard to loss of affordable housing due to gentrification, changes in housing affordability in the neighborhoods surrounding the campus site, and effects on disadvantaged communities, please see Master Response 15: Indirect Displacement and Gentrification Impacts. Regarding effect on jobs-housing balance, please see Response O-LD2-61 above.

The commenter also asserts that the Draft EIR does not disclose the CPHP's inconsistency with the LRDP Community Planning Principle HI which calls for projects to make a positive contribution to the City's affordable housing stock. Consistency with plans and policies is not part of the analysis of impacts on population and housing under CEQA and is therefore not discussed in Section 4.12 in the Draft EIR. However, the housing developed under the CPHP would be designed to be affordable to the UCSF population that would reside in that housing.

O-LD2-67 The commenter suggests some mitigation measures, stated to be derived from San Francisco Measure E, to reduce the project's impact on housing.

The Draft EIR analysis does not find the population and housing impacts of the proposed CPHP to be significant and therefore does not include mitigation measures as none are required. With regard to the mitigation measures listed by the commenter, note that while UCSF is not subject to Measure E, it does plan to add more on-campus housing with the development of non-residential space at the Parnassus Heights campus site. Also note that the Draft EIR, Chapter 6, Alternatives evaluates in detail Alternative 1B: No Project – Development under 2014 LRDP Alternative, which excludes a change to the space ceiling, and Alternative 2: Reduced Project, which requires a smaller change to the space ceiling than the proposed CPHP. Both are reduced project alternatives and would further reduce the less than significant population and housing impacts of the CPHP. Finally, regarding the suggested mitigation measure for UCSF to provide housing for not only for all the new direct population but also for "a portion of

induced demand," please note that CEQA does not require an EIR to draw a conclusion regarding the significance of a project's growth inducing impacts and nor does it require that mitigation be set forth for growth inducing impacts.

No financial analysis focused on the costs associated with housing, services and community benefits is required under CEQA.

O-LD2-68 The commenter asserts that the Draft EIR's analysis of land use impacts is incomplete and inadequate, thereby failing to disclose and mitigate significant impacts. The commenter claims the project is incompatible with policies and provisions of the San Francisco General Plan, and Planning Code, as well as UC Policies. Please refer to Master Response 13: Land Use Impacts.

O-LD2-69 The commenter asserts that Draft EIR must include an analysis of the CPHP's consistency with the City General Plan policies and objectives. Please refer to Master Response 13: Land Use Impacts.

O-LD2-70 The commenter disputes that the Draft EIR's assessment of the CPHP's consistency with the City General Plan policies, Planning Code, and 2014 LRPD Community Planning Principles. Please refer to Master Response 13: Land Use Impacts.

O-LD2-71 The comment states that the Draft EIR incorrectly concludes that the project would not conflict with the San Francisco General Plan Urban Design Element and that the proposed New Hospital would have significant visual impacts, including blocking views to Mount Sutro and the Mount Sutro Open Space Reserve and views of the ocean and Golden Gate Park from trails and other public vantage points. The comment states that the Draft EIR fails to acknowledge the policy inconsistencies from these environmental impacts and fails to identify mitigation measures for these impacts. Please refer to Master Response 7: Aesthetic Impacts.

O-LD2-72 The comment states that the Draft EIR incorrectly concludes that the project would not result in adverse shadow impacts on public open spaces and streets and sidewalks and would therefore not comply with San Francisco Planning Code Section 101.1. Please refer to Master Response 9: Shadow Impacts.

O-LD2-73 The comment states that the EIR fails to identify wind and shadow impacts of the proposed increase in the Parnassus Heights space ceiling. Please refer to Master Response 8: Wind Impacts, and Master Response 9: Shadow Impacts.

O-LD2-74 The commenter indicates a Draft EIR must include mitigation measures and alternatives to reduce or eliminate significant impacts associated with inconsistencies with City of San Francisco General Plan and zoning. Please see Master Response 5: EIR Alternatives.

O-LD2-75 The commenter asserts that the Draft EIR alternatives analysis is legally deficient because it fails to consider a reasonable range of alternatives. Please see Master Response 5: EIR Alternatives.

O-LD2-76 The commenter asserts that the Draft EIR alternatives analysis is legally deficient because it improperly rejects feasible off-site alternatives and omits other feasible off-site alternatives. Please see Master Response 5: EIR Alternatives.

O-LD2-77 The commenter makes a general concluding statement that decision-makers and the public cannot assess the CPHP impacts from the Draft EIR; that the Draft EIR understates the CPHP environmental impacts and fails to formulate feasible mitigation measures; and that a revised Draft EIR be prepared and recirculated. The commenter is referred to the responses to specific issues raised, above.

As demonstrated in the individual responses provided to the comments raised, and further in Section 8.1.4 in this Comments and Responses document, none of the specific issues identified in the comments, or response to these comments, result in any of the conditions of Section 15088.5(a) being met. Thus, UCSF has determined that recirculation of the Draft EIR on the issues raised by the comments is not warranted.

O-LD2-78 The comment states that the Draft EIR inappropriately concludes proposed project's visual effects would be less than significant. The comment particularly references view blockage that would result from the proposed New Hospital. Please refer to Master Response 7: Aesthetic Impacts.

O-LD2-79 The comment states that the Draft EIR inappropriately concludes proposed project's visual effects would be less than significant. The comment particularly references view blockage that would result from the proposed New Hospital. Please refer to Master Response 7: Aesthetic Impacts.

O-LD2-80 The comment states that the Draft EIR inappropriately concludes proposed project's visual effects would be less than significant. The comment particularly references view blockage that would result from the proposed New Hospital. Please refer to Master Response 7: Aesthetic Impacts.

O-LD2-81 The comment states that the Draft EIR inappropriately concludes proposed project's visual effects would be less than significant. The comment also states that the Draft EIR should consider shadow effects on streets and sidewalks and/or the neighborhoods surrounding the UCSF campus, including changes in solar radiation, that the project would be inconsistent with the San Francisco General Plan, and that mitigation for shadow impacts should be included in the EIR. Please refer to Master Response 9: Shadow Impacts.

O-LD2-82 The comment states that the proposed project would result in visual change seen from many locations and that shadow cast by project structures impact would

affect open spaces and pedestrian walkways. Please refer to Master Response 7: Aesthetic Impacts; and Master Response 9: Shadow Impacts.

O-LD2-83 These paragraphs are introductions to the biological resource comments from the commenter, and do not comment on the adequacy of the Draft EIR.

O-LD2-84 The commenter describes the numerous species of birds observed during his site visit to the Mount Sutro Open Space Reserve and notes the large number of species observed during other surveys. Please see Response O-LD2-31.

O-LD2-85 The commenter indicates the land to be redesignated as Open Space Reserve is already forested and otherwise indistinguishable from the forested landscape of surrounding areas of the Reserve; and therefore that proposed 0.15 acres of land that would be removed from the Reserve under the CPHP would be a net wildlife habitat loss.

The Draft EIR Chapter 3, Project Description states on page 3-19 that there is the potential for the New Hospital and widening of Medical Center Way to result in the need to modify the Reserve boundary. UCSF proposes to replace any area of the Reserve that is lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site in an amount equal to or greater than the area lost.

The area that the commenter characterizes as forested is currently designated as a "Support" zone in UCSF's existing functional zone map, and under the CPHP would be designated as an "Open Space Reserve" zone. Accordingly, the CPHP would provide permanent open space reserve protection that is not currently provided for this area.

O-LD2-86 The commenter describes bird window strike mortality findings from other facilities, including the California Academy of Sciences in Golden Gate Park to evaluate the window strike potential posed by UCSF structures to various bird species. Please refer to Master Response 10: Bird Strikes.

O-LD2-87 The commenters claims that the Draft EIR only mentions six species of birds and improperly considers several species to have low likelihood of occurrence on the campus site. Please see Response O-LD2-31.

O-LD2-88 The commenter provides tables of the number and species of birds and bats killed by window strikes at the California Academy of Sciences in Golden Gate Park. Please refer to Master Response 10: Bird Strikes.

O-LD2-89 The commenter provides a general quantitative estimate of bird window strike fatalities based on the total square footage planned and the amount of glass used at recent buildings in San Francisco. Please refer to Master Response 10: Bird Strikes.

O-LD2-90 The commenter states that the Draft EIR discussion of wildlife movement corridors lacks sufficient discussion of the energetic expense to birds and bats of navigating around the campus site. Please refer to Master Response 10: Bird Strikes.

O-LD2-91 The commenter considers the cumulative analysis of biological resources in the Draft EIR inadequate because it lacks evaluation of bird strike fatalities among new buildings in San Francisco. Please see Response O-LD2-34.

O-LD2-92 The commenter considers CPHP Mitigation Measures BIO-1c and 1d inadequate because preconstruction surveys have limited ability to detect nesting birds or roosting bats and do not provide full population estimates. Please see Response O-LD2-35.

O-LD2-93 The commenter recommends additional mitigation for minimizing bird window strikes, including behavioral ecological studies of bird flight patterns. Please refer to Master Response 10: Bird Strikes.

O-LD2-94 The commenter requests consideration of alternative locations for large buildings (macro-siting) and reducing building size (micro-siting) in order to reduce the risk of bird strikes. Please refer to Master Response 10: Bird Strikes.

O-LD2-95 In this introductory comment from SWAPE, the commenter states that their review of the air quality modeling included in the Draft EIR appendix concludes that the emissions from the construction and operation of the proposed CPHP are underestimated and therefore the project's air quality, health risk and GHG impacts are inadequately analyzed in the Draft EIR. The commenter is referred to Responses O-LD2-97 through O-LD2-112, below, which show that the air quality modeling in the Draft EIR is accurate. Therefore, the air quality, health risk, and GHG impacts in the Draft EIR are accurately analyzed, and an updated EIR is not required.

O-LD2-96 The commenter reiterates that adjustments to default modeling values have rendered the air quality modeling inaccurate. The commenter agrees that while CalEEMod provides default values, if project-specific information is available, the user can change the default values, provided there is substantial evidence in the record in support of using the project-specific values. The commenter is referred to Responses O-LD2-97 through O-LD2-112, below, which specifically address each of the issues identified by the commenter regarding the air quality modeling in the Draft EIR and show that the adjustments to the model inputs are appropriate and are supported by substantial evidence.

O-LD2-97 This comment is related to six separate output files produced by CalEEMod model. The commenter asserts that a justification for the adjustment to the CO_2 intensity factor that was input in the model is not provided. The commenter is

also concerned that emission factors for methane (CH_4) and nitrous oxide (N_2O) were set to zero and therefore GHG emissions are underestimated.

The CO_2 intensity factor in the output fields cited reflect a UCSF-specific CO_2 intensity as calculated for their previous inventory submittals, prior to 2019. This emission factor is already in terms of carbon dioxide equivalents (CO_2e) and therefore is inclusive of CH_4 and N_2O. Therefore, these two contributors to CO_2e were, appropriately, zeroed out. Additionally, as discussed below, the specific model runs cited in the comment were used for other purposes than for estimating GHG emissions and are, therefore, not salient to any of the GHG emissions or air pollutant emissions reported in the Draft EIR.

With regard to the six model run outputs cited by the comment, these model runs were used for a variety of purposes, it is best to address each output individually as to what extent these values have a bearing on the emissions reported in the Draft EIR. One important aspect of these emission factors in question is that they were used by the model to calculate GHG emissions associated with electrical demand only. However, they have no bearing on the air pollutant emissions calculated and presented in Section 4.2, Air Quality of the Draft EIR, as discussed below.

Page 1,172 of the Draft EIR: This output file is generated to estimate the construction-related emissions specifically associated with construction of the CPHP's proposed Research and Academic Building (RAB). CalEEMod calculates construction emissions resulting from the operation of off-road equipment and the operation of on road trucks and vehicles. CalEEMod does not calculate electrical emissions associated with construction. Therefore, for the purposes of estimating GHG emissions associated with the construction of the RAB, the electrical emission factors are not used by the model, and are irrelevant to construction activities captured by the model run.

Page 1,250 of the Draft EIR: This output file was generated to estimate the existing criteria air pollutant emissions specifically associated with Aldea Housing proposed to be demolished in the Initial Phase under the CPHP. This model run was not used to generate the estimates of GHG emissions in Section 4.7, Greenhouse Gases of the Draft EIR. Therefore, for the purposes of GHG emissions associated with the operations of the project, the GHG emission factors are irrelevant as the inventory approach used to calculate operational GHG emissions presented in Table 4.7-5 of the Draft EIR used existing campus-wide inventory data reported by UCSF for the existing (2018) condition. As UCSF will offset all of its electrical emissions after 2025 pursuant to its Sustainable Practices Policy, there would be no electrical emissions in the 2030 or 2050 with project conditions and these emission factors in the CalEEMod model are irrelevant to the estimates of GHG emissions in Section 4.7, Greenhouse Gases of the Draft EIR.

Page 1,264 of the Draft EIR: This output file was generated to estimate the existing air pollutant emissions specifically associated with School of Nursing building proposed to be demolished. This model run was not used to generate the estimates of GHG emissions in Section 4.7, Greenhouse Gases of the Draft EIR, and the electrical GHG emission factors are irrelevant to the analysis in this section of the Draft EIR.

Page 1,282 of the Draft EIR: This output file was generated to estimate the existing air pollutant emissions specifically associated with UC Hall proposed to be demolished. This model run was not used to generate the estimates of GHG emissions in Section 4.7, Greenhouse Gas Emissions of the Draft EIR and the GHG electrical emission factors are irrelevant to the analysis in this section of the Draft EIR. (Please note the title header that refers to Aldea Housing on this page was inadvertently mistitled. Please refer to Section 8.5 of this Comments and Responses document for the proposed correction to this error.)

Page 1,357 of the Draft EIR: This output file was generated to estimate the additional air pollutant emissions specifically associated with the proposed initial Aldea Housing Densification project. This model run was not used to generate the estimates of GHG emissions in Section 4.7 Greenhouse Gases of the Draft EIR and the GHG electrical emission factors are irrelevant to the analysis in this section of the Draft EIR for the reasons stated above for page 1,250 of the Draft EIR.

Page 1,371 of the Draft EIR: This output file was generated to estimate the additional air pollutant emissions specifically associated with the proposed RAB. This model run was not used to generate the estimates of GHG emissions in Section 4.7, Greenhouse Gases of the Draft EIR and the GHG electrical emission factors are irrelevant to the analysis in this section of the Draft EIR for the reasons stated above for page 1,250 of the Draft EIR.

O-LD2-98 This comment raises concern that the estimated construction-related emissions did not consider the erection of the proposed temporary construction office. As discussed in the Draft EIR Project Description, page 3-27, the temporary construction office (Integrated Center for Design & Construction) is an interior renovation project that would be developed on two floors of the Kalmanovitz Library Garage, and hence, would not require excavation or foundation work. The emissions associated with the development of this temporary space are not expected to substantially contribute to the emissions presented in Table 4.2-7 on page 4.2-32 of the Draft EIR.

O-LD2-99 This comment raises concern that new parking associated with the initial Aldea Housing Densification project was not considered in the modeling of air pollutant emissions. Page 20 of the CalEEMod users guide specifically states that “no separate parking land use for a driveway or garage needs to be identified for

residential land uses because parking is already included in the calculation." Therefore, the air quality modeling in the Draft EIR was correct not to include the underground parking that would be part of the initial Aldea Housing Densification project.

O-LD2-100 This comment expresses concern that the CalEEMod output file on page 1,282 of the Draft EIR, which is titled "Existing Emissions Aldea Housing Initial Phase Demolition," incorrectly characterizes the land use as 145,000 square feet of research and development instead of the 42 units of existing housing proposed to be demolished at the Aldea housing complex. As noted in Response O-LD2-97, above, this CalEEMod output file was inadvertently mistitled. The appropriate title for this output file should be "Existing Emissions UC Hall Demolition." Accordingly, page 1,282 of the Draft EIR presents existing area and energy emissions for 145,000 square-foot UC Hall research laboratory. (Please refer to Section 8.5 of this Comments and Responses document for the proposed correction to this error.)

Please refer to page 1,250 of the Draft EIR, which contains the CalEEMod output for the existing area and energy emissions from the Aldea Residences to be demolished in the Initial Phase.

In any case, the emissions reported in Table 4.2-10 on page 4.2-44 of the Draft EIR correctly reflect the emissions reductions associated with the demolition of UC Hall and existing initial Aldea housing to be removed. No changes are required in the emissions reported in Section 4.2, Air Quality, or to the less than significant impact determination associated with operational criteria air pollutant emissions associated with the Initial Phase projects.

O-LD2-101 This comment states that the four CalEEMod output files indicate that only a hospital land use designation was used in the calculation of operational emissions and that this likely resulted in an underestimate of the CPHP's construction and operational emissions. The comment also states that in estimating the emissions from the Initial Phase projects, the modeling outputs indicate that only some amount of research and development land use and some amount of residential land use was analyzed, and that all four Initial Phase projects were not analyzed. Please note that the output files cited in this comment were run to estimate operational emissions and not construction emissions. Therefore, the response below is focused on estimated operational emissions and not on construction emissions.

The output files in question were run to estimate emissions from 1) mobile sources, 2) area sources, and 3) natural gas combustion not associated with the central utility plant (CUP), as presented in Table 4.2-9 on page 4.2-35 of the Draft EIR for the analysis of the full CPHP buildout. For the analysis of the Initial Phase projects, separate, land-use-specific model runs were generated, as the comment suggests.

With respect to mobile source emissions, the CalEEMod default values for vehicle trip generation were adjusted to match the estimated daily vehicle miles travelled (VMT) as calculated for the transportation analysis and multiplied by 365 to conservatively capture the annual VMT for the existing and 2050 scenarios of the full buildout of the CPHP. Because the transportation analysis did not parse-out VMT specific to each land use, it was not possible to run separate, land use-specific model runs for the full CPHP buildout. Regardless, the mobile emission estimates capture the appropriate VMT for the existing and 2050 scenarios and the mobile source emissions in Table 4.2-9 in the Draft EIR are valid.

With respect to area source emissions, these emissions include landscape maintenance (equipment used for these activities such as gasoline-powered lawnmowers and blowers), maintenance application of paints and other interior and exterior surface coatings, and increased use of consumer products that result in emissions of ROG. Application of a hospital land use for the entirety of the square footage of new development represents a worst-case analysis. CalEEMod calculates these emissions solely on the basis of square footage, so this generalization is justified for the purposes of these emissions.

With respect to natural gas combustion not associated with the CUP, a hospital land use can reasonably be expected to represent a worst-case analysis compared to residential, university or other research and development land uses. Appendix D of the CalEEMod user's manual indicates 85 kBTU/square foot of natural gas demand in San Francisco's climate for a hospital land use. This may be compared to 33k BTU/square foot for university land uses or 18 kBTU/square foot for research and development uses. Therefore, basing the operational emissions solely on a hospital land use is conservative and likely overestimates project-related emissions from natural gas combustion.

With respect to the operational model runs for the Initial Phase projects, only the New Hospital and the RAB would generate operational emissions because the Irving Street Arrival project would not generate meaningful operational emissions. As stated on page 4.2-22 of the Draft EIR, while the proposed New Hospital is a CPHP Initial Phase project, it is considered programmatically in this EIR with respect to operations, because adequate operational details of that project are not available at this time for a project-level analysis.

While a land-use specific inventory approach would be more accurate, the lack of specific data for future phase projects (e.g., square feet of specific building use, location of emission sources) precluded such an approach. As indicated above, the emissions presented in Table 4.2-9 on page 4.2-35 of the Draft EIR for the analysis of the full CPHP build-out are valid and likely overly conservative, and consequently, no changes to the significant and unavoidable criteria pollutant impact determination for the operational emissions associated with the full CPHP buildout in 2050 are warranted.

O-LD2-102 This comment expresses concern that changes made to the default construction phase lengths may have resulted in maximum daily construction emissions that are underestimated.

Default construction phase lengths were adjusted to match those of the project description. The CalEEMod web site contains a "user-tips" document that states:

> "For construction equipment calculations, the user should evaluate whether the default equipment list, including equipment types and numbers, horsepower ratings, hours of operation, and duration of phases, are appropriate. If changes are made to the equipment list, the program will not automatically compensate by changing the construction time. Nor will the program automatically revise the equipment list to reflect a revised construction time. Changes to one of these must accompany revisions of the other based on project-specific data."

Therefore, adjustment of construction phases may be made as warranted. Because the construction phases were adjusted to a longer duration, without reducing the hours of equipment operation, calculated emissions are greater than they would have been if default values were used. It should be noted the BAAQMD guidance for assessing construction-related air quality impacts applies to average daily emissions and not maximum daily emissions as suggested in the comment. Therefore, extending the duration of construction phases does not result in an underestimation of construction emissions. Construction details were provided by UCSF and the construction dates are summarized on pages 3-36 and 3-37 of the Project Description in the Draft EIR. Therefore, construction emissions were modeled on a project-specific schedule provided by UCSF and accurately reflect the emissions associated with the proposed CPHP.

O-LD2-103 This comment cites a discrepancy between the square footage used in the CalEEMod modeling run for demolition included in the RAB project (233,000 square feet) and the value presented on page 3-37 of the Project Description (254,000 square feet). The correct value was used in estimating the emissions from the demolition for the RAB project, and the emissions estimate in the Draft EIR is accurate. The Draft EIR Project Description inadvertently overstated the estimated demolition volume associated with UC Hall and School of Nursing as 254,000 gsf. Please refer to Section 8.5 of this Comments and Responses document for the revisions made to the project description text to correct this error.

O-LD2-104 This comment cites the difference between the default number of acres graded within the CalEEMod model and those indicated in the model output on page 1,114 of the Draft EIR for the New Hospital and on page 1,174 for the RAB, and that the change from the default values to other values may have resulted in the underestimation of construction-related emissions reported in the Draft EIR.

There is an anomaly in the CalEEMod program that populates adjusted values in the acres graded input file. These adjustments were not input by the model operator. Notwithstanding these discrepancies, the acres graded value only affects the calculation of fugitive dust within the CalEEMod model. As described in Table 4.2-6 on page 4.2-21 of the Draft EIR, the BAAQMD's recommended methodology of impact assessment of criteria pollutants from construction applies solely to exhaust emissions and not fugitive dust. Impacts from construction-related fugitive dust from grading and other operations are addressed in Impact AIR-1 on pages 4.2-28 through 4.2-30 of the Draft EIR. Because fugitive dust impacts are qualitatively assessed per BAAQMD guidance, quantification of fugitive dust emissions is not required and therefore was not presented in the Draft EIR. The acres graded component of the CalEEMod model only contributes to the models calculation of fugitive dust. This value has no contribution to the model's calculation of exhaust emissions and hence has no effect on the calculation of criteria air pollutants. Therefore, any discrepancies in grading acreage do not affect the findings of the Draft EIR with respect to fugitive dust impacts or criteria pollutant impacts from construction.

O-LD2-105 This comment points to a difference between the default number of haul trips associated with grading phase of construction for the initial phase Aldea housing densification project (313) and the value used in the analysis (312).

This discrepancy is due to rounding of the resultant number of one-way trips (312.5) and is inconsequential relative to the overall emissions associated with the construction phase and the construction impact determination in the Draft EIR for the initial Aldea housing densification project.[2]

O-LD2-106 The commenter states that there is a difference in construction equipment engines with Tier 4 Interim certification and Tier 4 Final certification, and that CPHP Mitigation Measure AIR-1a in the Draft EIR is non-specific relative to its requirement of Tier 4 equipment. The commenter also asserts that construction equipment with Tier 4 final certification may not be available. The commenter is correct regarding this difference in certification, and CPHP Mitigation Measure AIR-1a has been revised to specifically require off-road equipment with Tier 4 Final certified engines. Please refer to Section 8.5 of this Comments and Responses document for the applicable revision made.

With respect to the availability of Tier 4 final equipment, the commenter is presenting data compiled for 2014. The most recent update to this data[3], from

[2] As shown on page 1,096 of the Draft EIR, emissions of nitrogen oxides (NO_x) associated with haul truck trips with the 312 trips is estimated to be 0.0283 tons per year from the grading phase. If the value is rounded up to 313 trips, the resultant contribution is 0.0284 tons per year in 2028, a difference of 0.0001 ton in 2028. This compares to a total of 0.6984 tons per year in 2028 (page 1,088 of the Draft EIR). This rounding error is inconsequential to the calculated emissions.

[3] San Francisco Department of Environmental Planning, 2020 Off-Road Construction Equipment Vehicle Inventory, 2020.

2020, indicates that equipment with Tier 4 Final engines had increased to 33 percent of the San Francisco Bay Area Air Basin-wide fleet and it may reasonably be expected that the percentage is higher for large fleets in urban areas, such as San Francisco. Furthermore, many construction projects in San Francisco are requiring Tier 4 Final equipment as mitigation and are being monitored for compliance, thus demonstrating feasibility.

O-LD2-107 The commenter states that adjustments were made to several models by replacing the default vehicle emission factors with mobile source emission factors from EMFAC and requests more information about the specific factors that were taken from EMFAC.

As stated on page 4.2-23 of the Draft EIR, operational emissions for the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects were estimated using the CalEEMod (version 2016.3.2) adjusted with EMFAC2017 emissions factors recently approved by EPA. Specifically, the EMFAC2017 model was run for the following parameters to obtain the emission factors that were input into the CalEEMod model:

- On-road Emission Rates
- San Francisco Bay Area Region
- Calendar years 2018 or 2030, as appropriate
- Aggregate model years
- Aggregate Speed
- All fuel types

The above parameters are consistent with those that are embedded in the CalEEMod model for the older EMFAC2014 factors. Therefore, the air quality modeling used the latest EPA-approved factors and model inputs were appropriately adjusted for the analysis.

O-LD2-108 The commenter states that an adjustment was made to the emission factor for reactive organic gases (ROGs) from consumer products and requests more information on the source of the emission factor that was input into the model. The emission factor adjustment is consistent with in-depth air quality analysis conducted for EIRs within the City of San Francisco and has been derived with input from the City of San Francisco's Department of Environmental Planning. San Francisco's ROG emissions from consumer products in 2008 was 5.30 tons;[4] and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor used was 1.51e-5 lbs/(sq.ft.-day). The total building space that the City of San Francisco Environmental Planning Department relied

[4] California Air Resources Board, 2009 *Estimated Annual Average Emissions, San Francisco County,* https://www.arb.ca.gov/app/emsinv/emssumcat_query.php?F_=2008&F_DIV=-4&F_SEASON=A&SP=2009&F_AREA=CO&F_CO=38&F_COAB

upon in developing this emission factor is San Francisco Planning Department 2011 Land Use data.

This derivation of the refined emission factor is consistent with that derived in Appendix E of the CalEEMod User's Manual for the ROG emission factor within the South Coast Air Quality Management District that uses data points from 1993 to 2002.

The use of this emission factor does not result in the underestimation of ROG emissions nor does it result in an incorrect impact conclusion regarding the project's ROG emissions.

O-LD2-109 The commenter states that adjustments were made to the silt loading factor for entrained road dust, and suggests that the silt factor used may not be appropriate for a project in San Francisco, and may therefore underestimate operational emissions of particulate matter from mobile sources.

The silt loading factors that were manually input into CalEEMod were derived using Miscellaneous Process Methodology 7.9 of the California Air Resources Board[5] which was last revised and updated in March of 2018, and is therefore more recent than the silt loading in the latest version of CalEEMod (2016.3.2.) which uses EPA values dating from January 2011. Therefore, the air quality analysis used the latest available methodology for estimating particulate matter emissions from road entrained road dust from paved roads.

Because the UCSF hospital would draw regionally from throughout the Bay Area and beyond, the derivation of silt loadings used geographical data of its visitor origins provided by UCSF. **Table 8.4.2.2-1** below provides the derivation of the composite regional silt loading factor:

TABLE 8.4.2.2-1
DERIVATION OF COMPOSITE REGIONAL SILT LOADING FACTOR

Distribution by County	
Point of origin	**Emissions Allocation per Ramboll**
San Francisco	6.00%
Peninsula (San Mateo)	15%
South Bay(Santa Clara)	5%
North Bay 1 (Marin/Sonoma)	9%
North Bay 2 (Contra Costa)	5%
East Bay (Alameda)	21%
Outside Bay Area	39%
	100.00%

5 https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2018.pdf

TABLE 8.4.2.2-1 (CONTINUED)
DERIVATION OF COMPOSITE REGIONAL SILT LOADING FACTOR

Silt Loading by County		
Point of origin	**Silt Loading**	**Contribution to Composite**
San Francisco	0.09696	0.005818
San Mateo	0.038269	0.006818
Santa Clara	0.043086	0.001077
Marin	0.042847	0.003856
Alameda	0.037642	0.010314
Contra Costa	0.046795	0.004272
Solano	0.039229	0.007803
Yolo	0.120295	0.007976
Project-Specific Composite Silt Loading		0.047933

Using the above methodology, a project-specific composite silt loading factor was developed using the latest available data sources and accounting for project-specific geography. Even with these refinements, as indicated in Impact AIR-2 on pages 4.2-33 through 4.2-37 of the Draft EIR, vehicle travel associated with buildout under the full CPHP in 2050 would result in particulate matter emissions that would exceed the significance criteria and result in a significant and unavoidable air quality impact.

O-LD2-110 The commenter states that adjustments were made to trip rates used to estimate operational mobile source emissions, and expresses concern that these adjustments may have resulted in underestimating project emissions.

As discussed on page 4.2-43 of the Draft EIR, mobile source emissions in CalEEMod are based solely on VMT calculated in the transportation analysis. Criteria pollutant emissions would also be generated by the increase in vehicle traffic by the CPHP's Initial Phase projects. Similar to the VMT estimated for the CPHP as a whole, the net increase in VMT used to estimate vehicle-related emissions for the proposed RAB and initial Aldea Housing Densification project was derived from the transportation analysis in Draft EIR Section 4.15, *Transportation*. Based on the transportation analysis, the proposed RAB and initial Aldea Housing Densification projects would generate approximately 51,900 additional daily VMT. Total daily VMT as estimated by the transportation analysis for the Initial Phase projects was multiplied by 365 to arrive at an annual VMT which is the metric used by CalEEMod in its calculation of mobile emissions. Based on the transportation analysis, daily VMT under existing conditions was estimated to be 51,852 miles resulting in annual VMT of 1.8926e+7 miles. This value is shown on page 1,349 of the Draft EIR Appendix AIR. Consequently, the trip rates of the model were adjusted to match the annual VMT predicted by the transportation analysis. Therefore, the air quality emissions for the CPHP Initial

Phase projects presented in Table 4.2-10 on page 4.2-44 of the Draft EIR were directly based on VMT data from the transportation analysis, and the mobile emissions were accurately estimated.

O-LD2-111 This comment raises concerns that adjustments to energy usage rates in the CalEEMod input file for the CPHP Initial Phase projects may result in underestimating air pollutant emissions and are based on UCSF goals that may not be justifiable.

The first adjustment cited addresses the zeroing out of electricity demand values. It should first be pointed out that electrical demand affects the assessment of GHG emissions as an indirect source of GHGs, but is not an element of criteria pollutant analysis under BAAQMD methodology. Notwithstanding this distinction, these values were set to zero because UCSF has committed to net zero electrical energy by 2025. This commitment is not a goal, but rather, a commitment. As stated on page 4.7-20 of Section 4.7 Greenhouse Gases of the Draft EIR, this is the current commitment made under the *American College and University Presidents' Climate Commitment* and the commitment is referenced in UCSF's Annual Progress Report to the UC Regents. Therefore, as a commitment, it may reasonably be expected that there will no electrical emissions of GHGs resulting from the proposed CPHP Initial Phase projects in the 2030 horizon year.

The second adjustment cited addresses the 20 percent adjustment applied to Title 24 natural gas and electricity use for the operation of the CPHP Initial Phase projects indicated on page 1,371 of the Draft EIR, in Appendix AIR. This reduction is indicated as a note within the model. CalEEMod has a restriction on the number of characters allowed in the "notes" field and extended explanations of adjustments are not possible within the model. However, as stated on page 4.7-21 of the Draft EIR, the UC *Sustainable Practices Policy* provides that all new building projects, other than acute care facilities, shall be designed, constructed, and commissioned to outperform the CBC energy-efficiency standards by at least 20 percent or meet the whole-building energy performance targets. Therefore, a 20 percent reduction beyond the 2016 Title 24 demand embedded in the model was applied. This is conservative because updated 2019 Title 24 requirements became effective in 2020 and would result in further reductions not considered. Ultimately, CPHP Mitigation Measure GHG-1c would require monitoring of GHG emissions annually and acquisition of carbon offset credits in conformance with CARB guidance, prioritizing local and in-State offsets to achieve and maintain carbon neutrality for the Parnassus Heights campus site under the CPHP. Therefore, because the proposed CPHP would meet net zero GHG emissions with implementation of mitigation measures, the Initial Phase of the CPHP would have a less than significant impact with respect to GHG emissions.

O-LD2-112 This comment summarizes the results of the construction HRAs prepared and reported in the Draft EIR for the Initial Phase projects and the operational HRAs prepared for the RAB project, and asserts that the analysis of health risk impacts in the Draft EIR is flawed. The comment points out three alleged flaws which are addressed below.

The comment asserts that CPHP Mitigation Measure AIR-1a fails to indicate whether Tier 4 Interim or Tier 4 Final construction equipment would be required and hence it is erroneously used in the analysis of health risk impact. As discussed under Response O-LD2-106 above, CPHP Mitigation Measure AIR-1a has been revised to specifically require off-road equipment with Tier 4 Final certified engines. Please refer to Section 8.5 in this Comments and Responses document for the applicable revision made. As UCSF will comply with CPHP Mitigation Measure AIR-1a and require the use of Tier 4 Final certified construction equipment during the construction of the individual projects under the CPHP, the reductions in construction-phase health risk from the implementation of this measure will be realized.

The commenter also asserts that the Draft EIR fails to evaluate health risk impacts resulting from the CPHP's entire operations and contends that the partial HRA prepared for the RAB project cannot be used to determine impacts from the operations of all of the development under the CPHP. As discussed on page 4.2-20 of the Draft EIR, the proposed overall CPHP air quality impacts are analyzed at the plan-level, while the Irving Street Arrival, RAB and initial Aldea Housing Densification projects are analyzed at the project level (the Irving Street Arrival and the Aldea Housing Densification projects would not include any sources of TACs). Further, on page 4.2-25, the Draft EIR explains that the New Hospital and all Future Phase projects will undergo separate environmental review under CEQA. In those subsequent environmental reviews, health risk from operations will be assessed.

Lastly, the commenter contends that the HRA fails to evaluate the cumulative lifetimes cancer risk to nearby, existing receptors as a result of the project construction and operation together. The commenter also asserts that the analysis should sum construction and operational health risks and compare to the BAAQMD threshold of 10 in one million. As part of the environmental review for the Initial Phase projects, the University of California, as the lead agency, selected to use a quantitative project level significance criterion of an incremental cancer risk of 10 in one million adopted by BAAQMD, as documented on page 4.2-24 of the Draft EIR. When evaluating the cumulative risk from all sources, the University used a cumulative significance criterion of an incremental cancer risk of 100 in one million, which has also been put forth by BAAQMD.

For each of the Initial Phase projects, including the New Hospital, a construction health risk assessment was completed and compared to the BAAQMD project-

level increased cancer risk significance criterion of 10 per million. With respect to operational emissions, as affirmed on page 4.2-25, toxic air contaminants associated with the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects would be emitted from emergency generator engine reliability procedures, fume hood activity, and increased natural gas combustion at the Central Utility Plant. For these Initial Phase projects, the RAB project is the majority contributor to the operational TACs and therefore the operational emissions from all three initial phase projects were conservatively evaluated together and compared to BAAQMD's significance criterion of 10 per million for project-level increase in cancer risk.

Impact C-AIR-2 on pages 4.2-69 to 4.2-71 of the Draft EIR evaluates the cumulative impacts of construction and operations of the full CPHP plus previously approved development under the 2014 LRDP, foreseeable off-site construction projects in the vicinity, and existing background risk of the campus site and surrounding areas. On page 4.2-70 of the Draft EIR, the construction cumulative analysis notes that the demolition of the LPPI as authorized under the 2014 LRDP would be the only notable cumulative construction project to occur along with a CPHP project in the same year, and would occur within approximately 200 feet of each other. The analysis concludes that construction of the Irving Street Arrival project would result in a cancer risk of approximately 2 in one million, and the LPPI demolition would result in a cancer risk of about 0.51 in one million. On page 4.2-70 of the Draft EIR, it is stated that the operational cancer risk from the CPHP full buildout would be similar to that of the campus site under the 2014 LRDP as assessed in the 2014 LRDP Final EIR which was 10 in one million. Under the existing conditions, the Parnassus Heights campus site and its surrounding area have a cancer risk of less than 100 in one million cancer risk since it is not located within an APEZ. The analysis therefore concludes that the cumulative increase in cancer risk for all sources would be well below 100 in one million and the project-level contributions would be less than 10 in one million and therefore, the impact related to the cumulative lifetime cancer risk to nearby, existing receptors as a result of the CPHP construction and operation was evaluated in the Draft EIR and was found to be less than significant.

O-LD2-113 This is an introductory comment that identifies three issues with the Draft EIR analysis in Section 4.7, Greenhouse Gas Emissions, on the basis of which the commenter questions the Draft EIR's conclusion of a less than significant impact with respect to GHG emissions. Each of these three issues are addressed separately in the following three responses.

O-LD2-114 This comment claims that GHG emissions in Section 4.7 in the Draft EIR are underestimated because, as pointed out in previous comments regarding the air emissions modeling, several of the values that were input into the model to estimate GHG emissions do not agree with information in the project description.

As explained above in the Responses O-LD2-97 through O-LD2-113 with respect to air quality, the adjustments made to the CalEEMod model were appropriate and reflect expected conditions during project construction and operation and are based on substantial evidence. Therefore, the adjustments made are also appropriate to the estimate of emissions of GHGs and updated emissions estimates are not required or warranted.

O-LD2-115 The commenter asserts that the Draft EIR's analysis of the project's consistency with the Scoping Plan Update is incorrect for two reasons: first, because policies and goals set forth in the 2017 Update may not be achieved at a local (i.e., campus level), and secondly, because there are several measures in the 2017 Scoping Plan Update that the proposed project does not comply with.

Consistency of the CPHP with the 2017 Update to the Climate Change Scoping Plan is discussed on pages 4.7-43 and 4.7-44 of the Draft EIR. GHG impact assessment in this Draft EIR with respect to the year 2030 and 2050 reduction targets is based on guidance in the CARB's 2017 Scoping Plan Update regarding implementation of available measures to reduce GHG emissions. The 2017 Scoping Plan Update states that "there are recent examples of land use development projects in California that have demonstrated that it is feasible to design projects that achieve zero net additional GHG emissions." In the 2017 Scoping Plan Update, CARB recognizes that achieving no net increase in GHG emissions compared to existing conditions would demonstrate that a project is not contributing to climate change impacts, and is a recommended objective for land use development projects that are able to feasibly achieve this goal. Accordingly, the CPHP was considered to result in a significant impact on the environment if GHG emissions from construction and operations of the Parnassus Heights campus site would exceed a threshold of zero net additional GHG emissions compared to the existing conditions. CPHP Mitigation Measure GHG-1c would require monitoring of emissions annually and acquisition of carbon offset credits in conformance with CARB guidance, prioritizing local and in-State offsets to achieve and maintain carbon neutrality for the Parnassus Heights campus site under the CPHP. Therefore, because the proposed CPHP would meet net zero GHG emissions with implementation of mitigation measures, the CPHP would have a less than significant impact with respect to the goals of the 2017 Scoping Plan Update and assessment of individual measures within the Scoping Plan Update is not warranted, particularly given that many of these measures are already identified in Table 4.7-4 on pages 4.7-37 through 4.7-39 of the Draft EIR relative to the UC *Sustainable Practices Policy*.

O-LD2-116 The commenter opines that the regional Sustainable Communities Strategy, the 2040 Plan Bay Area, is inappropriate to be used for reviewing specific projects or development targets and that it does not qualify as a Climate Action Plan under CEQA. However, the comment goes on to suggest that several mitigation

measures from the EIR for the 2040 Plan Bay Area are not addressed in the Draft EIR for the proposed CPHP.

The proposed CPHP was qualitatively assessed for consistency with the 2040 Plan Bay Area on page 4.7-45 of the Draft EIR with respect to its role as a Sustainable Communities Strategy and not as a Climate Action Plan. As stated on page 4.7-31 of the Draft EIR, MTC adopted growth geographies for several new Priority Development Areas (PDAs), including a "Central City Neighborhoods PDA" in San Francisco that includes a portion of the Parnassus Heights campus site. This and other new PDAs are not included in the *Plan Bay Area 2040*, but will be studied in the *Draft Plan Bay Area 2050 Blueprint* (MTC, 2020). The proposed CPHP is consistent with *Plan Bay Area 2040* by virtue of being located within a Transit Priority Area (TPA), which is defined as an area within one-half mile of an existing or planned major transit stop (Public Resources Code Section 21099(a)(7)), where "major transit stop" is defined as a site containing any of the following: an existing rail or bus rapid transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods (Public Resources Code Section 21064.3).

With respect to mitigation measures identified in the EIR for the 2040 Plan Bay Area, all of these measures are already part of UC *Sustainable Practices Policy* or are identified as mitigation measures in Section 4.2 Air Quality, Section 4.7 Greenhouse Gases, or Section 4.15 Transportation in the Draft EIR, as indicated below:

> *Plan Bay Area Transportation Mitigation Measure 2.1-3-3(b): TDM Measures.* Addressed on page 4.2-64 of the CPHP Draft EIR as 12 items of the existing UCSF's existing TDM Program and as CPHP Mitigation Measure AIR-2b: TDM Program Enhancements.
>
> *Plan Bay Area Air Quality Mitigation Measure 2.2-2: Best Practices.* Addressed on page 4.2-29 of the CPHP Draft EIR as CPHP Mitigation Measure AIR-1a: Clean Construction Equipment for CPHP Projects; as CPHP Mitigation Measure AIR-1b: Best Management Practices for Controlling Particulate Emissions during Construction, and as CPHP Mitigation Measure AIR-3: Project-Specific Health Risk Analysis.
>
> *Plan Bay Area Climate Change and Greenhouse Gases Mitigation Measure 2.5-4(b): Transportation Management Plans.* Addressed in Impact TRANS-1 (Implementation of the CPHP would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities) on page 4.15-37 of the Draft EIR.
>
> *Plan Bay Area Climate Change and Greenhouse Gases Mitigation Measure 2.5-4(c): Sea Level Rise.* This topic was dismissed as having no impact on page 35 of the Initial Study in Appendix A of the CPHP Draft EIR.

Please note Comment Letter O-LD2 contained several exhibits (Exhibit A, Exhibit C, Exhibit G, Exhibit H), attachments to Exhibit B (Attachments 1 through 6) and attachments to Exhibit E and Exhibit F which did not comment directly on the Draft EIR. These exhibits and attachments are included in Appendix O-LD2 in this Comments and Responses document.

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October 1, 2020

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Re: Comment on Draft Environmental Impact Report, UCSF Comprehensive Parnassus Heights Plan (SCH 2020010175); *Save Berkeley's Neighborhoods v. The Regents of the University of California* (2020) 51 Cal.App.5th 226

Dear Chair Pérez, Vice Chair Estolano, and Honorable Regents:

This letter is submitted on behalf of the Parnassus Neighborhood Coalition ("PNC"), a group of residents living near the University of California, San Francisco ("UCSF") Parnassus Heights campus, regarding the Draft Environmental Impact Report ("DEIR") prepared for the Comprehensive Parnassus Heights Plan ("CPHP") (SCH 2020010175) (the "Project"). This letter supplements our comment letter of September 11, 2020. Our September 11 letter argued that the proposed Project would have growth inducing, population and housing impacts that must be analyzed in a supplemental or revised EIR. The letter argued that the Project would create a demand for approximately 6,000 housing units, but would be constructing less than 1,000. As a result, the Project would result in displacement of existing residents and other adverse impacts that must be analyzed and mitigated in a revised EIR. 1

On the day after the comment deadline, with the denial of Supreme Court review, the case of *Save Berkeley's Neighborhoods v. The Regents of the University of California* (2020) 51 Cal.App.5th 226 became citable. That case held that enrollment increases above previously reviewed levels at the University of California at Berkeley could result in the impacts including "increased use of off-campus housing by U.C. Berkeley students (leading to increases in off-campus noise and trash), displacement of tenants and a consequent increase in homelessness, more traffic, and increased burdens on the City of Berkeley's public safety services (police, fire, and ambulance)." 2

Id. at 233. These are precisely the types of impacts that must be analyzed with respect to the massive proposed expansion of the UCSF Parnassus campus. 2 cont.

For the foregoing reasons, PNC believes that the Draft EIR for the UCSF Comprehensive Parnassus Heights Plan is wholly inadequate and urges the Regents to require a Revised Draft EIR to be prepared to address the concerns raised herein. Thank you for considering our comments and please include this letter in the record of proceedings for this project. 3

Sincerely,

Richard Drury
LOZEAU DRURY LLP

Responses to Comments from Lozeau Drury LLP

O-LD3-1 The commenter reiterates the commenter's comments in a previous comment letter (O-LD2).

Please see Master Response 14: Population and Housing Impacts, and Responses O-LD2-47 and O-LD2-48, O-LD2-58 through O-LD2-67.

O-LD3-2 The commenter stated that based on the recently decided case of *Save Berkeley's Neighborhood v. The Regents of the University of California*, the CPHP EIR must analyze impacts related to increased use of off-campus housing by project population, displacement of tenants, and increased burden on city services.

The comment incorrectly asserts that in the case of *Save Berkeley's Neighborhood v. The Regents of the University of California*, the Court of Appeal ruled that enrollment increases could result in impacts including "increased use of off-campus housing…, displacement of tenants and a consequent increase in homelessness… and increased burden of …public safety services." This quoted language is merely a recitation of the petitioner's allegations in its pleadings. The court ruled only on one issue which was that the petitioner's claims that the environmental impacts from increased enrollment should be evaluated under CEQA could support a cause of action that could withstand a demurrer. The court did not rule on the scope of the environmental impacts that need to be analyzed in an EIR, because the matter was briefed in the absence of an administrative record and was appropriately remanded to the trial court for further proceedings. As set forth in responses to comments in Letter O-LD2 and Master Response 15: Indirect Displacement and Gentrification Impacts, many of the impacts that the commenter lists are outside the scope of population and housing impact analysis under CEQA. With respect to other environmental effects, such as effects on transportation, public services, and noise, those are fully analyzed in other sections of the Draft EIR.

O-LD3-3 The commenter asserts that the Draft EIR is inadequate and that a revised Draft EIR must be prepared to address the commenter's concerns.

Please see Responses O-LD3-1 and O-LD3-2 above. The Draft EIR analysis complies fully with CEQA requirements and a revised Draft EIR is not required.

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Thomas N. Lippe, APC

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September 10, 2020

By Email: *EIR@ucsf.edu*
Ms Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Comprehensive Parnassus Heights Plan Draft Environmental Impact Report: Comments on Cultural and Historic Resources; the Zakheim Murals.

Dear Ms Wong:

This office represents San Franciscans for Balanced and Livable Communities (San Franciscans), a citizen's group composed of San Francisco residents. I write on its behalf to comment on the Draft Environmental Impact Report (DEIR) for the Comprehensive Parnassus Heights Plan (CPHP) with respect to its analysis of project impacts on the Zakheim Murals located in UC Hall/Toland auditorium.

1. The Zakheim Murals.

The Project proposes to demolish UC Hall and the series of Zakheim murals located within Toland Hall auditorium in UC Hall. The DEIR finds that UC Hall and the Zakheim murals are historically and culturally significant and their demolitions represent significant environmental impacts. The DEIR also finds that significant environmental impacts are "unavoidable" because preserving these resources would be infeasible. The DEIR's finding that preserving these resources is infeasible is based on errors of law and is not supported by substantial evidence.

1

a. The DEIR fails to disclose the severity of the significant impacts caused by demolishing the Zakheim murals.

The DEIR describes the Zakheim Murals as follows:

The series of Zakheim murals are located within the single-story Toland Hall auditorium in UC Hall. These murals were commissioned as part of the Works Progress Administration (WPA) Federal Art Project and depict, in 10 panels, scenes of the history of science and medicine in California — including portrayals of traditional Native American medicine; scenes from Spanish, early American and Gold Rush California; and the founders of the UC Medical School. The murals were painted using the same traditional method of creating frescoes developed during the Italian Renaissance in which pigment is rapidly applied

2

> directly to wet plaster so that it becomes an integral part of the plaster, resulting in a chemical reaction that forms a surface of calcium carbonate on top of the pigment. Original skylights also remain in the auditorium, and the two surviving original interior stairwells feature marble treads and steel balustrades topped by a clear varnished wood handrail. A "Carved Frame" oak carving (Carved Frame) by Michael Von Meyer and James Warrender was also commissioned as part of the WPA Federal Art Project and is located in Toland Hall. Although UC Hall's interior has been extensively modified, Toland Hall and its corresponding murals remain intact (UCSF, 2005).

(DEIR 4.4-14, pdf 328.)

2 cont.

This description does not begin to do justice to the historical, cultural, and artistic significance of the murals, as shown in the September 3, 2020, letter from Dr. Robert Cherny, attached as Exhibit 1, and the publication entitled "Toland Hall Frescos - Illustrated Guide," dated July 26, 2020, by Robert S. Sherins, MD, a copy of which is attached as Exhibit 2.

Thus, the DEIR fails to lawfully disclose the severity of the significant impact caused by demolishing these murals. (See e.g., *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 519 ["a sufficient discussion of significant impacts requires not merely a determination of whether an impact is significant, but some effort to explain the nature and magnitude of the impact"]; *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 514–515; *Galante Vineyards v. Monterey Peninsula Water Management Dist.* (1997) 60 Cal.App.4th 1109, 1123 ["a more detailed analysis of how adverse the impact will be is required"].)

b. The DEIR cannot lawfully conclude that conserving and moving the murals is infeasible because UCSF has not conducted a reasonable investigation of the question.

Regarding the feasibility of conserving and moving the murals, UCSF has not conducted and presented the results of a reasonable investigation of the question. Therefore, the DEIR is so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment are precluded. (*Mountain Lion Coalition v. Fish & Game Com.* (1989) 214 Cal.App.3d 1043; CEQA Guideline 15088.5(a)(4).)

3

The DEIR describes UCSF's commencement of its investigation into the feasibility of conserving and moving the murals, as follows:

> Although a search of UCSF's records did not indicate that any interest to the Zakheim murals was preserved by GSA on behalf of the United States, UCSF provided notice of the Zakheim murals' potential destruction in accordance with GSA's stated policies and guidance for disposal of artwork and sculptures

> commissioned under the WPA. (Legal Title to Art Work Produced Under the 1930s and 1940s New Deal Administration, 2019.) Following receipt of UCSF's notice to GSA regarding the potential destruction of the Zakheim murals, GSA has now asserted an ownership interest in the Zakheim murals on behalf of the United States, and has indicated that documentation exists to demonstrate that the Zakheim murals and the Carved Frame are on loan to UCSF. UCSF will continue to discuss the federal ownership claim of the Zakheim murals and the Carved Frame directly with GSA.
>
> UCSF also analyzed the Visual Artists' Rights Act (17 U.S.C. § 106A et seq.) and the California Art Preservation Act (California Civil Code § 987 et seq.) to identify their applicability to the Zakheim murals. While UCSF has determined that both sets of laws likely have limited or no application to the Zakheim murals, UCSF extended a written notice of UCSF's intent to demolish UC Hall and the Zakheim murals contained therein as a courtesy to the family of Bernard Zakheim.
>
> Finally, UCSF will publish a written notice as a display advertisement in the San Francisco Chronicle informing the public of its intention to demolish UC Hall and the Zakheim murals. (Cal. Civ. Code, § 989(e)(2)(A).) An existing organization with an art-related purpose will then have the opportunity to contact UCSF within 30 calendar days of the date that the notice is published in the San Francisco Chronicle, if such an organization wishes to preserve, remove and relocate the Murals.

(DEIR 4.4-15; pdf 329.)

3 cont.

Also, in August, 2020, UCSF made an Advertisement for Proposals available to certain art conservators to solicit bids to conserve and remove the murals.[1]

UCSF was required to complete these investigations before preparing the Draft EIR, because "an agency must use its best efforts to find out and disclose all that it reasonably can" (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428; *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 398–399; CEQA Guideline 15144), and the EIR must include the evidence supporting a conclusion that a mitigation measure is infeasible (*Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 527).

[1]A true and correct copy of UCSF's Advertisement for Proposals for UCSF Project No.: PRJ-000293; Contract No.: PRJ-000293-CC-001, as made available to certain art conservators in August, 2020, is attached as Exhibit 3.

c. The DEIR's conclusion that conserving and moving the murals is infeasible is not supported by substantial evidence.

The DEIR's conclusion that conserving and moving the murals is infeasible is not supported by substantial evidence. The DEIR states:

> [I]n 2020, UCSF completed two independent studies that include detailed technical assessments on how the Zakheim murals could be physically preserved, removed and relocated from their current location in UC Hall. (Page & Turnbull, 2020; Architectural Resources Group 2020.) Given the nature of the frescoes and their vulnerability to cracking, the physical condition of some of the panels which have experienced water damage over the years, the murals' large size, the curved shape of the walls on which most of the panels are painted, ground movements, and the aging of UC Hall (all described in the above noted studies), UCSF has determined that it may be infeasible to remove and relocate the Zakheim murals as there is no guarantee that any effort to remove the Zakheim murals would be successful. Based on those independent studies, there is a likelihood that removal of the Zakheim murals may potentially cause serious damage to at least some of the panels such that the integrity of the entire series is destroyed (Page & Turnbull, 2020). In addition, UCSF has determined that the estimated $7.6 million cost of physical preservation, removal and relocation is prohibitive in light of UCSF's primary responsibility to support its academic health care mission.

(DEIR 4.4-14, 15; pdf 328-329.)

The DEIR admits that The Regents previously adopted a mitigation measure, as part of their 2005 adoption of an LRDP Amendment, requiring "removal of the Zakheim murals from UC Hall's Toland Hall prior to demolition and their subsequent conservation at an appropriate facility." (DEIR 4.4-14, pdf 328.)[2]

When deleting a previously approved mitigation measure, the lead agency must find it infeasible and support this finding with substantial evidence and "the deference provided to governing bodies with respect to land use planning decisions must be tempered by the presumption that the governing body adopted the mitigation measure in the first place only after due investigation and consideration." (*Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th 342, 359.)

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[2]The certified Environmental Impact Report for LRDP Amendment #2 – Hospital Replacement (2005 EIR), includes the following mitigation measure: "Preservation. The Depression-era murals in UC Hall's Toland Hall shall be removed from UC Hall and conserved at an appropriate facility." (2005 EIR, p. 4.3-22.) San Franciscans requests that the 2005 EIR be included in the record of proceedings for the Project.

Here, the DEIR relies on two studies for its conclusion (Page & Turnbull, 2020; Architectural Resources Group 2020 (ARG)), but neither study concludes or opines that it is infeasible to conserve and remove these murals. In fact, the ARG study finds it is feasible to conserve and remove these murals.[3]

The DEIR presents no evidence support the $7.6 million dollar cost estimate. This figure is contradicted by UCSF's own Advertisement for Proposals that USCF circulated to certain art conservators in August, 2020, to solicit bids to conserve and remove the murals. UCSF's Advertisement for Proposals established $1,800,000 as the "Maximum Acceptance Cost." This Advertisement for Proposals is attached as Exhibit 3. Therefore, UCSF itself has concluded it can be done for only $1,800,000.

4 cont.

Also, the letter dated September 8, 2020, from Nathan Zakheim, the artist's son and a prominent art conservator, conclusively demonstrates that it is technically and financially feasible to conserve and remove the murals. This letter is attached hereto as Exhibit 4.

5

Thank you for your attention to this matter.

Very Truly Yours,

Tom Lippe

Thomas N. Lippe

Exhibits

1. Letter dated September 3, 2020, from Dr. Robert Cherney.

2. Toland Hall Frescos - Illustrated Guide, July 26, 2020, Robert S. Sherins, MD.

3. Advertisement for Proposals for UCSF Project No.: PRJ-000293; Contract No.: PRJ-000293-CC-001.

4. Letter dated September 8, 2020, from Nathan Zakheim.

C002c DEIR Murals.wpd

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[3]"As with any large scale art moving project, there is significant risk to the art during de-installation, moving or transportation processes. As large, curved frescos, these works are particularly vulnerable. Attempts have been made to consider as many of these risks as possible at this stage, and the work plan below has been designed accordingly." (ARG 2020, p. 4.) San Franciscans requests that Page & Turnbull 2020 and Architectural Resources Group 2020 be included in the record of proceedings for the Project.

Responses to Comments from Law Offices of Thomas N. Lippe, APC

O-TL1-1 The commenter asserts that the Draft EIR's finding that preserving UC Hall and Zakheim murals are infeasible is not supported by substantial evidence. Please refer to Master Response 11: Toland Hall Murals.

O-TL1-2 The commenter claims that the Draft EIR's description of the Zakheim murals does not convey the significance of the murals and therefore fails to disclose the severity of the significant impacts. Please refer to Master Response 11: Toland Hall Murals.

O-TL1-3 The commenter asserts that the UCSF has not conducted a reasonable investigation regarding the feasibility of conserving and moving the Zakheim murals. The commenter notes that UCSF issued an Advertisement for Proposals in August 2020 to certain art conservators for the purpose of soliciting bids to conserve and remove the murals. The commenter claims that the investigation was required to be completed before preparing the Draft EIR. Please refer to Master Response 11: Toland Hall Murals.

O-TL1-4 The commenter asserts that the Draft EIR's conclusion that conserving and moving the Zakheim murals is infeasible is not supported by substantial evidence. The commenter states that neither of the two studies the Draft EIR relied on concludes that it is infeasible to conserve and remove the murals. With regard to the $7.6 million cost, the commenter asserts that there is no evidence to support this estimate and claims that because the Advertisement for Proposals established a $1.8 million "maximum acceptance cost", that UCSF concludes that the conservation and removal of the murals can be done for this amount. Please refer to Master Response 11: Toland Hall Murals.

O-TL1-5 The commenter provided a letter from Nathan Zakheim, which states that it is technically and financially feasible to conserve and remove the murals. Please refer to Master Response 11: Toland Hall Murals.

Please note Comment Letter O-TL1 contained several exhibits (Exhibits 1 through 3) which did not comment directly on the Draft EIR. These exhibits and attachments are included in Appendix O-LD2 in this Comments and Responses document. In addition, Comment Letter O-TL1 contained a comment letter on the Draft EIR from Nathan Zakheim Associates (in Exhibit 4), that was also submitted separately by its author. Please see Comment Letter O-NZA, and applicable responses that follow that letter.

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September 10, 2020

By Email: *EIR@ucsf.edu*
Ms Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Comprehensive Parnassus Heights Plan Draft Environmental Impact Report: Comments on Cultural and Historic Resources: Buildings.

Dear Ms Wong:

This office represents San Franciscans for Balanced and Livable Communities, a citizen's group composed of San Francisco residents. I write on its behalf to comment on the Draft Environmental Impact Report (DEIR) for the Comprehensive Parnassus Heights Plan (CPHP) with respect to its analysis of project impacts on cultural and historic resources.

1. The DEIR Fails to Evaluate the Historic Significance of Buildings Over 45 Years Old.

DEIR Table CUL-1 provides an inventory of buildings on the Parnassus Campus which were either "evaluated" or "not evaluated" in two reports prepared by Carey & Co. (Carey), one in 2003 and another in 2011. The buildings that Carey evaluated are classified as either listed on the California Register of Historical Resources (CRHR) or National Register of Historic Places (NRHP), eligible for listing on the CRHR, or not eligible for such listing.

Carey found many buildings "not eligible" in part because they were not more than forty-five (45) years old in either 2003 or 2011 when the evaluations were made. Some of these buildings are now more than forty-five (45) years old and are proposed for demolition or "addition." These buildings include Medical Building 1 (Ambulatory Care Center), School of Nursing, Moffitt Hospital, and Woods. (DEIR, Table CUL-1, p. CUL-2.)

For these buildings, the DEIR's determination of their eligibility is outdated and must be updated to evaluate them for historic significance. The letter dated September 10, 2020, from architectural historian Kara Brunzell, which is attached hereto as Exhibit 1, explains this point in greater detail. (See Exhibit 1.)

UCSF was required to complete these investigations and present the results in the Draft EIR, because "An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published." (CEQA Guidelines, § 15125; *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority*

1

(2013) 57 Cal.4th 439, 448; *Association of Irritated Residents v. Kern County Bd. of Supervisors* (2017) 17 Cal.App.5th 708, 725 ["the text of CEQA and the Guidelines identify existing conditions as the starting point (i.e., baseline) for determining and quantifying the proposed project's changes to the environment. Furthermore, the Guidelines amplify the statutory text by specifying the point in time normally used to identify existing physical conditions"].) Moreover, "an agency must use its best efforts to find out and disclose all that it reasonably can" (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428; *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 398–399; CEQA Guideline 15144).

1 cont.

2. The DEIR Fails to Evaluate the Historic Significance of Millbury Union Garage.

The Project proposes to demolish Millbury Union Garage. The DEIR admits this building has never been evaluated for cultural and historic significance (DEIR, p. 4.4-12) and that it is more than forty-five (45) years old (DEIR, CUL02). The DEIR then "presumes" this demolition will result in a significant impact to historical resources. (DEIR, p. 4.4-12)

The DEIR fails to disclose the nature and severity of the significant impact caused by demolishing this buildingg, which is an omission of essential information under CEQA. (See e.g., *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 519 ["a sufficient discussion of significant impacts requires not merely a determination of whether an impact is significant, but some effort to explain the nature and magnitude of the impact"]; *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 514–515, 529 ["An EIR's failure to explain the precise nature and extent of that harm can affect —and ... limit—the alternative measures that the agency offers to the public"]; *Galante Vineyards v. Monterey Peninsula Water Management Dist.* (1997) 60 Cal.App.4th 1109, 1123 ["a more detailed analysis of how adverse the impact will be is required"].)

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3. The DEIR Fails to Evaluate UCSF's Parnassus Campus as Historic Resource or Historic District.

Chapter 4.4 of the DEIR and the two Carey & Co, reports on which its analysis of historic buildings conduct and present the analysis one building at a time and fail to evaluate UCSF's Parnassus campus as a "historic resource" or "historic district" (defined in Public Resources Code section 5020.1, subdivisions (j) and (h), respectively) in its own right. Indeed, of the many "Form 523s" attached to the 2003 and 2011 Carey reports, not one checks the box for "District." The letter dated September 10, 2020, from architectural historian Kara Brunzell, attached hereto as Exhibit 1, explains this point in greater detail.[1]

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[1]The EIR's approach stands in stark contrast to Chapter 4.1, regarding aesthetic impacts, which subdivides the campus into several "districts." (DEIR pp. 4.1-4 to 4.1-10.) Thus, it is inarguable that the site is more than a collection of unrelated buildings.

Thus, the DEIR omits essential information regarding the environmental setting and fails to assess the significance of a potentially significant impact on the affected environment.

3 cont.

4. The DEIR's "Not Eligible" Determinations for Many Building Are Not Supported by Substantial Evidence.

The DEIR determines that many buildings are not eligible for listing on the CRHR based on the two Carey & Co. reports. (See DEIR, Table CUL-1, p. CUL-2.) Two of these buildings are proposed for demolition (i.e., Proctor and Moffitt Hospital). The DEIR's ineligibility determination for these buildings are not supported by substantial evidence because the Carey & Co. evaluations do not meet minimum professional standards. The letter dated September 10, 2020, from architectural historian Kara Brunzell, attached hereto as Exhibit 1, explains this point in greater detail. (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 409 ["A clearly inadequate or unsupported study is entitled to no judicial deference"].)

4

5. The DEIR's Conclusions That it Is Infeasible to Avoid Demolishing the Campus' Many Historically Significant Buildings Are Based on Errors of Law and Are Not Supported by Substantial Evidence.

The Project proposes to demolish numerous buildings that it concedes are historically and culturally significant, are eligible for listing on the CRHR or are already so listed, and as to which the demolition represents a significant environmental impact. These buildings include UC Hall, Millberry Union, School of Dentistry, Langley Porter Psychiatric Institute, Aldea San Miguel Housing Buildings 8, 10, and 12, and Saunders Court. (DEIR 4.4-13 to 4.4-4.4-18.) The DEIR also finds these significant impacts unavoidable because it is purportedly infeasible to continue to use these buildings.

Just six years ago, the 2014 Long Range Development Plan (2014 LRDP) did not propose to demolish UC Hall, Millberry Union, School of Dentistry, Aldea San Miguel Housing Buildings 8, 10, and 12, and Saunders Court. Therefore, it was presumptively feasible to continue to use these buildings in 2014. Nothing has changed to make it infeasible to avoid demolishing these buildings. "[T]he deference provided to governing bodies with respect to land use planning decisions must be tempered by the presumption that the governing body adopted the mitigation measure in the first place only after due investigation and consideration." (*Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th 342, 359.)

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One of CEQA's core purposes is to avoid *unnecessary* environmental harm. CEQA does this by requiring that significant adverse environmental impacts be substantially reduced or avoided where feasible. (*Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 524–525 ["Even when a project's benefits outweigh its unmitigated effects, agencies are still required to implement all mitigation measures unless those measures are truly infeasible"]; *City of San*

Diego v. Board of Trustees of California State University (2015) 61 Cal.4th 945, 967; *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 204, 231 ["the lead agency must adopt feasible mitigation measures or project alternatives to reduce the effect to insignificance."]

Mitigation measures or alternatives are not infeasible unless they make it impractical to proceed with the project. (*Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal.App.3d 1167, 1181; *Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 599; *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336 [city's finding that reduced-size alternative was infeasible because it would produce a competitive disadvantage was not supported by substantial evidence where neither the EIR nor the administrative record contained any data about the size of other home improvement warehouses in the area with which the applicant would compete].)

5 cont.

Here, the DEIR presents no evidence that is it infeasible to avoid demolishing each or any of these buildings. Given the stark contrast between the CPHP and the 2014 LRDP and its EIR, this is a significant omission of essential information. (*Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 527 (EIR must include evidence supporting conclusion that a mitigation measure is infeasible).)

Thank you for your attention to this matter.

Very Truly Yours,

Tom Lippe

Thomas N. Lippe

List of Exhibits

1. September 10, 2020, letter from Kara Brunzell.

2. Instructions for Recording Historical Resources; Office of Historic Preservation; March 1995.

C003c DEIR Hist.wpd

EXHIBIT 1

BRUNZELL
HISTORICAL

September 10, 2020

Law Offices of Thomas N. Lippe APC
201 Mission St., 12th Floor
San Francisco, CA 94105

RE: Comments on Draft Environmental Impact Report for Proposed UCSF Comprehensive Parnassus Heights Plan

Dear Mr. Lippe,

At your request, I have reviewed the Draft Environmental Impact Report ("DEIR") for the proposed UCSF Comprehensive Parnassus Heights Plan ("Project"). My review focused on the DEIR's treatment of historical resources.

INTRODUCTION

In March 1995, California's State Office of Historic Preservation (SHPO) published *Instructions for Recording Historical Resources,* which was intended to provide official guidelines for the systematic recordation of cultural resources. The document establishes the DPR 523 series forms as the universal format for recordation of all types of cultural resources as well as for the evaluation of historical resources. It provides detailed methodological instructions for historical resource evaluation using these forms. *Instructions for Recording Historical Resources* is widely utilized by qualified professional architectural historians and historians as a manual for the proper production of such evaluations for historical resource located in California. The majority of California's state and local agencies (including Caltrans, the Department of General Services, and most city/county governments) require production of DPR 523 forms according to the standards outlined in this document. (A few agencies have adopted their own local guidelines for historical resource evaluation.) Larger agencies often have professionally qualified historians/architectural historians on staff who review historic resource evaluations to ensure proper preparation by professionally qualified consultants. Smaller agencies (such as small cities) typically require a peer review for historical resource evaluations (especially where a historical consultant is employed directly by a project proponent.) Proposed projects subject to CEQA review will not move forward under most California agencies until:

1. professionally qualified staff approves a historical evaluation, OR
2. peer review-identified deficiencies in a historical evaluation are addressed.

6

The letter report that follows outlines deficiencies in the DEIR's treatment of historical resources according to the *Instructions for Recording Historical Resources* as well as departures from generally accepted professional standards. A comprehensive historical resource study of a complex campus like this one should be undertaken for planning purposes and in order to outline appropriate maintenance plans for historical resources even in the absence of an undertaking that qualifies as a project under CEQA. The current project outlined by the DEIR proposes demolition or alteration of several historic-age buildings that were either recommended ineligible or not evaluated in the

7

studies; deficiencies in the historical resource evaluations must therefore be corrected in order to comply with CEQA. Moffitt Hospital (1955) designed by Milton T. Pflueger, Proctor Foundation (1956) designed by Higgins & Root, Medical Building 1 (1972) designed by Reid Rockwell Banwell, & Tarics, and the School of Nursing (1972) designed by George Matsumoto have all been recommended ineligible. Millberry Union Garage (1955) has never been evaluated. Demolition of these buildings cannot proceed until they have been properly evaluated according to professional standards. Specific flaws in the historical studies are discussed in detail below. The most significant deficiencies fall under the following categories:

7 cont.

1. Historical Resource Evaluations do not meet professional standards
2. Technical studies fail to evaluate the campus as a potential historic district
3. Historical resources were not evaluated or were evaluated before they were age-eligible

HISTORICAL RESOURCE EVALUATION DO NOT MEET PROFESSIONAL STANDARDS

The DEIR's treatment of historical resources is based on two technical reports, both prepared by Carey & Co. Inc. Architecture: *UCSF Parnassus Heights Campus, San Francisco, California, Draft Historic Resources Evaluation, September 2003* and *UCSF Historic Resources Survey, San Francisco, California, February 8, 2011*. Carey & Co. Inc. Architecture is a well-respected firm that employs professionally qualified architectural historians and historic architects. However, neither of their UCSF studies meets currently-accepted professional standards for historical evaluation, nor does either study conform to the standards outlined in *Instructions for Recording Historical Resources.*

8

Study Design Flaws

The DEIR and its technical reports are required under CEQA to evaluate all historic-age buildings on the Parnassus Heights Campus for potential eligibility to the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR). Neither study undertook evaluation of all buildings and structures that had reached historic age in 2003 and 2011 (when the studies where completed); no rationale or explanation is offered for this failure to undertake a comprehensive study (or two studies that would together comprehensively document the site's historical resources.)

The boundaries of each study should be clearly delineated; a lack of appropriate maps and graphics obscure the boundaries of the study area for both technical studies.

9

Details of each technical report are discussed in below.

Carey & Co, September 2003

The intensive survey undertook the evaluation of seven buildings on Parnassus Heights Campus that were over 45 years old and slated for demolition or other significant impacts. Milberry Union Garage was 48 years old but was excluded from the study without rationale.

A typical professionally-prepared historical evaluation report would include (at a minimum) a location map showing the site's relationship to the region and a more detailed map showing building footprints and site layout with all features clearly labeled. Most consultants would also provide additional maps (including historic aerial photographs/site plans as well as custom graphics) to visually demonstrate eras of development, historical site plans, and other relevant information. The maps in DPR 523 forms highlight each building individually and are inadequate for a basic understanding of the site as a whole.

10

Carey & Co, February 2011
The intensive survey undertook the evaluation of 53 buildings located on Parnassus Heights Campus as well as four other UCSF sites. A superficial review of the document would suggest that all the historic-period buildings on the Parnassus Heights Campus were included in the study, but several were excluded. No rationale is provided for why a number of buildings were excluded from the report. It is apparently focused on buildings not included in the 2003 survey. If that is the reason for the omission of many historic buildings from the 2011 study, the reason should be explained, the results of the 2003 study summarized and updated where necessary, and the previously prepared DPRs appended. The preparers appropriately reference a handful of unrelated previous studies for specific buildings but do not reference their own company's document of a decade earlier. "Appendix B. List of Buildings, Building Types, and Significance" appears to be intended as a complete list of buildings on the campus since it includes most of the buildings evaluated in the earlier study, but one of the oldest and most significant buildings on campus (UC Hall) is missing. A reader of this study who was not intimately familiar with the site could potentially be unaware that several buildings on the campus had previously been determined eligible to the NRHP.

11

The structure of the report, in which UCSF's various campuses are discussed under subheadings, is extremely awkward and confusing. If these disparate sites were to be handled appropriately in one report (an extremely challenging task), a substantial historic context focused on the administrative and institutional history would be required in order to explain how the disparate locations are related and why the institution spread to multiple locations. Rigorous hierarchical organization of this complex information could have made this report much more comprehensible.

The boundaries of a survey should be clearly delineated (ideally in graphics and in text) and a rationale provided when portions of a site such as a campus are excluded. Although a "survey area" is referenced in the technical report it is not mapped or otherwise defined within the body of the report. Adequate maps were included in the appendix, but would have been much more useful integrated into the text as exhibits.

Historic Context Deficiencies
Instructions for Recording Historical Resources defines historic context and clearly states its centrality to the evaluation of historical resources.

> The significance of a historical resource is best understood and judged in relation to a historic context. A historic context consists of: theme, pattern, or research topic; geographic area; and chronological period. The theme, pattern or research topic provides a basis for evaluating the significance of a resource when it is defined in relation to established criteria. A historical resource is considered significant, and hence, eligible for the National Register if it is associated with an important historic context… (SHPO 1995, 9).

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"The statement of significance should explain why the resource is important in relation to its historic context(s)" (SHPO 1995, 12).

The above professional guidance demonstrates that the DEIR and its technical reports should include historic context and a brief site history that describes the eras of development. A historic context statement has a specific purpose: providing a framework that allows for assessment of historical significance of the built environment. The Parnassus Heights Campus was developed

beginning in the 1890s and therefore the most relevant era its evaluation is 1890 – 1970. An understanding of the Parnassus Heights Campus sufficient for historical evaluation would require (at a minimum) brief historic contexts of: medical education in the US, the City of San Francisco, the UC system, and UCSF as an institution as well as a site history describing the evolution of the campus built environment. These various contexts would typically be separated thematically, and clearly-defined periods of significance would be established in order to provide the required framework for evaluation and to organize complex report information into a comprehensible format. The DEIR's full page of discussion of the Spanish, Mexican and Early American periods of California history (UCSF 2020, 4.4-3) ends in 1850 and thus does not add to the reader's understanding of potential project impacts on historical resources and should be eliminated or condensed. The four-paragraph site history (UCSF p. 4.4-4) fails to explain the importance of the site, outline its periods of development, or even to describe its construction history in adequate detail. These serious flaws in the DEIR text stem from the failures of the technical reports to address historic context according to professional standards as discussed in detail below.

12 cont.

Carey & Co, September 2003

While there is no specific length requirement for a historic context, the Historical Overview section (Carey & Co 2003, 5 – 13) is inadequate to the purpose of the document according to current professional standards. It does not attempt to place the campus and UCSF within the context of the University of California, American medical education, or the development of other medical schools within the region. Biographical information on the few important individuals it names is too minimal to provide an understanding of their professional accomplishments or impact on the campus. The narrative provided is mainly a site history, with dates and descriptions of construction projects connected thinly by background information and a very small number of historic photographs. It does not fully explain why specific buildings were constructed at particular times.

The report is focused on buildings slated for demolition, a significant flaw. While the buildings not threatened by projects planned at the time of the study could have been exempted from detailed evaluation, they should have been included in the site history and historic overview. The narrative history of the campus simply does not make sense without a broad discussion of the development of the site. The historical information presented is based on just four sources, two of which are UCSF planning documents, and almost the entire narrative appears to have been adapted from a history on the UCSF website. No specific number of references is required, but a historian who meets the professional standards for this type of work would be expected to consult multiple primary sources (e.g. newspapers, maps, photographs, university correspondence) as well as secondary sources like published histories and journal articles.

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The historic context section for a professionally-prepared historical evaluation would provide at least a paragraph on each architectural style present on the property, discussing its development, period of use, and character-defining features. Master architect's professional biographies provided are minimally adequate. Architects not assumed to be masters, furthermore, should have been discussed; if the preparer has concluded an architect was not significant, evidence demonstrating this must be provided. This information would assist in comparative analysis that should be undertaken to determine whether buildings are important for their architecture.

Carey & Co, February 2011

The opening line of the introduction to the Carey & Company report acknowledges the essentiality of historic context to historical evaluation of this site: "UCSF has engaged Carey & Co. to produce a

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comprehensive historic context of the UCSF campuses…" (Carey & Co. 2011, 1). Preparers go on to describe the themes and research methodology used to produce this historic context. Themes identified in the introduction are "the history of the University of California, the Affiliated Colleges, and UCSF; the development of the neighborhood immediately adjacent to the Parnassus Heights campus; …and mid-century modernist and Bay Tradition architecture (Carey & Co. 2011, 3)." The preparers list primary- and secondary-source references consulted as including "historical maps; the United States census and the California Register of Voters; historic photographs; Calisphere, an online repository of primary sources from archival repositories throughout the state of California; correspondence with architects involved in the creation of buildings at the Parnassus Heights campus; and historic publications, including newspapers, journals, and books." Preparers also conducted research through the Environmental Design Archives at the University of California, Berkeley, UCSF archives, and the NWIC (SHPO's repository for cultural resource studies.)

The historic context of the neighborhood adjacent to campus (Carey & Co. 2011, 9-19) is adequately addressed and placed generally within the context of San Francisco's development. Although (like the DEIR) it is too focused on the period between the prehistoric era and the 1860s (since the campus was not developed until the 1890s) the themes in this section are detailed, well-footnoted, and appear to be based on substantial research. However, despite the preparers' clear demonstration in this section and in the introduction of a professional understanding of historic context requirements, sections devoted to the campus proper are too brief, poorly referenced, and disorganized.

No report section is devoted to the important historic context of the University of California despite its introduction by preparers as an important theme; its establishment and first thirty years of history are not discussed and it is merely mentioned as seeking land for a medical college in the 1890s (Carey & Co. 2011, 13). And the University of California is barely referenced as the report progresses. The history of the Affiliated Colleges (another theme introduced by the preparers as significant) receives two brief paragraphs (Carey & Co. 2011, 13-14) sandwiched between sections about the city and neighborhood. No references are provided for this bare-bones history of the inception of the site.

14 cont.

UCSF's history is never introduced in its own heading, but rather is discussed under the heading Postwar Expansion (Carey & Co. 2011, 16 -19). The section begins with a paragraph discussing site history *before* the postwar era (between 1890 and 1945) which provides no explanatory context for construction projects, no institutional history, and includes just one build date. UC Hall (1917) is mentioned briefly with no discussion of when it was built, why it was built, or who designed it. Historical resources like Clinical Sciences (1933) and Faculty Alumni House (1915) are not mentioned (here or elsewhere in the context), nor are the significant Zakheim murals. Important historic contexts like the 1920s master plan and development of the site in the Great Depression are never introduced.

The postwar site history that follows is far too brief for a site of this complexity. An adequate architectural history is provided, discussing designers, styles, materials, and building materials in appropriate detail. Sufficient historic context, however, is lacking, and the reader is given only the most glancing view into subjects like medical research on the campus, changes to medical education over time, establishment of UCSF as an independent campus in 1964, and the demographics of the student body. References are scanty; site history paragraphs have no footnotes and for architectural history no contemporaneous sources are cited prior to the 1960s. Few of the sources listed in the

methodology section are referenced in footnotes, and Wikipedia (not typically used as a reference by professional historians) is cited in one footnote. Rather than synthesizing multiple sources and providing analysis about the architecture of the School of Dentistry Building (which was constructed only 31 years prior to the study and therefore should not have been a main subject), the preparers quote the project architect for several unbroken paragraphs (Carey & Co. 2011, 20-22).

Organization of this section (the most important in the report) is chaotic, forcing the reader to skip from page to page in order to gain a coherent understanding of the information presented. LPPI (1941-3), Medical Sciences (1954), Moffitt Hospital (1955), and Surge (1966), and Health Sciences (1964-6) are all discussed under the main Postwar Expansion heading. The School of Nursing (1972) and School of Dentistry (1980) each receives its own section. As in the sections introductory paragraph, themes are often discussed using confusing backward-looking language rather than straightforward chronological narrative. For example, discussing the growth of the postwar student population, "In addition to benefiting from new revenue sources, resulting in expanded research programs and raising the prestige of the university, UCSF reintroduced the first two years of instruction to the San Francisco campus; since the 1906 earthquake, general courses in anatomy, biochemistry, and physiology had been taught at the Berkeley campus" (Carey & Co. 2011, 22).

14 cont.

Individuals important to UCSF history are not introduced in the narrative except a single reference to a provost that lists his dates of employment, birth, and death but does not explain his significance. Later in the report, several important individuals are listed with only names and dates of birth and death. The report should include a paragraph for each describing their professional accomplishments and impact on the campus.

Evaluation Deficiencies

Instructions for Recording Historical Resources states that:

> Evaluation requires three basic steps: (1) identification of a significant historic context associated with the resource; (2) identification of the types of resources important in illuminating that context, and the physical characteristics those resources must possess to reflect the significance of the historic context; and (3) an assessment of whether the resource being evaluated has those required physical characteristics (SHPO 1995, 10)

Since the DEIR and its technical reports did not establish adequate historic contexts (as discussed in detail above), evaluations for historic significance (Criterion A/1 and Criterion B/2) have not been undertaken to a standard that meets the basic requirements of CEQA. Both Carey & Company reports do not even bother to specifically evaluate many of the resources in the study under Criteria A/1 and B/2. Where buildings have been found architecturally significant, this can be dismissed as a technical deficiency that does not affect the outcome for the building (since a resource is eligible if it meets one *or more* criteria).

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For some buildings recommended ineligible, however, only a conclusory statement that the building "does not appear to be eligible" under the first two criteria is provided without reference to supporting evidence.

The 2003 evaluation of Moffitt Hospital states "At the time of its completion, Moffitt Hospital was the largest and most modern teaching hospital in the western United States" but does not go on to explain why if that is true it is not historically significant. It asserts that the building's designer was "renowned San Francisco architect Milton Pflueger" and says the building is not one of his

masterworks without offering any comparative analysis to support this assertion. It states that the building lacks integrity, but does not specifically document original condition and alterations (Carey & Co. 2003 Appendix A).

The study's evaluation of the Proctor Foundation offers a statement that the building is not eligible for its architecture without any evidence or analysis. It is even weaker in it evaluation under A/1 and B/2: it does not cite specific evidence or even make a definitive recommendation of ineligibility, stating that "… research has not revealed whether the Foundation or Dr. Proctor have made contributions of the broad patterns of history significant enough to deem the building eligible for the California Register..."

The study's conclusions that these two buildings are ineligible do not meet professional standards because they are not supported by adequate investigations or evidence.

15 cont.

UCSF'S PARNASSUS HEIGHTS CAMPUS WAS NOT EVALUATED AS A HISTORIC DISTRICT

Instructions for Recording Historical Resources states that, [Historic] "Districts consist of a significant concentration or continuity of associated historical resources" (SHPO 1995, 15). California Public Resources Code section 5020.1, subdivision (h) provides a similar but more detailed definition of a historic district as "a definable unified geographic entity that possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development." Preparers of the DEIR were clearly aware of the importance of looking at the campus as a whole. The document acknowledges districts as one of the important categories of historical resources in its Section 4.4.1 Definitions: "Architectural resources include buildings, structures, objects, and historic districts." Additionally, Section 4.1 (Aesthetics) describes the characteristics of the site in terms of "a collection of hospitals, medical office buildings, laboratories, service buildings, and housing which were constructed between the late 1910s and early 2000s" and divides the campus into six districts "based in part on existing land use patterns."

An adequate cultural resources DEIR section would bring a similar intellectual rigor to the investigation of the potential historical significance of the campus as an entity in its own right, using a district (or districts) to organize the discussion of the built environment's significance. This would allow the cultural resources section to reflect the spatial and historical relationships between buildings, the street grid, open spaces, and other features of the site. The DEIR and its technical reports did not look at the campus as a potential historic district, a failure to assess the campus as it exists in the real world. The attempt to evaluate each building individually without considering context, setting, or the site as whole means that the DEIR has not considered a potential historical resource: the Parnassus Heights Campus. This flaw reflects the failure of historical technical reports to evaluate the site as a historic district. The preparers clearly understand the importance of historic districts: the 2011 report recommends the early twentieth century neighborhood adjacent to the campus eligible as a historic district. Failure to evaluate the campus within a similar framework is not explained in the DEIR or its technical reports.

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HISTORICAL RESOURCES HAVE NEVER BEEN EVALUATED OR REQUIRE RE-EVALUATION

One historical resource, the Millbury Union Garage (1955) was not evaluated in either technical study. No rationale is provided for the DEIR's failure to evaluate this building. Any age-eligible building or structure can qualify as a historical resource; its use as a parking garage is not a valid reason to skip evaluation. Parking garages have been listed on the NRHP and every other level of

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historic register. CEQA requires the evaluation of this building prior to any project that may alter its character-defining features.

In addition to the flaws detailed above, several buildings slated for demolition by the DEIR were evaluated before they were age-eligible. (The historic period begins 50 years before the present and therefore changes every year. For planning purposes, 45 years is typically used to allow studies to remain relevant as a project moves forward over several years.)

Medical Building 1 (Ambulatory Care Center) and the School of Nursing were both constructed in 1972 and evaluated in 2010 when they were only 38 years old. Their evaluations stated that the buildings did not meet the Criterion G "exceptional significance" standard that applies to buildings of unusual importance before they age into the historic period. These buildings are now 48 years old and they must be re-evaluated under the regular criteria now that "exceptional significance" is not required for eligibility.

Moffitt Hospital (1955) and Woods (1962) were both evaluated in 2003. Both buildings were on the cusp of being considered historic-age at the time and are now 65 and 58 years old. Scholarship on postwar architectural styles has progressed substantially since the buildings were evaluated 17 years ago. The passage of additional time also allows for a fuller assessment of their potential historical significance. Both buildings should therefore be re-evaluated before demolition is undertaken.

Reevaluation (and initial evaluation for the Millbury Union Garage) of all of the buildings discussed in this section is required to meet minimum professional standards.

17 cont.

HISTORIC BUILDINGS MISSING FROM THE DEIR

Two buildings are identified on the SHPO's Built Environment Resource Directory (BERD) for San Francisco as "Determined eligible for separate listing through a consensus determination by a federal agency and the State Historic Preservation Officer." Buildings 2274 and 2275 "Children's Hospital" are listed at 501 Parnassus Avenue, and were studied in 2010. Their location is unclear, and they were not included in the DEIR or Carey & Co.'s technical reports. Unless they have been demolished since the 2010 study in which they were determined eligible, the DEIR needs to consider these buildings as historical resources.

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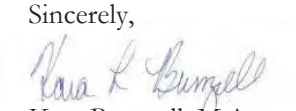
PREPARER'S QUALIFICATIONS

I meet the Secretary of Interior's Professional Qualifications for both History and Architectural History. I hold a Master's degree in Public History and have worked in multiple facets of historic preservation and cultural resource evaluation since 2007. My experience includes municipal preservation planning and working as the lead staff member of a non-profit preservation organization. Since 2012, I have worked full-time as a historical consultant, completing dozens of evaluations for CEQA and Section 106 compliance. Additionally, I regularly submit local and national register nominations, prepare historic context statements, and have managed HAER recordation projects. The greater Bay Area region is the center of my practice, but I frequently work in Sacramento, Santa Clara County, Monterey County, and Southern California. I have also completed projects in Oregon, Nevada, New York, and Puerto Rico. In addition to my work with historic-period residential, agricultural, and commercial properties for private clients, I have evaluated dozens of post offices and several military bases as well as university campuses, hospitals, church properties, and a NASA site. I am listed as a Historian and Architectural Historian on the

California Office of Historic Preservation's roster of qualified consultants for every county in California.

Please contact me by phone at 707/290-2918 or e-mail at kara.brunzell@yahoo.com with any questions or comments.

Sincerely,



Kara Brunzell, M.A.
Brunzell Historical

Responses to Comments from Law Offices of Thomas N. Lippe, APC

O-TL2-1 The commenter suggests that the Draft EIR does not evaluate the historic significance of buildings over 45 years old and should do so. Table CUL-1 in Appendix CUL provides an accounting of the eligibility status of each known historic resource on the Parnassus Campus and has been updated to reflect the DPR Update forms prepared in 2020 by ESA. Additionally, Impact CUL-2, addresses the potential that a building that has previously not been evaluated either is or will become an historic resource by assuming that demolition or substantial alteration of the buildings would be a significant and unavoidable impact, requiring feasible mitigation. In response to the commenter's request, an Historic Resources Technical Memo has been prepared (see Appendix HR) containing a summary of each of the existing technical reports that have evaluated resources on Parnassus Heights campus site, ESA's methodology for review of these evaluations, how each of the reports was used to inform the EIR analysis, as well as DPR update forms for four of the buildings (Millberry Union, Saunders Court, HSIR West, HSIR East,) and a list of character-defining features for each of the historic resources that could be impacted by the CPHP. None of the impact conclusions presented in the Draft EIR would change as a result of the updated evaluations for these four buildings, and no additional mitigation would be required.

O-TL2-2 The commenter states that the Draft EIR did not evaluate the historic significance of the Millberry Union Garage. Millberry Union Garage is an integral part of the Millberry Union, which was evaluated in Carey & Co., Inc.'s 2011 Report and the Millberry Union Garage is discussed in that report. See Historic Resources Technical Memo in Appendix HR, which includes a DPR523 update of the Millberry Union to clarify this information. Changes to the Millberry Union Garage were analyzed as part of the Irving Street Arrival project (beginning on page 4.4-20) and was determined to be a less-than-significant impact. The demolition of the Millberry Union Garage was analyzed as part of the Millberry Union New Towers project in the Future Phase (beginning on page 4.4-16 of the Draft EIR) and was determined to be a significant and unavoidable impact with the implementation of CPHP Mitigation Measures CUL-1a through 1c. Please also refer to Section 8.5 of this Comments and Responses document for additional explanation provided with respect to effects as a result of these projects.

O-TL2-3 The commenter claims that the Parnassus Heights campus site was not evaluated as a historic resource or historic district. In Carey & Co.'s 2011 Report on page 2, in the methodology section of the report it states, "Digital photographs were taken of each structure visible from the public right-of-way, and the firm noted the overall environment and relationships of the buildings to determine if the campuses contain potential historic districts" [emphasis added]. In the Regulatory and Planning Framework section on page 4, the report states, "The

regulatory background outlined below offers an overview of federal and state laws and regulations and the criteria used to assess the historic significance and eligibility of a building, structure, object, site, or district for listing in the National Register of Historic Places (NRHP) and in the California Register of Historical Resources (CRHR)." All of this indicates that Carey & Co. did consider the possibility of a historic district(s) at the Parnassus Heights campus site, and did not find sufficient evidence to identify an historic district.

The Draft EIR section was based on the existing technical reports as well as the expertise of ESA's own architectural historians. In the process of preparing the Draft EIR, ESA did consider whether or not the Parnassus Heights campus site should be considered a historic district, in which the individual buildings would have been considered as either contributing or non-contributing, rather than considering each of the buildings/structures/landscapes as potentially significant individual resources. Given the wide range of architectural styles and uses of the buildings, the long period of development (1917-2010), and a lack over overall thematic context or initial master plan guiding development from the beginning, it was determined that the campus as a whole did not constitute a historic district. Therefore, the individual buildings evaluations were the best approach in determining potential significance. See Historic Resources Technical Memo (Appendix HR).

O-TL2-4 The commenter claims that the "not eligible determinations for many buildings are not supported by substantial evidence." An Historic Resources Technical Memo (see Appendix HR) has been prepared to provide summaries of each of the technical reports used as a basis of the EIR's analysis, ESA's methodology for review of these reports and their prior evaluations, how each of the reports was used to inform the EIR analysis, as well as DPR update forms for four of the buildings (Millberry Union, Saunders Court, HSIR West, and HSIR East) and a list of character-defining features for each of the historic resources that could be impacted by the CPHP. All of this information together affirms conclusions presented in the Draft EIR, and amplifies the evidence relied upon. Two buildings that were specifically called out in the comment, Proctor and Moffitt, and are discussed below.

Proctor – This building was evaluated for eligibility for the California Register by Carey & Co. Inc. beginning on page 26 of their 2003 report (*UCSF Parnassus Heights Campus Historic Resources Evaluation*) and documented on a DPR523 form set in Appendix A of that report. Additionally, impacts from the demolition of Proctor were included in the 2014 LRDP EIR. "In November 2014, the Regents of the University of California (Regents) adopted the 2014 LRDP for the San Francisco campus, which outlines projected development levels and patterns for UCSF at all of its main campus sites through the year 2035. The 2014 LRDP Final EIR (FEIR) was certified by the Regents in November 2014…" (Draft EIR page 3-1, paragraph 1).

Moffitt – This building was evaluated for eligibility for the California Register by Carey & Co. Inc. beginning on page 25 of their 2003 report (*UCSF Parnassus Heights Campus Historic Resources Evaluation*) and documented on a DPR523 form set in Appendix A of that report. Please see the Historic Resources Technical Memo for a summary of the Carey & Co. reports, and a summary of how they were used by ESA to support the analysis presented in the EIR. The Draft EIR discloses that renovation and reuse of Moffitt Hospital was previously approved under the 2014 LRDP.

O-TL2-5 The commenter points out that the 2014 LRDP did not propose to demolish UC Hall, Millberry Union, School of Dentistry, Aldea Buildings 8, 10, and 12, and Saunders Court, and that the CPHP is now proposing to do so. The commenter argues that preservation of the buildings was clearly deemed feasible in 2014 and "nothing has changed to make it infeasible to avoid demolishing these buildings." The commenter goes on to say that the Draft EIR presents "no evidence that is infeasible to avoid demolishing each of these buildings."

The commenter's observations do not acknowledge that the CPHP EIR evaluates a different project than the 2014 LRDP EIR, with different objectives and different component parts. As stated on pages 3-9 and 3-10 of the Draft EIR, "Although the 2014 LRDP planned for a modest growth in clinical and research space at the Parnassus Heights campus site, UCSF has since then determined that in order to ensure continued excellence of the University, stay competitive and remain a leading health science institution both nationally and internationally, and build on the outstanding instructional, research, and clinical programs that are present at Parnassus Heights, improvements must be made at this campus site" that were not anticipated in 2014. The need for these improvements and UCSF's objectives for the CPHP project are outlined on Draft EIR pages 3-10 through 3-15 and components of the project are described elsewhere in Chapter 3. In addition, precisely because the CPHP is now proposing demolition of historic resources that were previously proposed for retention, the Draft EIR identifies significant impacts that were not previously identified, presents mitigation to reduce the severity of these impacts to the extent feasible, and includes alternatives that would avoid and substantially lessen the impacts. See Draft EIR Chapter 6 for a full evaluation of Alternative 1B: No Project – Development under the 2014 LRDP Alternative, and Alternative 2: Reduced Project. The feasibility of these alternatives will be considered by the Regents when they consider adoption of the proposed CPHP.

O-TL2-6 This is not a comment on the adequacy of the EIR. It provides an introduction to the letter and notes the establishment of use of DPR523 forms. No response is required.

O-TL2-7 This paragraph primarily established what the remainder of the letter will discuss, with the commenter suggesting that the Draft EIR's evaluation of historic

resources does not conform with generally accepted professional standards, that the campus should be evaluated as a potential historic district, and that historic resources were either not evaluated or were evaluated before they were age-eligible. Contrary to the commenter's opinions, the Draft EIR contains the information and analysis necessary to evaluate impacts associated with the potential loss or alteration of historic resources on the Parnassus Heights campus site over the life of the proposed CPHP. Please see Responses O-TL2-8 through O-TL2-18 for more information.

O-TL2-8 The commenter claims that the historical resource evaluation does not meet professional standards because two studies prepared by Carey & Co. Inc. Architecture in 2003 and 2011 do not meet currently-accepted professional standards "or standards outlined in *Instructions for Recording Historic Resources*" published by the State Historic Preservation Officer in 1995. Specific bases for this claim are addressed in responses to Comments O-TL2-9 through 18 below. The commenter also fails to acknowledge the peer review and analysis undertaken by ESA's architectural historians in preparing the information and conclusions presented in the Draft EIR based on the earlier studies. To explain the professional qualifications and review of ESA's staff, please see Historic Resources Technical Memo (Appendix HR).

O-TL2-9 The commenter claims that there are study design flaws, specifically that "neither study [prepared by Carey & Co.] undertook evaluation of all buildings and structures that had reached historic age in 2003 and 2011." Neither the scope of the prior studies, nor their omission of a map of the study area, create a deficiency in the program-level EIR for the CPHP. As stated on p. 4.0-2 of the Draft EIR, the EIR "has been prepared for the CPHP that discloses the impacts that could result from the approval and implementation of the CPHP and also establishes a framework for tiered or project level environmental documents that would be prepared in accordance with the overall program." As such, any potential historical resources that could be impacted by the CPHP were evaluated or (for the few that were not evaluated or were not age-eligible at the time the Draft EIR was prepared) were presumed to be significant in Impact CUL-2, and would be subject to mitigation to reduce the severity of impacts associated with demolition or substantial alteration. In addition, the EIR has been based not only on a number of prior studies, but on their review and supplemental analysis by ESA's qualified architectural historians. Please refer to the Historic Resources Technical Memo for summaries of each of the prior technical reports, ESA's methodology for review, how each of the reports was used to inform the EIR analysis, and supplementary evaluations that support conclusions presented in the Draft EIR.

O-TL2-10 The commenter notes that the Millberry Union Garage was not included in the 2003 Carey & Co. Inc. report and notes a variety of maps and graphics that are generally used in historical evaluation reports to assist with "a basic understanding of the site."

Millberry Union Garage is an integral part of the Millberry Union, which was evaluated in Carey & Co, Inc.'s 2011 Report, although the evaluation of the garage was not noted in Table 4.4-1 of the Draft EIR and the garage was described as not being previously evaluated on p. 4.4-22 of the Draft EIR. Changes to the Millberry Union Garage were analyzed as part of the Irving Street Arrival project (beginning on page 4.4-20) and was determined to be a less-than-significant impact. The demolition of the Millberry Union Garage was analyzed as part of the Millberry Union New Towers project in the Future Phase (beginning on page 4.4-16 of the Draft EIR) and was determined to be a significant and unavoidable impact with the implementation of CPHP Mitigation Measures CUL-1a through 1c. Please also refer to Section 8.5 of this Comments and Responses document for additional explanation provided with respect to effects as a result of these projects.

To clarify the significance of the garage, and at the request of commenters, the Historic Resources Technical Memo in Appendix HR includes an updated evaluation of the Millberry Union to include the Garage, supporting conclusions in the EIR. See Section 8.5 for text changes to the Draft EIR that include edits to Table 4.4-1 and Table CUL-1 in Appendix CUL, as well as on page 4.4-17 to clarify that Millberry Union Garage is included in the Millberry Union Complex.

In addition to the narratives provided in the Draft EIR and technical reports maps, photos, and other graphics are located throughout these documents:

- Draft EIR - Chapter 3 – Project Description (Figure 3-2: Parnassus Heights Campus Site, Figure 3-3: North Portion of Parnassus Heights Campus Site, and Figure 3-4: Southeast Portion of Parnassus Heights Campus Site).
- Carey & Co. Inc.'s 2011 Report – historic maps, architectural sketches and plans, and historic and modern photographs throughout the body of the report as well as maps in Appendix C - Location Maps of Surveyed Properties. The location maps in Appendix C of the report clearly label all buildings on the campus, color coding those that have been included in the survey. Location maps are also provided in each of the DPRs in Appendix D.
- *Mount Sutro Open Space Reserve: Cultural Landscape Evaluation Report* (2013) prepared by Denise Bradley, ASLA, and Knapp & VerPlank Preservation Architects includes current and historic maps and photographs.

O-TL2-11 The commenter notes that not all age-eligible buildings on campus were included in the 2011 Report, which instead focuses on buildings that were not evaluated in 2003. The commenter is also critical of the overall structure and organization of the report, its failure to summarize the prior study, and its placement of maps in an appendix rather than the body of the report. As stated above (in Response Comment O-TL2-9), neither the scope of the prior studies, nor their omission of a map of the study area in the body of their text, create a deficiency in the program-level EIR for the CPHP. As stated on page 4.0-2 of the Draft EIR, the EIR "has been prepared for the CPHP that discloses the impacts that could result

from the approval and implementation of the CPHP and also establishes a framework for tiered or project level environmental documents that would be prepared in accordance with the overall program." As such, any potential historical resources that could be impacted by the CPHP were evaluated or (for the few that were not evaluated or were not age-eligible at the time the Draft EIR was prepared) were presumed to be significant in Impact CUL-2, and would be subject to mitigation to reduce the severity of impacts associated with demolition or substantial alteration. In addition, the EIR has been based not only on a number of prior studies, but on their review and supplemental analysis by ESA's qualified architectural historians. Please refer to the Historic Resources Technical Memo in Appendix HR for summaries of each of the technical reports, ESA's methodology for review, and how each of the reports was used to inform the EIR analysis.

O-TL2-12 The commenter suggests that there are deficiencies in the Carey & Co. reports and the Draft EIR because they do not include historic context and a brief history describing the eras of development. The commenter apparently overlooked the scope and historic context provided in the 2011 report, which states: "The University of California, San Francisco (UCSF) has engaged Carey & Co. to produce a comprehensive historic context of the UCSF campuses and conduct an intensive survey of 53 buildings located on its Parnassus Heights, Laurel Heights, Mt. Zion, Mission Center, Buchanan Street, Hunters Point, and Oyster Point campuses. These buildings range in type and scale, from turn-of-the-century single-family houses to mid-century modernist Bay Tradition housing, to large-scale modernist medical and research buildings. The oldest building dates to 1905, while the newest building dates to 1982. Many were designed by prominent architects and landscape architects, such as Timothy Pflueger, George Rockrise, George Matsumoto, Anshen & Allen, Esherick Homsey Dodge & Davis (EHDD), Robert Royston, and Lawrence Halprin. Although several of the buildings are not yet 45 years old, they may be affected by an update to the UCSF LRDP. This report provides a historic context statement of UCSF's campuses and an evaluation of 53 buildings for potential listing in the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR)" (Carey & Co., Inc., 2011). In addition, the Draft EIR contains an overview of the historic development of the site on pages 4.4-4 and 4.4-5.

With the provided information, the EIR has sufficient detail to provide an informed reader with the background necessary to understand the historic architectural resources that have been evaluated, those that may be present and were not evaluated prior to publication of the Draft EIR, and potential impacts of the CPHP. Please refer to the Historic Resources Technical Memo in Appendix HR for summaries of each of the technical reports, ESA's methodology for review, and how each of the reports was used to inform the EIR analysis.

O-TL2-13 The commenter critiques the historic context in the 2003 Carey & Co., Inc. report, and by viewing that report in isolation, fails to consider additional information and analysis provided in other reports and undertaken during preparation of the Draft EIR. For example, the 2011 Report provides a more extensive historic context than the 2003 report and is part of the record supporting the information and analysis in the EIR. See Historic Resources Technical Memo for summaries of each of the prior technical reports, ESA's methodology for review, how each of the reports was used to inform the EIR analysis, as well as DPR update forms for four of the buildings (Millberry Union, Saunders Court, HSIR West, and HSIR East) and a list of character-defining features for each of the historic resources that could be impacted by the CPHP, all of which affirm conclusions regarding potential impacts reached in the Draft EIR.

O-TL2-14 The commenter acknowledges the historic context statement included in the 2011 Report and then critiques its sections devoted to the campus as "too brief, poorly referenced, and disorganized," also pointing to the absence of information about important individuals. As noted in earlier responses, the scope of the prior study does not create a deficiency in the program-level EIR for the CPHP, which has relied on multiple studies and the professional judgment of ESA's architectural historians, and has provided sufficient information and analysis to support conclusions in the Draft EIR. See Historic Resources Technical Memo in Appendix HR for summaries of each of the technical reports, ESA's methodology for review, how each of the reports was used to inform the EIR analysis, as well as DPR update forms for four of the buildings (Millberry Union, Saunders Court, HSIR West, and HSIR East) and a list of character-defining features for each of the historic resources that could be impacted by the CPHP, all of which affirm conclusions regarding potential impacts reached in the Draft EIR.

O-TL2-15 The commenter critiques the evaluations of many of the buildings based on previous arguments about the inadequacy of the historic context, suggesting that building recommended as ineligible were found to be such based on inadequate information. The commenter specifically points to Moffitt Hospital and the Proctor Foundation as examples.

As noted by the commenter early in her critique, "Carey & Co. Inc. Architecture is a well-respected firm that employs professionally qualified architectural historians and historic architects." As such, their work describes an evaluation appropriate to the scope of each study, and sufficient background information to reach the conclusions presented. In addition, each report has been reviewed by ESA's architectural historians during preparation of the EIR, who found their conclusions appropriate. See Historic Resources Technical Memo in Appendix HR for summaries of each of the technical reports, ESA's methodology for review, how each of the reports was used to inform the EIR analysis, as well as DPR update forms for four of the buildings (Millberry Union, Saunders Court, HSIR West, and HSIR East) and a list of character-defining features for each of

the historic resources that could be impacted by the CPHP, all of which affirm conclusions regarding potential impacts reached in the Draft EIR.

O-TL2-16 The commenter states that Parnassus Heights was not evaluated as a historic district.

In Carey & Co.'s 2011 report on page 2, in the methodology section of the report it states, "Digital photographs were taken of each structure visible from the public right-of-way, and the firm noted the overall environment and relationships of the buildings to determine if the campuses contain potential historic districts." In the Regulatory and Planning Framework section on page 4 states, "The regulatory background outlined below offers an overview of federal and state laws and regulations and the criteria used to assess the historic significance and eligibility of a building, structure, object, site, or district for listing in the National Register of Historic Places (NRHP) and in the California Register of Historical Resources (CRHR)." All of this indicates that Carey & Co. did consider the possibility of a historic district(s) at the Parnassus Heights campus site and did not find sufficient evidence to identify an historic district. Additionally, in the course of reviewing Carey & Co.'s reports and preparing the Draft EIR, ESA's architectural historians considered the possibility of a historic district at the Parnassus Heights campus site in which the individual buildings would have been considered as either contributing or non-contributing, rather than considering each of the buildings/structures/landscapes as potentially significant individual resources. Given the wide range of architectural styles and uses of the buildings, the long period of development (1917-2010), and a lack over overall thematic context or initial master plan guiding development from the beginning it was determined that the campus as a whole did not constitute a historic district. Therefore, the individual buildings evaluations were the best approach in determining potential significance.

The Draft EIR section was based on the existing technical reports as well as the expertise of ESA's own architectural historians, as described in the Historic Resources Technical Memo in Appendix HR.

O-TL2-17 The commenter questions the lack of separate evaluation of the Millberry Union Garage and the evaluations of the Medical Building 1, School of Nursing, Moffitt Hospital, and Woods buildings, requesting their reevaluation.

As noted in the response to comment O-TL2-10, Millberry Union Garage is an integral part of the Millberry Union, which was evaluated in Carey & Co, Inc.'s 2011 Report, although it was identified as "not evaluated" in Table 4.4-1 and on the list on page 4.4-22 of the Draft EIR. Nonetheless, the Millberry Union Garage was presumed to be an historic resource and its demolition or substantial alteration was analyzed (beginning on page 4.4-22 of the Draft EIR) and was determined to be a significant and unavoidable impact with the implementation

of CPHP Mitigation Measures CUL-1a through 1c. To clarify the eligibility of the garage as an historic resource, a DPR 523 update was prepared and included in the Historic Resources Technical Memo in Appendix HR affirming the assumption and conclusions in the Draft EIR.

Medical Building 1 (Ambulatory Care Center) was constructed in 1972, as such it was 39 years old when it was previously evaluated by Carey & Co. in 2011 for eligibility under criteria A/1 through C/3 as well as criterion G. As of 2020 the building is 48 years old. ESA reviewed all of the existing documentation and determined that the 2011 evaluation is still valid. The 2011 evaluation determined that there were no significant events (Criterion A/1) or people (Criterion B/2) associated with the building and that "although designed by a well-known local firm…the building's design is not unique or ground-breaking in any way." Because it was not 50 years old in 2011 Carey & Co. went the extra step and evaluated Medical Building 1 using Criteria Consideration G (Properties that Have Achieved Significance within the Last 50 Years), but this was not the only criterion they used. As of 2020, the building is still less than 50 years old. ESA reviewed all of the existing documentation and determined that the 2011 evaluation is still valid.

The School of Nursing was constructed in 1972, as such it was 39 years old when it was previously evaluated by Carey & Co. in 2011; as of 2020 it is 48 years old. The 2011 evaluation determined that there were no significant events (Criterion A/1) or people (Criterion B/2) associated with the building and that although it was designed by a master architect the loss of integrity had disqualified it from eligibility under Criterion C/3. The School of Nursing Building is still not historic-age, the condition of the building has not changed substantially, and the 2011 provided sufficient context to evaluate it; therefore, the previous evaluation is still valid.

Moffitt Hospital was constructed in 1955, as such it was 48 years old when it was previously evaluated by Carey & Co in 2003; as of 2020 it is 65 years old. Carey & Co. determined that although it was designed by Milton Pflueger with Blanchard & Maher that it did not "represent a master work of Pflueger's nor does it possess high artistic values in terms of mid-century Modern design." Their evaluation used California Register criteria 1, 2, 3, and 4. Additionally, Carey & Co. noted significant alterations, such was the Long Hospital addition in 1983, that severely impacted the integrity of Moffitt Hospital. ESA reviewed all of the existing documentation and determined that the 2003 evaluation is still valid.

The Woods building was constructed in 1962, as such it was 49 years old when it was previously evaluated by Carey & Co. in 2011; as of 2020 it is 58 years old. The 2011 evaluation determined that there were no significant events (Criterion A/1) or people (Criterion B/2) associated with the building. The Carey & Co. report stated,

> *While Nick Forell rose to the ranks of most prominent structural engineers in the San Francisco Bay, heading a practice that pursued work in the international area, this building does not appear to be associated with any significant aspect of that career and is not a good example of notable feats in engineering. William Gillis does not appear to have achieved much significance and the design, though typical of its era, does it not rise to the level of a sophisticated work that embodies high artistic values.*

Therefore, it was found to be ineligible under Criterion C/3. ESA reviewed all of the existing documentation and determined that the 2011 evaluation is still valid.

See Historic Resources Technical Memo in Appendix HR for summaries of each of the technical reports, ESA's methodology for review, how each of the reports was used to inform the EIR analysis, as well as DPR update forms for four of the buildings (Millberry Union, Saunders Court, HSIR West, and HSIR East).

O-TL2-18 The comment references SHPO's Built Environment Resource Directory (BERD) and states that Buildings 2274 and 2275, listed at 501 Parnassus Avenue were studied in 2010 and were not included "in the Draft EIR or Carey & Co.'s technical reports."

The *Attachment to SHPO Review of Proposed FCC Undertaking* document for EBI Project #61097519 (FCC: 100413A) includes a concurrence of eligibility for Buildings 2274 and 2275 at 501-505 Parnassus Avenue, San Francisco, CA 94143. Building 2274 refers to Long Hospital and Building 2275 refers to Moffitt Hospital. The construction dates for both buildings are incorrect. The document states that Moffitt Hospital was constructed in 1976 when it was actually constructed in 1955. The document states that Long Hospital was constructed in ca 1950 when it was actually constructed in 1982. The *Attachment to SHPO Review of Proposed FCC Undertaking* document appears to confuse Moffitt Hospital with the LPPI, stating the following:

> *X Eligible:*
>
> *UCSF Campus*
> *Buildings 2274 and 2275 [Moffitt Hospital]*
> *501-505 Parnassus Avenue, San Francisco, CA 94143*
>
> *Criterion A: For its association with the development of clinical research related to psychiatry*
>
> *Criterion B: For its association with noted physician Robert Langley Porter and his role in the development of the first state psychiatric research institute*
>
> *Criterion C: For its Modernist architectural design*

X Eligible:

UCSF Campus
Building 2290 [LPPI]
401-405 Parnassus Avenue, San Francisco, CA 94143

Criterion A: For its association with the development of the UCSF campus and the integration of medical science into the university realm of teaching and education.

Criterion C: For its association with the prominent San Francisco architectural firm of Timothy and Milton T. Pflueger.

Note: At this time, I do not concur in the eligibility of Building 2290 under Criterion B for its association with the career of Herbert C. Moffitt.

The Criterion discussion for Moffitt Hospital and the LPPI are apparently switched with the incorrect building identifiers (address and building number) indicated above.

There is a DPR form for Moffitt Hospital (UCSF Medical Center/Children's Hospital, 501-505 Parnassus Avenue), prepared by Dana E. Supernowicz of Historic Resource Associates (HRA) in February 2010, on file at the Northwest Information Center that is associated with the EBI Project #61097519 (FCC: 100413A), but none for Long Hospital as indicated in the comment. Additionally, the DPR form for Moffitt Hospital does not mention Long Hospital by name, and there is no history provided for this building. The Moffitt Hospital evaluation claims that it is "individual eligible for the National Register of Historic Places (NRHP) under Criteria A, B, and C, due to the buildings association with Moffitt and the Pluegers'. *Attachment to SHPO Review of Proposed FCC Undertaking* document does not concur with the evaluation under Criteria B (see above). With regards to the evaluation under Criteria A, the 2010 HRA evaluation fails to provide sufficient context by which to evaluate this buildings contribution to the medical field. Merely being associated with Herbert C. Moffitt is not enough. Additionally, the building was constructed after Moffitt's retirement indicating that this was more likely a commemorative gesture, not that he was associated with the development of the facility. With regards to the evaluations under Criteria C, the HRA evaluation fails to include any comparative analysis in the context of Pfluegers' body of work. Per the *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, "The criterion is generally restricted to those properties that illustrate (rather than commemorate) a person's important achievements." The 2010 HRA analysis failed to provide a significant linkage between Herbert C. Moffitt's work and Moffitt Hospital. Finally, the evaluation lacks an integrity analysis using all seven aspects as discussed starting on page 44 of *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. For a resource to be eligible for the National Register of

Historic Places it must be significant under one or more of the criteria as well as retain sufficient integrity to convey that significance.

There is no new information in the *Attachment to SHPO Review of Proposed FCC Undertaking* document or the associated DPRs, discussed above, that changes the analysis or conclusions in the Draft EIR. ESA concurs with Carey & Co.'s analysis of Moffitt Hospital as disclosed in the Draft EIR and its appendices.

Please note Comment Letter O-TL2 contained an attachment to Exhibit 1, and an Exhibit 2 which did not comment directly on the Draft EIR. This attachment and exhibit are included in Appendix O-TL2 in this Comments and Responses document.

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September 11, 2020

By Email: *EIR@ucsf.edu*
Ms Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Comprehensive Parnassus Heights Plan Draft Environmental Impact Report: Comments on Water Quality, Water Recreation, and Wastewater Public Services.

Dear Ms Wong:

This office represents San Franciscans for Balanced and Livable Communities (San Franciscans), a citizen's group composed of San Francisco residents. I write on its behalf to comment on the Draft Environmental Impact Report (DEIR) for the Comprehensive Parnassus Heights Plan (CPHP) with respect to its analysis of project impacts on water quality, water recreation, and wastewater public services.

This letter incorporates by reference the September 10, 2020, letter from Dr. Larry Russell, environmental engineer, which is attached hereto as Exhibit 1. In total, this letter attaches and incorporates 14 exhibits, which are listed at the end. Due to the size of Exhibit 13 and Exhibit 14, we are transmitting those it to you by email under separate cover.

The DEIR fails to assess the Project's impact on beach water quality, which is an important component of the Project's affected environment. 1

In Chapter 4.16, regarding potential impacts on wastewater treatment facility capacity, the DEIR discloses that the project will add about 2.0 million square feet of new space, and generate about 0.18 mgd (million gallons per day) of new wastewater/sewage. The DEIR assesses the impacts of this increase solely in terms of whether the increase will require the construction of new wastewater treatment capacity, the construction of which might cause secondary environmental impacts. The EIR concludes that construction of new wastewater treatment capacity will not be needed because: 2

> Assuming wastewater generation as 90 percent of water usage, the overall increase in wastewater resulting from the 2.0 million gsf net increase of building space associated with the proposed CPHP would be roughly 0.18 mgd. Wastewater flows from the Parnassus Heights campus site would be directed to the OSP [Oceanside Treatment Plant]. The OSP has a dry weather capacity of 43 mgd and is currently treating approximately 17 mgd. Therefore, based on current sewage flows, the plant has about 26 mgd of excess dry weather treatment

> capacity, which is adequate to accommodate the increase in flow generated by the net new development envisioned under the proposed CPHP. As a result, the proposed CPHP would not result in a determination by the SFPUC that it has inadequate capacity to serve the projected demand, and the impact would be less than significant. Mitigation: None required.

(DEIR p. 4.16-22 [pdf p. 672].)

With respect to stormwater discharge, Chapter 4.9 of the DEIR discloses that the campus drains both to the west to the Oceanside Treatment Plant (OSP) and to the east to the Southeast Treatment Plant (SEP) and that San Francisco operates a combined sewer system (CSS) that combines stormwater with sewage for treatment at these plants. This chapter concludes the Project's impacts on surface water quality are less than significant because the Project-induced increase in the acreage of impervious surfaces is only 4% compared to the current acreage of impervious surfaces on campus, and because the San Francisco Public Utilities Commission's (SFPUC) operation of the CSS, the OSP, and the SEP is regulated by the San Francisco Regional Water Quality Control Board (Water Board) through permits issued pursuant to the National Pollutant Discharge Elimination System (NPDES) established by the federal Clean Water Act and the state Porter-Cologne Water Quality Control Act.

The DEIR states:

> The campus core, where the majority of development and redevelopment under the CPHP is proposed, is largely developed and covered in impervious surfaces (estimated at approximately 86 percent impervious). Preliminary estimates indicate additional building development under the CPHP could incrementally increase the amount of impervious surfaces across the campus core by an additional 4 percent (about one acre) over existing conditions. Elsewhere on the campus site, the CPHP is not expected to notably increase impervious surfaces, as the proposed new housing buildings in the Aldea Housing complex would be sited largely within existing housing building footprints.

(DEIR p. 4.9-11.)

Using these numbers, one can calculate the number of current and future impervious acres in the campus core, as follows:

Table 1

Campus Impervious Surfaces	Percent of Campus	Acres
Pre-Project Condition	86%	21.5 acres
Project to Add	4%	1 acre
Post-Project Condition	90%	22.5 acres

2 cont.

The DEIR does not quantify the increase in stormwater discharge associated with this increase in impervious surface.

2 cont.

In addition to the quantified increase in impervious surfaces and unquantified stormwatrer runoff from the "campus core," the DEIR discloses that there will be additional increases in impervious surface outside the campus core. For example, the DEIR states:

> Development associated with the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements would be subject to the same or similar regulatory requirements as those described above during construction and operation. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to construction site runoff requirements and post-construction stormwater controls in accordance with the City Public Works Code and in compliance with the City's Stormwater Management Ordinance. As such, the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality would be less than significant.

(DEIR, p. 4.9-12.)

3

This singularly uninformative paragraph indicates there will be additional increases in impervious surfaces in several different areas, including outside the campus boundary, but provides no clues as to their magnitude. As it did with the increases in runoff from the campus core area, the DEIR again does not quantify the increase in runoff associated with the increase in impervious surfaces. Also, while the paragraph intimates that UCSF's off-campus facilities will be subject to San Francisco's "post-construction stormwater controls," it provides no information on the extent to which these controls may be expected to reduce Project-generated operational increases in stormwater runoff.

As it does with Project-generated increases in sewage, the DEIR also relies on "the relatively small change" in Project-generated increases in stormwater discharge to conclude the impact is less than significant, stating:

> Due to the relatively small change in impervious surfaces and the flow reductions that would be achieved with the implementation of LID stormwater features, storm water flows from the campus site would not adversely affect stormwater drainage capacity. In fact, the CPHP includes upgrades to the existing CSS within the campus core as discussed further in Section 4.16, Utilities. Therefore, considering the minor change in impervious surfaces, incorporation of LID stormwater features, and proposed improvements to the existing CSS that would occur with the program, the potential impacts related to flooding on- or off-site, stormwater drainage capacity, or additional sources of polluted runoff would be

4

less than significant.

(DEIR, p. 4.9-14.)

There are many legal deficiencies in the DEIR's handling of the Project's impacts on water quality, water recreation, and wastewater related public services.

The DEIR fails to describe the most important components of the environmental and regulatory settings, which are the severely degraded water quality conditions at San Francisco's beaches, in both the bay and the ocean, and the demonstrated inability of San Francisco's CSS to prevent these conditions.

The DEIR fails to describe the Project in enough detail to inform any analysis of water quality impacts, most egregiously with respect to increases in impervious surfaces outside the campus core.

The DEIR's assessment pf Project impacts on water quality fails to account for the fact that sewage and stormwater are combined in the same pipes for conveyance to the OSP and SEP. Instead, the DEIR assesses these waste streams separately.

After committing these legal errors, the DEIR bases its conclusion that water quality impacts will be less than significant on two errors of law: the relatively small change in Project-generated increases in sewage and stormwater discharges (i.e., the "ratio theory") and reliance on another agency's regulatory program.

4 cont.

The DEIR fails to describe the severely degraded water quality conditions at San Francisco's beaches.

The SFPUC, in cooperation with the San Francisco Department of Public Health, routinely monitors shoreline bacteria (i.e., total coliform, e. coli or enterococcus) at 16 stations around the perimeter of San Francisco where water contact recreation occurs, including additional monitoring whenever a treated discharge from the City's combined sewer system occurs that affects a recreational beach. When monitoring shows that bacterial contamination exceeds state health standards, the affected beach is "posted" to discourage water contact recreation.

The SFPUC's beach water quality monitoring data from January of 2016 through June of 2020 shows that between January of 2016 and June of 2020, there were 131 days on which at least one ocean side beach was posted for exceeding state health standards for any of the three types of bacteria tested; 333 days on which at least one bay side beach was posted, and 464 days

5

on which at least one SF beach was posted.[1]

Figures 1 through 15, attached hereto, summarize the SFPUC's beach water quality monitoring data for the last 4 ½ years by presenting monthly totals of days on which San Francisco ocean side and bay side beaches exceeded state health standards for any of the three types of bacteria tested.[2] Figures 1 through 5 show monthly totals for San Francisco ocean side beaches between January 1, 2016, and June 30, 2016. Figures 6 through 10 show monthly totals for San Francisco bay side beaches for the same period. Figures 11 through 15 show monthly totals for San Francisco ocean and bay side beaches in this period.

- Blue bars show the number of days when at least one beach was posted for at least one exceedance of a state health standard.
- Yellow bars show the number of beach postings for exceedances of state health standards or due to combined sewer system (CSS) overflow.
- Red bars show the number of exceedances of any state health standard at any beach.

Table 2 [Summary of Figures 1-15]

January 1, 2016, through June 30, 2020	**Days when at least one beach was posted for at least one exceedance of a state health standard [Blue Bars]**	**Beach postings for exceedances of state health standards or due to combined sewer system (CSS) overflow [Yellow Bars]**	**Red bars show the number of exceedances of any state health standard at any beach [Red Bars]**
Ocean Side beaches	131	210	298
Bay Side beaches	333	546	936
Ocean and Bay Side beaches	464	756	1,234

Remarkably, the DEIR also fails to disclose that the waters of San Francisco Bay are listed as impaired for bacterial contamination under section 303(d) of the Clean Water Act, or that in 2016, the State Water Resources Control Board adopted a Total Maximum Daily Load for

5 cont.

[1]The SFPUC's raw water quality monitoring data for this time period is attached hereto as Exhibit 12.

[2]Ocean side beaches are: Baker, China, Ocean, and Fort Funston. Bay side beaches are: Crissy Field, Aquatic Park, Mission Creek, Candlestick Point State Recreation Area, and Islais Creek.

bacterial contamination for the bay.[3] Thus, any discharge that exceeds the City's load allocation for bacterial contamination violates the Clean Water Act.

Thus, the current environmental setting (i.e., baseline) at San Francisco's ocean side and bay side beaches is one of severe environmental degradation. The DEIR ignores this elephant in the room.

5 cont.

The DEIR fails to describe severely dysfunctional regulatory setting of San Francisco's sewage treatment plants.

The Water Board regulates San Francisco's operation of the OSP and SEP through NPDES permits. The OSP is governed by NPDES Permit No. CA0037681, by way of Water Board Orders R2-2009-0062 and R2-2019-0028 (attached as Exhibits 4 and 5, respectively).[4] The permit for the SEP is NPDES Permit No. CA0037664; Order No. R2-2013-0029 (attached as Exhibit 6).[5]

The NPDES permits require the SFPUC to submit monthly and annual self-monitoring reports (SMRs) to the Water Board, by online upload to the California Integrative Water Quality System database (CIWQS). The SMRs include raw data regarding water quality and narrative cover letters. The cover letters describe any instances of non-compliance of the permit. The CIWQS database also includes notices of violations issued by the Water Board.

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[3]The Water Board's Order and Basin Plan Amendment to establish a TMDL for Bacteria at San Francisco bay beaches are attached as Exhibits 2 and 3, respectively.

[4]Order No. R2-2009-0062 for the OSP became effective on October 1, 2009, and expired on September 30, 2014. The Water Board continued this permit's effective period administratively until November 1, 2019. R2-2019-0028 for the OSP became effective on November 1, 2019, for discharges to waters of the state from the OSP near-shore combined sewer discharge locations. The U.S. EPA, however, did not approve the jointly-issued order until December 10, 2019, with an effective date of February 1, 2020, for discharges to waters of the United States from the OSP deep water outfall (Discharge Point 001), which is 3.4 to 3.6 nautical miles offshore. The 'SFPUC' is challenging certain permit conditions in Order No. R2-2019-0028. The uncontested permit conditions that govern discharges into federal waters became effective on March 9, 2020.
Although the uncontested permit conditions for state waters for Order No. R2-2019-0028 became effective on November 1, 2019, the monthly self-monitoring reports for November and December of 2019 indicate that they continued to assess compliance against the R2-2009-0068 Order for these months regardless.

[5]Permit No. CA0037664 (Order No. R2-2013-0029) for the SEP became effective on October 1, 2013, and remains in effect at this time.

Notices of violations are issued for certain instances of non-compliance and not for others, suggesting either inconsistent enforcement or the existence of unknown, unpublished enforcement criteria.

For example, on February 6, 2016, a member of the public reported a strong odor of sewage coming from the combined sewer system outfall at Vicente Street on Ocean Beach, as well as discovery of sewage overflowing into the street at Wawona and 46th Street. These instances violate the permit (Order No. R2-2009-0062, Section 3.A. Order Conditions) and should have been issued a notice of violation as an unauthorized discharge of untreated wastewater. While this instance of non-compliance is reported, the Water Board did not issue a notice of violation.

Another instance of unauthorized unanticipated discharge occurred on October 17, 2016, when approximately 8,011 gallons of combined treated stormwater and wastewater was discharged from the Seacliff 2 Pump Station Outfall. The Water Board issued a notice of violation for this event (violation ID No. 1022988 as subsequently reported to CIWQS). The same pattern is apparent at the SEP.

6 cont.

My office has reviewed the Water Board's enforcement files for the period 2008 to 2014 and the period January 2016 through June 2020 for the NPDES permits issued to the SFPUC for operation of the OSP and SEP. This review identified all instances recorded in these files when the SFPU's operation of the OSP or SEP failed to comply with the terms of the applicable NPDES permit, including instances for which the Water Board issued a notice of violation and instances for which the Water Board did not issue a notice of violation.

Table 3 shows the total number of instances of non-compliance and notices of violations at each plant recorded in these files for the period between January 1, 2016, and June 30, 2020.

Table 3

Plant	Instances of Non-Compliance	Notices of Violation
OSP	71	8
SEP	100	36
Totals	1701	44

Exhibits 10 and 11 show all instances of non-compliance at the OSP and SEP recorded in these files for the period between January 1, 2016, and June 30, 2020.[6] The documents from the

[6]Exhibit 9 shows all instances of non-compliance with then applicable NPDES permits at the OSP and SEP recorded in the Water Board's enforcement files for the period between 2008 and 2014. The supporting documentation referenced in Exhibit 9 as "Ex #" is not included in this letter, but is available upon request.

Water Board's enforcement files evidencing these instances of non-compliance are attached as Exhibit 13, for the OSP, and Exhibit 14, for the SEP, and are referenced as such in Exhibits 10 and 11.

In short, for at least the past 10 plus years (i.e., the only period studied), San Francisco has consistently failed to comply with its NPDES permits for the OSP and SEP plants, including permit terms limiting bacterial contamination in the OSP's effluent discharges to the ocean and the SEP's effluent discharges to the bay.

6 cont.

The U.S. EPA sent two Notice of Violation letters to San Francisco in the fall of 2019 detailing the most egregious violations of federal and state water pollution control laws due to bacterial contamination. These letters are attached as Exhibits 7 and 8.

Remarkably, and egregiously, the DEIR ignores all of this. Therefore, the DEIR must be revised and recirculated to include an analysis of Project impacts on beach water quality based on these required categories of information to inform meaningful public comment.

The DEIR's reliance on the "ratio theory" is an error of law.

As discussed above, regardless of the DEIR's assertion that the OSP has sufficient *dry weather capacity* to meet current and projected demand, and regardless of the fact that San Francsico's CSS is regulated by NPDES permits enforced by the Water Board, there are many days every year when bacterial contamination in the waters at San Francisco beaches exceeds state health standards.

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The DEIR's reliance on the relatively small increases in Project-generated sewage to be conveyed to the OSP and the relatively small increases in Project-generated stormwater to be conveyed to the OSP and SEP to conclude that the Project's water quality impacts are less than significant are errors of law. (*Communities For a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 114 ["the guiding criterion on the subject of cumulative impact is whether any additional effect caused by the proposed project should be considered significant given the existing cumulative effect"]; *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 718.)[7]

[7] The decision in *Kings County* repudiates the "ratio theory," stating:
The [ ] EIR concludes the project's contributions to ozone levels in the area would be immeasurable and, therefore, insignificant because the [cogeneration] plant would emit relatively minor amounts of [ozone] precursors compared to the total volume of [ozone] precursors emitted in Kings County. The EIR's analysis uses the magnitude of the current ozone problem in the air basin in order to trivialize the project's impact ... The relevant question to be addressed in the EIR is not the relative amount of precursors emitted by the project when compared with

The DEIR's reliance on San Francisco's NPDES permits is an error of law.

The DEIR to find that water quality impacts are less than significant based on the NPDES regulatory program, especially where, as here, that regulatory program is failing to prevent severe environmental harm, is another error of law. (*Ebbetts Pass Forest Watch v. California Dept. of Forestry and Fire Protection* (*Ebbetts Pass*) (2008) 43 Cal.4th 936, 957 (error to conclude that compliance with pesticide restrictions precludes significant impact); *Californians for Alternatives to Taxies v. Department of Food & Agriculture* (2005) 136 CaL.App.4th 1, 16.)

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Thank you for your attention to this matter.

Very Truly Yours,

Tom Lippe

Thomas N. Lippe

Attached Figures

1-5: Monthly totals for San Francisco ocean side beaches between January 1, 2016, and June 30, 2016, of days on which San Francisco ocean side beaches exceeded state health standards for any of the three types of bacteria tested.

6-10: Monthly totals for San Francisco bay side beaches between January 1, 2016, and June 30, 2016, of days on which San Francisco bay side beaches exceeded state health standards for any of the three types of bacteria tested.

11-15: Monthly totals for San Francisco ocean and bay side beaches between January 1, 2016, and June 30, 2016, of days on which San Francisco ocean side and bay side beaches exceeded state health standards for any of the three types of bacteria tested.

Exhibits

1. Letter dated September 10, 2020, from Dr. Larry Russel.

2. California Regional Water Quality Control Board San Francisco Bay Region Resolution No. R2-2016-0021 Amending the Water Quality Control Plan for the San Francisco Bay

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preexisting emissions, but whether any additional amount of precursor emissions should be considered significant in light of the serious nature of the ozone problems in this air basin.

(*Kings County, supra*, 221 Cal.App.3d at 718).

Basin to Establish a Total Maximum Daily Load and Implementation Plan for Bacteria in San Francisco Bay Beaches.

3. Basin Plan Amendment to Establish a Total Maximum Daily Load and Implementation Plans for Bacteria at San Francisco Bay Beaches.

4. Order No. R2-2009-0062; NPDES No. CA0037681: Waste Discharge Requirements for the City and County of San Francisco Oceanside Water Pollution Control Plant (Southwest Ocean Outfall) and Collection System, Including the Westside Wet Weather Facilities.

5. Order No. R2-2019-0028; NPDES No. CA0037681: Waste Discharge Requirements and National Pollutant Discharge Elimination System Permit for City and County of San Francisco Oceanside Water Pollution Control Plant, Wastewater Collection System, and Westside Recycled Water Project.

6. Order No. R2-2013-0029; NPDES No. CA0037664: Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities, and Wastewater Collection System.

7. United States Environmental Protection Agency; Notice of Violation of National Pollutant Discharge Elimination System permits. October 2, 2019.

8. United States Environmental Protection Agency; Response Regarding Notice of Violation of National Pollutant Discharge Elimination System permits. November 21, 2019.

9. Summary of San Francisco NPDES Permit Violations: 2008-2014.

10. Summary of San Francisco Oceanside Treatment Plant NPDES Permit Violations: 2016-2020.

11. Summary of San Francisco Southeast Treatment Plant NPDES Permit Violations: 2016-2020.

12. SFPUC Beach Water Quality Monitoring data.

13. Selected San Francisco Regional Water Quality Control Board enforcement files for the period January 2016 through June 2020 for the NPDES permits issued to the SFPUC for operation of the Oceanside Treatment Plant (OSP).

14. Selected San Francisco Regional Water Quality Control Board enforcement files for the period January 2016 through June 2020 for the NPDES permits issued to the SFPUC for operation of the Southeast Treatment Plant (SEP) .

EXHIBIT 1

REED CORPORATION

2140 Shattuck Avenue, Suite 209
Berkeley, CA 94704
(510) 549-2427
Fax (510)-232-3796

September 10, 2020

Law Offices of Thomas N. Lippe APC
201 Mission St., 12th Floor
San Francisco, CA 94105

ATTN: Tom Lippe, Esquire

Subject: Draft Comment on the UCSF-CPHP-Draft-EIR

Dear Mr. Lippe:

My name is Dr. Larry L. Russell, P.E.,T3 and my C.V. is attached as Appendix A. As with many environmental issues, the impacts of a development of over 2,000,000 square feet of new buildings are many fold. The potential impacts on the environmental compliance under the City of San Francisco Oceanside sewage treatment plant of adding this level of discharge are relatively straightforward. While the average dry weather flow of the treatment facility is reported to be 17 million gallons per day (MGD) and the design capacity is reported to be 43 MGD, the issue as shown by the water quality monitoring done by the City shows that there have been numerous violations of the National Pollution Discharge System (NPDES) expired permit, especially during the winter quarters. These violations have been noted and reported to the City by the Environmental Protection Agency (EPA) and are the subject of future (and present) enforcement actions (November 21, 2019, Notice of Violation October 2, 2019).

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The EPA sternly reminded the City that the EPA CSO policy does not relieve them of their responsibility to meet all applicable Water Quality Standards (WQS) during CSO events. The EPA reminded the City that its CSO discharges occur in sensitive areas at Ocean Beach, China Beach and Baker Beach. The EPA also reminded the City that while in 1994 they were ahead of the CSO compliance curve, after 25 years, the City is well behind the nationwide compliance curve standards for CSO's. The EPA also made it painfully clear that the City is not even close to meeting the required 85 percent treatment levels required today for allowing CSO discharge, nor are the Beach WQS being met during events that were predicted to occur four to six times per year, but actually occur over 20 times per year releasing over 1.5 billion gallons of raw to partially treated but un-disinfected sewage into the beach receiving waters.

The NOV reported the following violations (edited for brevity) as follows:

1. Failure to properly operate and maintain its facilities including the associated collection systems...

2. Failure to comply with wet weather operational requirements to maximize use of the collection system for storage and to maximize flows to treatment plants...

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3. Failure to post warning signs when public contact with wastewater could reasonably occur...

4. Failure to comply with reporting and record keeping requirements related to releases or diversions of untreated or partially-treated sewage from the combined sewer system...

5. Failure to comply with CSD [combined sewage discharge] monitoring and reporting...

6. Failure to notify the public of CSDs...

7. Failure to comply with water quality standards...

These Combined Sewer Overflows (CSO) discharges result from the impact of over loaded and aged sewage collection system that results in CSO's during wet weather which results in high wastewater flows. The problem with CSO's are many fold. First, a CSO occurs whenever the collection system and/or the treatment plant is (are) overwhelmed by the quantity of sewage that is moving through that section of pipe or the treatment plant. Second, a CSO results in the discharge of untreated sewage and all of its constituents without treatment or disinfection. These CSO discharges enter the watershed and henceforth into the Ocean and onto the City's beaches and other areas, which are used for recreation.

10 cont.

While there is a Total Maximum Daily Load (TMDL) for coliform bacteria in the Bay (which the City is also violating at the Southeast Plant), the Oceanside plant's NPDES permit in reality can be conceived as acting in a manner similar to a San Francisco Bay TMDL for bacteria (the Bay TMDL could also apply if UCSF (or the City) decide to route their wastewater to the Southeast Wastewater treatment plant which is also troubled with CSO issues). When a CSO occurs, the NPDES permit is violated when the Beaches receive the un-disinfected wastewater containing excessive coliform levels that are above the California Ocean Plan standards (summarized in Appendix B), resulting in a potentially significant impact on human and aquatic health.

How does all of this impact UCSF expansion plans? As noted previously, the UCSF EIR calls for the discharge of an additional 180,000 gpd (likely an underestimate) into a frequently overloaded sewage system. Under the TMDL concept and enforcement process, it is illegal to discharge any contaminants regulated by the TMDL into an already impaired water body (under section 503), which is exactly what the City is doing when the CSO's occur and cause the receiving water to violate the State's WQS. Therefore, adding more sewage to this already over taxed collection and treatment system during wet weather events, simply makes the situation worse. The intent of the EPA NOV letter is clear. It is clear that enforcement action (which could include hook up moratoriums) is coming in the very near future. It is possible that the enforcement action may include a prohibition on additional sewer hook ups until the CSO issue is addressed, by incorporation of the concept of the City's Article 12 C.

11

Therefore, due to the obvious impact of the coming enforcement action, the proposed project should not proceed without significant wastewater/storm water mitigation controls. The basic mitigation that should occur would begin with voluntary compliance with the City's Article 12 C, which requires all large developments over 250,000 square feet to incorporate grey (and or black) water treatment systems and recycle into their design. In addition to providing recycled water for toilet flush, Article 12 C incorporates design improvements to provide 24 hour storm and grey water on-site storage to allow for the delayed discharge of the development's grey water into the City's combined sewage collection system. It should also be noted that the UCSF EIR includes the replacement of the on-site 180,000 gallon water storage tanks, without comment on their cost or any anticipated difficulties with re-

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constructing essentially the same size tanks that would be required to store the grey/black wastewater from the facility.

12 cont.

An additional consideration that should be taken into account regarding CSO discharges is that they occur in the surf zone on the recreational beaches of the western side of San Francisco. Thus, during a CSO, the low density (low salinity) untreated sewage is discharged at the ocean's surface where it floats. Therefore, the un-disinfected untreated wastewater floats onto the beaches and is slowly mixed into the water column by wave action rather than having the treated and disinfected wastewater being discharged via an outfall diluted with diffusers which result in substantial dilution into the water column offshore.

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The proposed UCSF project increases impervious surface area from 21.5 to at least 22.5 acres. This increase should be considered to be "cumulatively considerable". The critical issue is that UCSF is still thinking of storm water as a "waste" that should be removed from the property, as soon as possible, instead of thinking of stormwater, as a resource. The 22.5 acres of impervious land based on normal SF rainfall (21 inches) results in the potential to allow for easily collecting and reusing approximately 13 million gallons (per year) of very fresh water that only requires storage and minimal treatment to be easily recycled as toilet flush water (this supply would eliminate the need for approximately 20 percent of their estimated fresh water needs). Combined with grey water recycling, UCSF could likely reduce their fresh water demand by more than 50 percent (and perhaps more than 90 percent depending upon how seriously UCSF approach the incorporation of state of the art grey and black water recycling).

Normally the operation of these onsite systems include onsite reuse of the treated grey water to flush toilets and urinals. If due to perceived health concerns UCSF is unwilling to install dual plumbing systems (which would be a mistake not to do in the long run as the additional construction cost of dual plumbing is minimal during initial construction), then UCSF should look to the onsite treatment of the their black and grey water and on site storage of at least 180,000 gallons and reuse in Golden Gate Park (1,000 feet down hill from the Parnassus facility and owned by the City) or pumped to the existing housing complex at the UCSF Parnassus campus to be recycled there.

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Thus fresh water demand at the UCSF facility would be dramatically reduced and uncontrolled sewage discharge into the City's sewer system could be essentially eliminated at minimal additional expense to the UCSF campus. The generated wastewater and storm water management resulting from this expansion project on the City's potential for increasing the potential for increasing the magnitude and frequency of violations of the City waste discharge requirements is significant, and these impacts require mitigation. At the very minimum UCSF should agree to be bound by the conditions of the City's Article 12C which requires gray and storm water collection, retention, and recycling for buildings larger than 250,000 square feet in size.

Regards,

Larry L. Russell, Ph.D., P.D., G3
President

REGISTERED PROFESSIONAL ENGINEER
LARRY L. RUSSELL
No. 27274
Exp. 3/31/20
CIVIL
STATE OF CALIFORNIA

Responses to Comments from Law Offices of Thomas N. Lippe, APC

O-TL3-1 The commenter indicates that beach water quality is an "important component of the Project's affected environment" and should be assessed in the EIR. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-2 The commenter cites several sections of the Draft EIR, noting that the document assesses the impact of about 0.18 million gallons per day (mgd) of additional wastewater by considering whether additional treatment capacity would be needed, the construction of which might have secondary impacts, and assesses the significance of additional stormwater flows due to increased impervious surfaces by noting the small size of the increase and associated regulations and permits issued by the San Francisco Regional Water Quality Control Board. As this comment simply cites the Draft EIR, no response is required.

O-TL3-3 The commenter cites the Draft EIR indicating that increases in impervious surfaces outside the campus core would be subject to construction site runoff requirements in accordance with the City's Public Works Code and post-construction controls in compliance with the City's Stormwater Management Ordinance. The commenter then questions the magnitude of expected increases and the extent to which regulatory requirements would reduce Project-generated increases in runoff. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-4 The commenter suggests that the Draft EIR's reliance on the small magnitude of stormwater increases is inadequate, and identifies "legal deficiencies" with the analysis of "water quality, water recreation, and wastewater related public services." Summarizing, the commenter states that the Draft EIR fails to adequately describe the environmental setting, fails to describe the project in sufficient detail, fails to account for the City's combined sewer system, and improperly relies on the relatively small size of the environmental change and regulatory requirements of another agency. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-5 The commenter provides data regarding beach water quality for ocean side and bay side beaches in San Francisco, indicating that "the current environmental setting (i.e. baseline) at San Francisco's ocean side and bay side beaches is one of severe environmental degradation," which should have been noted in the Draft EIR. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-6 The commenter provides data regarding beach water quality for ocean side and bay side beaches in San Francisco, indicating that "the current environmental setting (i.e. baseline) at San Francisco's ocean side and bay side beaches is one of severe environmental degradation," which should have been noted in the Draft EIR. Please see Master Response 12: Stormwater, Wastewater, and Water

Quality. The commenter describes the NPDES permits by which the Water Board regulates San Francisco's treatment plants, as well as instances of non-compliance and notices of violation, concluding "for at least the past 10 plus years… San Francisco has failed to comply with its NPDES permits… including permit terms limiting bacterial contamination" in discharges to the ocean and the bay. The commenter also provides two Notices of Violation sent by the US EPA in the fall of 2019, and suggests that the Draft EIR "must be revised and recirculated to include an analysis of Project impacts on beach water quality...." Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-7 The commenter objects to the Draft EIR's reliance on the small size of increases in stormwater and wastewater generated by the project, citing two court decisions. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-8 The commenter objects to the Draft EIR's reliance on San Francisco's conformance with NPDES permits, which he suggests are "failing to prevent severe environmental harm," citing two court decisions. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-9 The commenter refers to "the potential impacts on the environmental compliance under the City of San Francisco Oceanside sewage treatment plant" and describes violations reported to the City by the US EPA. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-10 The commenter summarizes the US EPA's notices of violation issued to City in 2019, describes the occurrence of Combined Sewer Overflows (CSOs), and coliform bacteria levels posing "a potentially significant impact on human and aquatic health." Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-11 The commenter suggests that by adding a small amount of additional discharges to the City's sewer system, UCSF "simply makes the situation worse" and that the US EPA is likely to take enforcement actions in the future. Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-12 The commenter suggests that UCSF's project should include "significant wastewater/stormwater mitigation controls" including incorporation of wastewater recycling and reuse and delayed discharge. The commenter also notes that the water storage tanks proposed for replacement by UCSF are "essentially the same size tanks that would be required to store the grey/black wastewater from the facility." Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-13 The commenter indicates that CSOs occur near the beach where they are slowly mixed into the water column, rather than treated and disinfected discharges which

occur "via an outfall diluted with diffusers." Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

O-TL3-14 The commenter suggests that the increase in impervious surfaces due to the CPHP should be considered "cumulatively considerable" and can be addressed by collecting and reusing stormwater. If UCSF is not willing to install dual plumbing, the commenter suggests that the recycled water could be provided for reuse in Golden Gate Park or at "the existing housing complex" at Parnassus Heights, and at a minimum, UCSF should "agree to be bound by the conditions of the City's Article 12C which requires gray and storm water collection, retention, and recycling for buildings large than 250,000 square feet in size." Please see Master Response 12: Stormwater, Wastewater, and Water Quality.

Please note Comment Letter O-TL-3 contained several figures (Figures 1 through 15) and exhibits (Exhibits 1 through 14) which did not comment directly on the Draft EIR. These figures and exhibits are included in Appendix O-TL3 in this Comments and Responses document.

Law Offices of
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September 11, 2020

By Email: *EIR@ucsf.edu*
Ms Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Comprehensive Parnassus Heights Plan Draft Environmental Impact Report: Comments on Air Quality.

Dear Ms Wong:

This office represents San Franciscans for Balanced and Livable Communities (San Franciscans), a citizen's group composed of San Francisco residents. I write on its behalf to comment on the Draft Environmental Impact Report (DEIR) for the Comprehensive Parnassus Heights Plan (CPHP) with respect to its analysis of Project impacts on air quality.

San Franciscans objects to the approval of this Project. The DEIR fails to comply with the California Environmental Quality Act (CEQA) for the reasons described below and in my previous letters dated yesterday and today and submitted today. 1

1. The DEIR's Cancer Risk Impact Assessment Is Based on Legal Errors and Not Supported by Substantial Evidence.

a. The DEIR's thresholds of significance for cancer risk.

The DEIR establishes a threshold of significance for toxic air contaminant (TAC) related cancer risk as follows: "Exceed the LRDP EIR standard of significance by exposing receptors to toxic air contaminant emissions that (1) result in a cancer risk greater than 10 cancer cases per 1 million people exposed in a lifetime...." The DEIR also establishes more general threshold of significance, as follows: "Expose sensitive receptors to substantial pollutant concentrations." (DEIR 4.2-19 [pdf 233].) 2

The DEIR elaborates on the TAC-caused cancer risk as follows:

> In addition to criteria air pollutants, individual projects may emit TACs during construction and operation. As part of assessment of Initial Phase projects, a HRA [Health Risk Assessment] was conducted to provide quantitative estimates of health risks from exposures to TACs.

CEQA provides the lead agency with discretion in selecting significance

> thresholds for the purposes of assessing impacts. For the analysis of health risk and localized impacts, UCSF uses quantitative significance thresholds adopted by BAAQMD [Bay Area Air Quality Management District]. These thresholds are based on substantial evidence identified in Appendix D of the 2017 BAAQMD CEQA Guidelines and its 2009 Justification Report. These thresholds were applied for the analysis of health risk and localized impacts in the Final EIR for the 2014 UCSF Long Range Development Plan and are also applied in this document. Specifically, if a proposed project would result in increased cancer risks exceeding 10 in one million or, a hazard index exceeding 1.0 or a localized PM2.5 concentration exceeding 0.3 ìg/m3 then it would be considered to result in a significant impact with regard to exposure of sensitive receptors to substantial pollutant concentrations. The 0.3 ìg/m3 PM2.5 concentration and the excess cancer risk of 10.0 per million persons exposed are the levels below which BAAQMD considers new sources not to make a considerable contribution to cumulative health risks (BAAQMD, 2017a).
>
> As described by BAAQMD, USEPA considers a cancer risk of 100 per one million or less to be within the "acceptable" range of cancer risk. A cumulative cancer risk of 100 in one million is also used by the City of San Francisco for projects within its jurisdiction to determine the location of APEZ's. Therefore, a *cumulative increase* in cancer risk from all sources would occur if the total of all risks exceeds in one million [sic].

2 cont.

(DEIR 4.2-24 [pdf 238] (italics added).)

The last sentence of this passage appears to have a missing word. Presumably it is supposed to read "the total of all risks exceeds *100* in one million." It is also not clear what the DEIR means when it states that "a cumulative increase" in cancer risk would occur. Presumably it means that "cumulatively *considerable* increase in cancer risk from all sources would occur if the total of all risks exceeds *100* in one million."

For the Project's cumulative cancer risk impact, the DEIR confirms that it uses a threshold of 100 per one million, stating:

> As discussed above, cumulative health risks are analyzed in accordance with BAAQMD's threshold and guidance. As described by BAAQMD considers a cancer risk of 100 per one million or less to be within the "acceptable" range of cancer risk.

(DEIR 4.2-24 [pdf 238] (italics added).)

b. The DEIR's description of the existing conditions (i.e., baseline) for cancer risk.

The DEIR describes the existing conditions (i.e., baseline) for TAC related cancer risk from ambient concentrations of carcinogenic toxic air contaminants as 248.3 cases per million. (DEIR 4.2-10 [pdf 224].)

The DEIR describes the existing conditions (i.e., baseline) for TAC related cancer risk from diesel particulates (DPM) as 480 in one million in the year 2000 in the Bay Area; and 520 in one million in the year 2012 statewide. (DEIR 4.2-11 [pdf 225].) The DEIR indicates that in 2000, CARB approved a Diesel Risk Reduction Plan that it anticipated would result in an 80 percent decrease in statewide diesel health risk in 2020 as compared with the diesel risk in 2000. The DEIR does not disclose what the statewide diesel risk was in 2000, so it is not possible to calculate what an 80% reduction would look like in 2020. The DEIR also does not disclose what the statewide diesel risk is in 2020. 3

The EIR's description of the DPM baseline risk is insufficient because it is not current as of the date of the Notice of Preparation of the EIR.

c. The DEIR's impact assessment for cancer risk is based on legal error and not supported by substantial evidence.

(1) The DEIR's assessment of the Project's incremental increased cancer risk is based on legal error and not supported by substantial evidence.

The DEIR's impacts analysis concludes that the Project's incremental and cumulative increased cancer risk impacts are less than significant. These conclusions are based on errors of law and are not supported by substantial evidence.

The DEIR's threshold of significance for the Project's incremental cancer risk impact is any increase in cancer risk over 10 cases per million. The DEIR borrows this threshold from the BAAQMD CEQA Guidelines and then deploys it without regard for the extreme baseline cancer risk in San Francisco. The DEIR thereby commits the fundamental error of failing to add the Project's effects to the baseline for purposes of determining significance. (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 722-723; *Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal.App.4th 859, 881-882.) 4

In addition to this fundamental legal error, the DEIR's use of this threshold regardless of baseline cancer risk is not supported by substantial evidence. The baseline cancer risk in San Francisco is 248.3 cases per million plus the unquantified DPM related risk. The DEIR's uncritical use of the 10 cases per million BAAQMD threshold implies that an increase of less than 10 cases per million is always less than significant, regardless of the baseline risk, which

presumably is very different in rural suburban parts of the Bay Area (e.g., Blackhawk) than it is in San Francisco. There is no substantial evidence to support this implicit factual finding.

There is no substantial evidence to support this implicit factual finding because the BAAQMD threshold is a policy, based on a value judgment, not a finding of fact based on evidence. This violates CEQA. Determinations of significance must be based on evidence, not value judgments and policy. (*Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1108–1109 (*Amador Waterways*) ["such thresholds cannot be used to determine automatically whether a given effect will or will not be significant"].)

Here, other than pointing to the BAAQMD threshold, the DEIR fails to explain why the Project's admitted incremental increase in cancer risk is not significant given that it is being added to a severe baseline cancer risk. "[I]n preparing an EIR, the agency must consider and resolve every fair argument that can be made about the possible significant environmental effects of a project, irrespective of whether an established threshold of significance has been met with respect to any given effect." (*Amador Waterways, supra,* 116 Cal.App.4th at 1109.)

4 cont.

(2) The DEIR's assessment of the Project's cumulative increased cancer risk is based on legal error and not supported by substantial evidence.

As discussed above, for the Project's cumulative increased cancer risk, the DEIR uses threshold of any exceedance of 100 cases per one million because "BAAQMD considers a cancer risk of 100 cases per one million or less to be within the 'acceptable' range of cancer risk." (DEIR 4.2-24 [pdf 238],) The DEIR also confirms this on page 4.2-27, stating:

> As discussed above, cumulative health risks are analyzed in accordance with BAAQMD's threshold and guidance. As described by BAAQMD considers a cancer risk of 100 per one million or less to be within the "acceptable" range of cancer risk.

Assuming *arguendo* that this is an appropriate threshold for assessing whether the Project's cumulative cancer risk impact is significant, the DEIR fails to apply it. After stating this threshold on DEIR pages 4.2-24 and page 4.2-27, the DEIR shiftily alters the threshold on page 4.2-70, stating:

> Because the cumulative increase in cancer risk from all sources would be well below 100 in one million ... the CPHP's cumulative impact to local health risk and hazards would be reduced to less than significant with identified mitigation.

Thus, instead of considering any resulting cancer risk above 100 cases per one million to be significant, the DEIR shifts to requiring that the cumulative "increase" in cancer risk contributed by the Project in combination with other projects exceed 100 cases per one million to

5

be found significant. This shift reflects several legal errors. 5 cont.

First, the DEIR is just plain confusing as to what the cumulative threshold is, which frustrates meaningful public comment. Therefore, the DEIR must be revised and recirculated using a clear and stable cumulative threshold. 6

Second, the threshold as employed on page 4.2-70 (for both construction and operation) suffers the same legal defect as the incremental standard, i.e., it is employed without regard to the baseline cancer risk. The baseline cancer risk in San Francisco is 248.3 cases per million plus the unquantified DPM caused risk. According BAAQMD and this DEIR, this baseline risk is "unacceptable." The cumulative increase in cancer risk contributed by the Project in combination with other projects will make this existing severe condition worse. Other than pointing to the BAAQMD threshold, the DEIR fails to explain why the Project's admitted cumulative increase in cancer risk is not significant given that it is being added to a severe baseline cancer risk. (*Communities For a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 114 ["the guiding criterion on the subject of cumulative impact is whether any additional effect caused by the proposed project should be considered significant given the existing cumulative effect"]; *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 718.)[1] 7

This legal error is illustrated by considering the math. According the DEIR, the threshold of a cumulative *increase* of 100 cases per million applies regardless of baseline risk. Thus, a project with a baseline cancer risk of 50 cases per million would need a post-project cancer risk of 150 cases per million for the cumulative impact to be deemed significant, while a project with a baseline cancer risk of 100 cases per million would need a post-project cancer risk of 200 cases per million for the cumulative impact to be deemed significant. Thus, a project with the higher baseline risk (100 per million) *would not be deemed* to have a significant cumulative impact with a post-project cancer risk of 150 cases per million, but a project with the lower baseline risk (50 per million) *would be deemed* to have a significant cumulative impact with a post-project cancer 8

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[1] The decision in *Kings County* repudiates the "ratio theory," stating:

> The [ ] EIR concludes the project's contributions to ozone levels in the area would be immeasurable and, therefore, insignificant because the [cogeneration] plant would emit relatively minor amounts of [ozone] precursors compared to the total volume of [ozone] precursors emitted in Kings County. The EIR's analysis uses the magnitude of the current ozone problem in the air basin in order to trivialize the project's impact ... The relevant question to be addressed in the EIR is not the relative amount of precursors emitted by the project when compared with preexisting emissions, but whether any additional amount of precursor emissions should be considered significant in light of the serious nature of the ozone problems in this air basin.

(*Kings County, supra*, 221 Cal.App.3d at 718).

risk of 150 cases per million.

In short, the widely repudiated "ratio theory" in which "the greater the overall problem, the less significance a project has in a cumulative impacts analysis" is embedded in the threshold of significance applied by the DEIR to the Project's cumulative cancer risk impact. (*Kings County, supra*, 221 Cal.App.3d 692, 721 ["We find the analysis used in the EIR and urged by GWF avoids analyzing the severity of the problem and allows the approval of projects which, when taken in isolation, appear insignificant, but when viewed together, appear startling. Under GWF's "ratio" theory, the greater the overall problem, the less significance a project has in a cumulative impacts analysis"].)

8 cont.

Needless to day, the environmental justice implications of the DEIR's use of this threshold are dire.

Third, like the incremental threshold, the cumulative threshold, represents a value judgement, not a threshold for making a factual findings based on evidence. And this is true for both the DEIR's initial formulation of the threshold as a post-project condition in which cancer risk exceeds 100 cases per one million, and its later formulation of the threshold as the cumulative increase in cancer risk contributed by the Project in combination with other projects exceeds 100 cases per one million.

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CEQA neither requires nor allows the DEIR to use the BAAQMD's or EPA's judgment of "acceptable" cancer risk to determine the significance of the Project's impacts. UCSF's discretion to decide that significant environmental harm is "acceptable" in light of the project's benefits arises at the end of the CEQA analysis, in the context of a statement of overriding considerations, not at the beginning of the process, in determining whether impacts are significant.

> A statement of overriding considerations is required, and offers a proper basis for approving a project despite the existence of unmitigated environmental effects, only when the measures necessary to mitigate or avoid those effects have properly been found to be infeasible. (Pub. Resources Code, § 21081, subd. (b).) Given our conclusion the Trustees have abused their discretion in determining that CSUMB's remaining effects cannot feasibly be mitigated, that the Trustees' statement of overriding circumstances is invalid necessarily follows. CEQA does not authorize an agency to proceed with a project that will have significant, unmitigated effects on the environment, based simply on a weighing of those effects against the project's benefits, unless the measures necessary to mitigate those effects are truly infeasible. Such a rule, even were it not wholly inconsistent with the relevant statute (id., § 21081, subd. (b)), would tend to displace the fundamental obligation of "each public agency [to] mitigate or avoid the significant effects on the environment of projects that it carries out or approves

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whenever it is feasible to do so" (id., § 21002.1, subd. (b)).

City of Marina v. Board of Trustees of the California State University (2006) 39 Cal.4th 341, 368-69.

This is a critical distinction, because where the Project does not exceed thresholds of significance that are erroneously inflated by the concept of "acceptable risk," UCSF is absolved of further legal obligation to mitigate the impact. As a result, the public cannot know whether UCSF will allow an unknown number of cancer cases to occur that it could have feasibly avoided had it scrupulously followed CEQA. Nor does the public know, had the EIR determined the Project's additional cancer risk is significant, whether or not UCSF would have found the Project's benefits outweigh its environmental and adverse human health effects.

10 cont.

Thank you for your attention to this matter.

Very Truly Yours,

Tom Lippe

Thomas N. Lippe

C005c DEIR AQ.wpd

Responses to Comments from Law Offices of Thomas N. Lippe, APC

O-TL4-1 In this introductory comment, the commenter states that the Draft EIR fails to comply with CEQA for the reasons set forth in the nine comments that follow. Please refer to the individual comment responses below which clearly show that the Draft EIR fully complies with CEQA.

O-TL4-2 This comment asks for clarification regarding the significance criteria applied in the Draft EIR and discussed on page 4.2-24 to evaluate the cumulative health risk from TAC emissions associated with the proposed CPHP, and suggests a text revision to clarify it.

The recommended revisions to the last sentence of the fourth paragraph on page 4.2-24 of the Draft EIR are noted. Please refer to Section 8.5 of this Comments and Responses document for the proposed revisions.

O-TL4-3 The commenter states that the Draft EIR does not disclose what the statewide diesel particulate matter (DPM) risk was in 2000 or is predicted to be in 2020 and as such the DPM baseline in the Draft EIR is not sufficiently established.

The California Air Resources Board (CARB) has published projected trends of DPM emissions for the San Francisco Bay Area Air Basin.[6] Based on this latest trends document, basin-wide emissions of DPM are predicted to decrease from 10 tons per day in 2000 to 2 tons per day in 2020, an 80 percent reduction. As stated on page 4.2-11 of the Draft EIR, as of 2000, the average Bay Area cancer risk from exposure to DPM based on a population-weighted average ambient DPM concentration was approximately 480 in one million. Consequently, one may expect that the current (2020) basin-wide risk solely from DPM to be on the order of 96 in one million. Other toxic air contaminant emissions within the basin will further contribute to this estimated risk. These basin-wide risks are also inclusive of transport emissions from outside the basin. Consequently, BAAQMD methodology established the 100 in one million increased cancer risk criterion to only apply to sources within 1,000 feet of a given receptor[7].

However, as the impact analysis in Impact C-AIR-2 in the Draft EIR uses the BAAQMD's recommended cumulative contribution significance criterion of 100 in one million, the predicted existing risk levels attributable solely to DPM are not a factor in the impact assessment of the Draft EIR.

O-TL4-4 This comment contends that the Draft EIR's significance criteria for the CPHP's incremental cancer risk of 10 in one million is inappropriate because it does not

6 California Air Resources Board, *California Almanac of Emissions and Air Quality—2013 Edition*, 2013, Table 4-16. Available at https://ww2.arb.ca.gov/our-work/programs/resource-center/technical-assistance/air-quality-and-emissions-data/almanac-4.

7 BAAQMD, 2009. *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October, 2009, p. 5.

consider the baseline cancer risk in San Francisco and also claims that it is not supported by substantial evidence. Under CEQA, lead agencies have discretion in determining the appropriate threshold of significance to determine the severity of a particular impact. "A threshold of significance is an identifiable, quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." (CEQA Guidelines, § 15064.7 subd. (a).) CEQA Guidelines further state, "When adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence." (CEQA Guidelines, § 15064.7 subd. (c.)

As lead agency, the University of California has discretion to rely on BAAQMD's recommended thresholds of significance and the use of those thresholds is supported by substantial evidence. In consideration of State and federal air quality standards, and based on its own independent review of thresholds of significance for air quality impacts recommended by the BAAQMD, UCSF has determined that BAAQMD's recommended significance thresholds are appropriate to use to evaluate potentially significant air quality impacts associated with the proposed project. While others may disagree, such disagreement does not alter the fact that UCSF, and BAAQMD's expert conclusions developed in its 2009 document *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance* referenced in the Draft EIR (pp. 4.2-22 to 4.2-27) constitute substantial evidence upon which UCSF may rely. (See *Center for Biological Diversity v. Department of Forestry & Fire Protection* (2014) 232 Cal.App.4th 931, 948 ["disagreement is insufficient… [a challenger must] *affirmatively show* there was no substantial evidence in the record…" (original emphasis)].) BAAQMD's 2009 Justification Report develops and considers a variety of air quality thresholds and recommends numeric significance criteria that BAAQMD staff believe provide a fair share of emission reductions protective of human health from land use development.

The 10.0 in one million cancer risk criterion for a single source is supported by EPA's guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level. It is also the level set by the Project Risk Requirement in the Air District's Regulation 2, Rule 5 new and modified stationary sources of TAC, which states that the Air Pollution Control Officer shall deny an Authority to Construct or Permit to Operate for any new or modified source of TACs if the project risk exceeds a cancer risk of 10.0 in one million.[8] Similar to its thresholds for criteria air pollutants, which also do not

8 BAAQMD, 2017a. *CEQA Air Quality Guidelines*. May 2017, p. D-40.

require that existing background emissions be considered in evaluating the significance of a project's incremental emissions, the BAAQMD's excess cancer risk level of more than 10 in one million represents a significant cumulatively considerable contribution.[9]

With respect to a San Francisco-specific baseline, as stated on Draft EIR pages 4.2-8 to 4.2-9, the City and County of San Francisco partnered with BAAQMD to inventory and assess air pollution exposure from vehicles, stationary sources, and area sources within San Francisco. Citywide dispersion modeling was conducted to assess the emissions from the following primary sources: vehicles on local roadways, permitted stationary sources, port and maritime sources, and diesel emissions from Caltrain. Modeling results were used to identify areas in the city with poor air quality, which are designated as the *Air Pollutant Exposure Zone* (APEZ). The methodology and technical documentation for modeling citywide air pollution are available in a recently updated draft document entitled *San Francisco Citywide Health Risk Assessment: Technical Support Documentation*. (SFDPH, 2020). These most recent citywide modeling results indicate that the Parnassus Heights campus site and its surrounding area are not located within an APEZ. Therefore, the commenter's contention that the significance criterion of 10 in one million incremental cancer risk is inappropriate because the project site is in an area of high baseline risk is unfounded.

O-TL4-5 This comment contends that the cumulative health risk analysis of the Draft EIR only considers incremental contributions of the project with respect to application of the cumulative significance criterion of 100 in one million increased cancer risk.

The cumulative analysis on page 4.2-70 of the Draft EIR cites both the proposed CPHP cancer risk contributions as well as cancer risk contributions identified in the 2014 LRDP Final EIR. The only other sources of toxic air contaminants (TACs) within the 1,000-foot exposure zone recommended in BAAQMD methodology for the evaluation of health risks would be mobile sources on local roadways with traffic volumes exceeding 10,000 average daily traffic. BAAQMD guidance states that a project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source plus the contribution from the project, exceeds an excess cancer risk levels of more than 100 in one million.[10] Therefore, this criterion is independent of regional sources of DPM health risk outside of the 1000-foot zone of influence and, similar to the BAAQMD criteria for evaluation of a project's criteria pollutant emissions, uses a cumulatively considerable contribution that can be reasonably estimated.

9 BAAQMD, 2017a. *CEQA Air Quality Guidelines*. May 2017, p. 5-3.
10 BAAQMD, 2017a. *CEQA Air Quality Guidelines*. May 2017, p. 2-5.

Table 6.2-5 on page 6-23 of the 2014 LRDP Final EIR identifies an increased cancer risk value of 0.9 in one million associated with Parnassus Avenue. This contribution is included in the overall LRDP increased cancer risk contribution of 10 in one million cited on page 4.2-70 of the Draft EIR. Therefore, the cumulative health risk evaluation of the Draft EIR correctly considered all appropriate sources within 1,000 feet zone of influence, consistent with BAAQMD methodology.

O-TL4-6 This comment asserts that the threshold of significance used in the Draft EIR to evaluate the cumulative TAC impact is confusing.

The Draft EIR identifies the significance criteria for evaluating cumulative health risk impacts in a number of locations. As discussed in Response O-TL4-2, the criterion for evaluating the cumulative cancer risk from TAC emissions identified on page 4.2-24 of the Draft EIR under the subheading "Thresholds for Evaluating TAC impacts," has been corrected (please refer to Section 8.5 of this Comments and Responses document for the proposed revisions). Please note, however, the cumulative threshold is accurately described on page 4.2-27 under the subheading "Approach to Analysis of Cumulative Impacts;" and on page 4.2-70 of the Draft EIR in the analysis of Impact C-AIR-2.

O-TL4-7 The comment disputes the validity of using the 100 in one million incremental cancer risk as the significance criterion for evaluating cumulative impacts from TAC emissions, and specifically, its application as an incremental standard above the background risk.

Because the 100 in one million incremental cancer risk significance criterion used in the analysis of the Draft EIR is used as a cumulative threshold that considers multiple sources not typically considered by EPA in a facility analysis, such as contributions from roadways and railways, as well as from multiple stationary sources from multiple operators as well as from construction activity, the 100-in-one-million incremental cancer risk criterion serves as an appropriately conservative threshold for such an analysis.

It should be noted that when BAAQMD developed its 100-in-one-million incremental cancer risk cumulative criterion in its CEQA Air Quality Guidelines, it characterized this level of risk as reflective of air quality in a "pristine" portion of the Bay Area. It was originally designated as its "Point Reyes" approach,[11] reflecting the air quality in this National Seashore that the National Park Service identifies as a Class I Park and wilderness area. This demonstrated that even such pristine areas as Point Reyes National Seashore can have a sizeable background cancer risk, largely due to cumulative global atmospheric transport.

[11] BAAQMD, Bay Area Air Quality Management District CEQA Guidelines Public Workshop Presentation, "Developing Thresholds of Significance", Slide 10, February 26, 2009.

Further, BAAQMD guidance states that a project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source plus the contribution from the project, exceeds an excess cancer risk levels of more than 100 in one million.[12] Therefore, this criterion is independent of regional sources of DPM health risk outside of the 1000-foot zone of influence and, similar to the BAAQMD criteria for evaluation of a project's criteria pollutant emissions, uses a cumulatively considerable contribution that can be reasonably estimated.

The most recent citywide modeling results indicate that the Parnassus Heights campus site and its surrounding area are not located within an APEZ and is therefore not an area of San Francisco with a background air quality burden of concern.

Page 5-15 of the BAAQMD's 2017 Air Quality CEQA Guidelines states the following with respect to cumulative assessment of health risks:

> A Lead Agency shall examine TAC and/or $PM_{2.5}$ sources that are located within 1,000 feet of a proposed project site. Sources of TACs include, but are not limited to, land uses such as freeways and high volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners using perchloroethylene, and gasoline dispensing facilities. A Lead Agency should determine what the combined risk levels are from all nearby TAC sources in the vicinity of sensitive receptors.

There are no truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners using perchloroethylene, and gasoline dispensing facilities within 1,000 feet of the project site or non-UCSF stationary sources within 1,000 feet of the campus site. As stated above in Response O-TL4-5, the 2014 LRDP Final EIR identified an increased cancer risk value of 0.9 in one million associated with Parnassus Avenue; and this contribution is included in the overall LRDP increased cancer risk contribution of 10 in one million cited on page 4.2-70 of the CPHP Draft EIR. Therefore, the cumulative health risk analysis of the Draft EIR considered high volume roadways in the area and their contribution is nominal. The analysis of cumulative health risk from the proposed CPHP and the existing background sources in the project vicinity in the Draft EIR is consistent with BAAQMD methodology.

O-TL4-8 The commenter is concerned that the analysis in the Draft EIR does not include the appropriate contribution to the baseline cancer risk from DPM.

This comment suggests that all contributions to the baseline risk should be included in the cumulative assessment of increased health risk. However BAAQMD guidance clearly states that a project would have a cumulative

[12] BAAQMD, 2017a. *CEQA Air Quality Guidelines*. May 2017, p. 2-5.

considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source plus the contribution from the project, exceeds an excess cancer risk levels of more than 100 in one million.[13] Sources outside of the 1,000-foot zone of influence are not readily identifiable and include emissions transported regionally and across the Pacific Ocean. As discussed in the Response O-TL4-7 above, page 5-15 of the BAAQMD's 2017 Air Quality CEQA Guidelines states the following with respect to cumulative assessment of health risks:

> A Lead Agency shall examine TAC and/or PM2.5 sources that are located within 1,000 feet of a proposed project site. Sources of TACs include, but are not limited to, land uses such as freeways and high volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners using perchloroethylene, and gasoline dispensing facilities. A Lead Agency should determine what the combined risk levels are from all nearby TAC sources in the vicinity of sensitive receptors.

The above sources represent the sources identified by the BAAQMD for consideration in estimating a project's cumulative health risk impact and these sources were considered in the Draft EIR. Contributions from cumulative global atmospheric transport of DPM are not an element to be considered in the BAAQMD's methodology or relative to the 100 in one million increased cancer risk cumulative threshold.

The commenter is asserting a math error and is misinterpreting the cumulative excess cancer risk threshold and methodology provided by the BAAQMD. According to the BAAQMD, a project's cumulative cancer risk would be significant if the increase in cancer risk from the project, when combined with the risk from other sources within 1,000 feet of the project, exceeds 100 in a million.

Further, the use of the BAAQMD threshold relative to increased cancer exposure from toxic air contaminants does not rely on a "ratio theory" considered by the court in *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 718 which was a decision that addressed contributions of ozone precursors, as part of a criteria pollutant impact analysis. In that decision the court found that, for the analysis of that case, the relevant question to be addressed in that EIR was whether any additional amount of precursor emissions should be considered significant in light of the serious nature of the ozone problems in this air basin. With respect to localized TAC exposure, as stated on page 4.2-9 of the CPHP Draft EIR, the most recent citywide modeling results indicate that the Parnassus Heights campus site and its surrounding area are not located within an Air Pollution Exposure Zone or a health vulnerable zip code. Therefore, there is

[13] BAAQMD, 2017a. *CEQA Air Quality Guidelines*. May 2017, p. 2-5

no special consideration to be given and application of a threshold and methodology established by the governing Air District is an adequate tool for analysis under CEQA.

O-TL4-9 This comment contends that the incremental 100 in one million cancer risk cumulative impact criterion represents a value judgment, not a threshold for making a factual findings based on evidence.

Please see Response O-TL4-4 above regarding the BAAQMD recommended numeric significance criteria used in the Draft EIR and the information and substantial evidence considered by UCSF before applying these criteria. All of the criteria used in the evaluation of air quality impacts do not represent value judgments on the part of UCSF, but are thresholds developed by the BAAQMD based on analysis of extensive amount of data and modeling of existing air quality conditions in the Bay Area and after consideration of a variety of threshold and methodology options[14] With regard to the commenter's assertion about multiple thresholds used in the Draft EIR to evaluate the cumulative cancer risk impact, please see Response O-TL4-6 above.

O-TL4-10 This comment opines that CEQA does not allow an EIR to use the judgment of a local air district or the EPA to define a health risk increment as acceptable and asserts that any statements about the acceptability of a significant impact must be made "at the end of the CEQA analysis… not at the beginning."

Please see Response O-TL4-4 above. As noted in that response, contrary to the commenter's assertion, CEQA does provide that a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, such as the BAAQMD. The BAAQMD is the leading authority on air quality in the Bay Area. It regulates stationary sources of air pollution in the nine counties, and develops policies and other guidance for the control of air pollution within the air basin. The BAAQMD lists the following among its goals: reduce and eliminate health problems caused by air pollution; achieve and maintain air quality standards for all criteria pollutants; create high-quality, relevant regulatory programs and ensure they comply with federal, state, and local laws; through incentives and partnerships, establish the Bay Area as a leading area for emissions reductions in mobile sources, land-use planning, innovative technology, and energy; and serve as an air quality authority in the development of policy and information.[15] Therefore, the Draft EIR appropriately uses the numeric significance criteria put forth by the BAAQMD to analyze the potential air quality impacts of the CPHP, including the 100-in-one-

[14] BAAQMD, 2009. *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October, 2009.

[15] BAAQMD, Mission Statement, Available online at: https://www.baaqmd.gov/about-the-air-district/mission-statement accessed November 18, 2020.

million incremental cancer risk criterion and associated published methodology for the evaluation of a project's cumulative health risk impacts.

Please also note that, on August 12, 2016 the California Court of Appeal in CBIA v. BAAQMD concluded that "the challenged thresholds are not invalid on their face, but may not be used for the primary purpose envisioned by District, namely, to routinely assess the effect of existing environmental conditions on future users or occupants of a project" (CBIA v. BAAQMD [2016] 1 Cal.App.5th 715). Ergo, the Court of Appeal recognizes that such thresholds are valid and may be applied to the assessment of a project's effect on the environment, as was done in the CPHP Draft EIR.

The Draft EIR systematically applies the numeric significance criteria to evaluate the project's impacts and arrives at an impact conclusion based on whether the significance criterion is exceeded or not. The Draft EIR does not make any statements about the "acceptability" of any significant impacts. It only presents all the information regarding the project's impacts for review by the public and for review and consideration by the decision makers when making a decision to approve or deny the project.

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September 11, 2020

SENT VIA EMAIL (EIR@ucsf.edu)

Diane Wong
UCSF Real Estate – Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

RE: Comprehensive Parnassus Heights Plan Draft Environmental Impact Report: Comments on Transportation, Energy, Greenhouse Gases, and Noise

Dear Ms. Wong:

This office represents San Franciscans for Balanced and Livable Communities, a citizen's group composed of San Francisco residents. I write on its behalf to comment on the Draft Environmental Impact Report (DEIR) for the Comprehensive Parnassus Heights Plan ("CPHP" or "Project") with respect to the analysis of the Project's impacts on transportation, energy, greenhouse gas emissions, and noise.

1. Transportation

This letter incorporates by reference the comments on the DEIR's transportation section prepared by traffic engineer Tom Brohard, which are attached to this letter. (See **Exhibit A**, Tom Brohard Comments.) In addition to the deficiencies identified by Mr. Brohard, the DEIR fails as an informational document because it omits consideration of whether the Project will result in significant impacts to transit service. The DEIR states in relevant part:

> Consistent with the CEQA Guidelines and the SF Guidelines, the transportation impact analysis in this EIR analyzes the change to VMT that would result from the implementation of the CPHP at the Parnassus Heights campus site. Changes to traffic operations in the study area (i.e., the level of service of project area intersections) and ***transit operations (e.g. project generated transit ridership and effect on capacity utilization, potential delay to transit vehicles) is outside the scope of the CEQA analysis*** and are not discussed below.

(DEIR, p. 4.5-27 (emphasis added).)

While the DEIR is correct that automobile delay or "level of service" is no longer a significant impact under CEQA, this does not also apply to analysis of whether a Project will result in significant project-level or cumulative impacts to transit facilities. CEQA Guidelines

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section 15064.3, subdivision (a) states, "Other relevant considerations may include the effects of the project on transit." Subdivision (b)(3) of that same Guideline states that even a qualitative analysis of transportation impacts "would evaluate factors such as the availability of transit, proximity to other destinations, etc." OPR's Technical Guidance, upon which the DEIR purports to follow, includes a section entitled "Impacts to Transit" and states in relevant part:

> Because criteria for determining the significance of transportation impacts must promote "the development of multimodal transportation networks" pursuant to Public Resources Code section 21099, subd. (b)(1), lead agencies should consider project impacts to transit systems and bicycle and pedestrian networks.

(OPR Technical Guidance, p. 19.)

Disregarding applicable law and OPR Guidance, the DEIR states that impacts to transit are analyzed "for informational purposes only" in an appendix to the DEIR that "is provided for decision-makers' consideration, independent of the environmental review process." (DEIR, p. 4.5-28.) As explained above, it is legal error for the DEIR to not analyze impacts to transit. That legal error is prejudicial because the purported analysis of transit impact contained in the appendix falls well short of providing necessary information to assess the impact.

1 cont.

The only purported analysis of transit impacts is set forth in two paragraphs on DEIR Appendix TRANS-14 and 15. The paragraphs disclose that Project's generated vehicle trips and passenger loading activities "may periodically:

- Result in transit delay on Parnassus Avenue (6 Haight/Parnassus, 43 Masonic) and Irving Street (N Judah)

- Reduce accessibility by blocking multimodal transportation facilities, such as crosswalks, bicycle lanes, and/or transit stops."

(DEIR Appendix TRANS-14.)

The Appendix further notes, "[T]here may be peak passenger travel periods where demand, either for the campus site overall, or for specific locations is greater than supply. During these periods there would be a higher chance of delay to transit or a reduction in access to transportation facilities."

In short, the DEIR's appendix discloses for "informational purposes only" that the Project may result in vehicles blocking transit stops as well as overwhelming the transit system. But because this analysis is provided "independent of the environmental review process," no significance standard is applied to this impact, much less substantial

evidence disclosing existing transit capacity, the Project's incremental demand on that existing capacity, or whether that incremental contribution will overwhelm (and if so by how much) transit capacity. This truncated analysis utterly fails to provide the public with necessary information about the Project's impact on transit, including disclosure about the magnitude of the impact. (*Sierra Club v. County of Fresno* (2016) 6 Cal.5th 502, 521.)

It is possible that the DEIR fails to analyze transit impacts based on an incorrect reading of OPR's *Technical Advisory on Evaluating Transportation Impacts In CEQA* ("OPR Advisory"). While it is true that the OPR Advisory states, "Lead agencies generally should not treat the addition of new transit users as an adverse impact," the mere addition of riders is not the same as overwhelming transit capacity. Even if the OPR Advisory is intended to conflate those two issues, the document is informal guidance and not a regulation that was promulgated pursuant to the APA. Accordingly, the OPR Advisory is properly disregarded when inconsistent with CEQA or the CEQA Guidelines.

Analysis of impacts to transit capacity is required because, as Traffic Engineer Tom Brohard explains, overwhelming the transit system will increase the Project's VMT. The CEQA Guidelines are in accord, noting that even a purely qualitative analysis of VMT "would evaluate factors such as the availability of transit." (CEQA Guidelines, § 15064.3, subd. (b)(3.) Of course, a bare, qualitative analysis is only allowed "if existing models or methods are not available." (*Ibid*.) Quantitative modeling is readily available for both estimating VMT and impacts to transit, and so must be utilized here. (*Berkeley Jeep Jets Over the Bay Comm. V. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1381.) As Mr. Brohard explains, and the DEIR itself obliquely acknowledges, the existing transit system in the Project area may already be overwhelmed, and so the Project may result in higher VMT than disclosed in the DEIR. The DEIR's revised analysis will also need to account for predicted MUNI service reductions, which could result in a further overwhelmed transit system that is exacerbated by the Project.

1 cont.

In summary, the DEIR's transportation analysis will need to be substantially revised and recirculated to include the Project's impacts to transit. This may, in turn, require revisions to the DEIR's reported VMT for the Project.

2. Energy

Commencing in 2019, the CEQA Guidelines expressly require substantive analysis of a project's energy impacts. (CEQA Guidelines, § 15126.2, subd. (b)). CEQA now requires:

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> Energy Impacts. If analysis of the project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the EIR shall mitigate that energy use. This analysis should include the project's energy use for all project phases and components, including transportation-related energy, during construction and operation. In addition to building code compliance, other relevant considerations may include, among others, the project's size, location, orientation, equipment use and any renewable energy features that could be incorporated into the project. (Guidance on information that may be included in such an analysis is presented in Appendix F.) This analysis is subject to the rule of reason and shall focus on energy use that is caused by the project.

(CEQA Guidelines, § 15126.2, subd. (b).)

Thus, an EIR must affirmatively analyze a project's use, and energy use efficiency, for the purpose of determining whether there is any "wasteful, inefficient, or unnecessary use of energy." The DEIR's perfunctory analysis of energy falls well short of these substantive mandates, and therefore fails as an informational document.

The DEIR purports to quantify the Project's energy consumption, which reveals that the Project will dramatically increase energy consumption. For example, Table 4.5-2 discloses that electricity use will increase from 5,091 to 10,976 MWh/year, natural gas use will increase from 1,044,485 to 1,686,549 MMBtu/year, diesel use will increase from 681,823 to 1,198,763 gallons per year, and even gasoline use will increase from 4,246,449 to 5,178,022 gallons per years. These numbers translate to a 116 percent increase in electricity use, 61 percent increase in natural gas use, 76 percent increase in diesel use and 22 percent increase in gasoline use.

The Project's drastic increases in energy use are set in the context of much more modest statewide growth rates in energy consumption. For example, statewide energy consumption statewide has a "growth rate of 1.27 percent," (DEIR, p. 4.5-23) and natural gas demand will actually "decrease at an annual rate of 1.1 percent to 2026" (DEIR, p. 4.5-24.) In other words, the Project's energy use will be dramatically higher than the statewide average – and thus should be a significant impact under CEQA Guidelines section 15126.2, subdivision (b).

2 cont.

To avoid the inescapable significance determination for energy use, however, the DEIR relies on the long-repudiated "ratio theory" analysis. (*San Francisco Baykeeper, Inc. v. State Lands Com.* (2015) 242 Cal.App.4th 202, 223.) With respect to electricity usage, for example, the DEIR states: "This represents 0.002 percent of the total 2018 state-wide electricity usage and

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0.11 percent of San Francisco electricity usage." (DEIR , p. 4.5-23.)[1] But the Project's percentage statewide or even regional electricity use is irrelevant – and even misleading – on the question of whether the Project's individual energy consumption of energy is "wasteful, inefficient, or unnecessary." (CEQA Guidelines, § 15126.2, subd. (b); see *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 721.) Indeed, CEQA Guideline 15126.2 directly cautions against this "ratio theory" approach to the energy analysis by stating, "This analysis . . . shall focus on energy use that is caused by the project" (CEQA Guidelines, § 15126.2, subd. (b).)

3 cont.

The DEIR relies on the same flawed and misleading strategy to dismiss the Project's cumulative impact on energy consumption. (DEIR, p. 4.5-29 ("Given the relatively small percentage of the CPHP's other fuel and energy uses compared to existing fuel and energy use in the region. . .").) This strategy is flawed and misleading precisely because the purpose of a cumulative impacts analysis is to avoid considering projects "in a vacuum" since failure to consider cumulative harm may risk "environmental disaster." (*Whitman v Board of Supervisors* (1979) 88 Cal.App.3d 397, 408.) "[T]he greater the existing environmental problems are, the lower the threshold should be for treating a project's contribution to cumulative impacts as significant." (*Communities for a Better Env't v. California Resources Agency* (2002) 103 Cal.App.4th 98, 120.) "One of the most important environmental lessons evident from past experience is that environmental damage often occurs incrementally from a variety of small sources. These sources appear insignificant, assuming threatening dimensions only when considered in light of the other sources with which they interact." (*Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 720.)

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The DEIR's analysis of energy use will need to be substantially revised and recirculated in order to meaningfully disclose whether the Project's energy consumption is inefficient, wasteful or unnecessary.

3. Greenhouse Gas Emissions

This letter incorporates by reference the comments on the DEIR's GHG and Energy Sections prepared by SCS Engineers, which are attached to this letter. (See **Exhibit B**, Comments of SCS Engineers.) This letter also provides additional analysis explaining the DEIR's legal error in its approach to analyzing GHG emissions.

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As explained above, the Project would result in a massive increase in the consumption of energy. (See DEIR 4.5-2.) This increase in non-renewable energy consumption translates to comparable increases in GHG emissions. (See DEIR Table 4.7-3 (CO_2e increases from 125,426

[1] This same impermissible ratio theory is used for electricity usage (DEIR, p. 4.5-23), natural gas (DEIR, p. 4.5-24) and diesel consumption (DEIR, p. 4.5-24.)

to 187,241 metric tons per year).)[2] These drastic increases in GHG emissions are problematic for the DEIR's analysis of GHG emissions since California policy is to reduce GHG emissions over the next several decades.

Specifically, the state's policy is to reduce state-wide greenhouse gas emissions to 1990 levels by the year 2020 (Health and Safety Code § 38550), 40 percent below 1990 levels by the 2030 (Health and Safety Code § 38566), 80 percent below 1990 levels by 2050 (Executive Order S-3-05). (*Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497 ["These targets were based on a scientific consensus that climate change was largely caused by human activity resulting in elevated levels of carbon dioxide and other heat-trapping gases in the atmosphere and that drastic reductions in greenhouse gas emissions were required to stabilize the climate"].) Although the CEQA Guideline Appendix G significance threshold asks whether a project would "conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases," these straightforward and applicable standards are not used in the DEIR for assessing the Project's impact on GHG emissions. Rather, the DEIR explains that its "approach to analysis" of GHG impacts is to analyze consistency with CARB's 2017 Scoping Plan Update ("Scoping Plan"). 5 cont.

This curious strategy is explained by the following statement in the DEIR: "In the 2017 Scoping Plan Update, CARB recognizes that achieving no net increase in GHG emissions compared to existing conditions would demonstrate that a project is not contributing to climate change impacts." (DEIR, p. 4.7-34.) In other words, the DEIR's approach is to require mitigation only to the "net zero goal of CARB" (DEIR, p. 4.7-41) and not the State Policy reductions of 40 and 80 percent, respectively.

The DEIR's approach is legal error. The Scoping Plan is simply not "an applicable plan, policy or regulation" for the Project, which is demonstrated with clarity in the plain text of the Scoping Plan itself. The specific text of the Scoping Plan quoted on page 4.7-34 of the DEIR is contained within a section of the Scoping Plan entitled "Climate Action through Local Planning and Permitting," and explains: 6

> To support local governments in their efforts to reduce GHG emissions, the following guidance is provided. This guidance should be used in coordination with OPR's General Plan Guidelines guidance in Chapter 8, Climate Change. While this guidance is provided out of the recognition that local policy makers are critical in reducing the carbon footprint of ***cities and counties***, the decision to

[2] The reported 187,241 metric tons per year of CO_2e under 2050 conditions is false and misleading because it assigns no CO_2e to electricity generation. A footnote to Table 4.7-3 states that this is because "UCSF has committed to net zero electricity by 2025." Such conclusory predictions, unsupported by substantial evidence in the record, are not allowed under CEQA.

> follow this guidance is voluntary and should not be interpreted as a directive or mandate to local governments.

(Scoping Plan, p. 99 (Emphasis added).)

On its face, the guidance that the DEIR attempts to rely upon only applies to "cities and counties." As the DEIR explains, "UCSF is a constitutionally created state entity," (DEIR, p. 4.4-15) and therefore not a city, county or local government. As such, guidance to cities and counties on how to review and approve private development projects within their jurisdictions simply has no applicability to UCSF as part of its CEQA review for its own project. Second, the Scoping Plan is inapplicable for the simple reason that it does not even purport to address 2050 emission targets. (Scoping Plan, p. ES4 ("This Plan establishes a path that will get California to its 2030 target").) 6 cont.

In summary, UCSF's cynical attempt to analyze and mitigate GHG emissions based on an inapplicable GHG plan constitutes legal error. The DEIR will need to analyze consistency with applicable plans or policies. Case law establishes that the time-limited 40 percent reduction by 2030 and 80 percent reduction by 2050 constitute applicable policies serving as the basis for proper CEQA thresholds of significance. (See e.g., *Cleveland National Forest, supra*; *Center for Biological Diversity v. California Dept. of Fish and Wildlife* (2015) 62 Cal.4th 204, 219; *Center for Biological Diversity v. Department of Fish and Wildlife* (2016) 1 Cal.App.5th 452, 469; (*Newhall Ranch II*); *Spring Valley Lake Association v. City of Victorville* (2016) 248 Cal.App.4th 91, 101; *Sierra Club v. County of San Diego* (2014) 231 Cal.App.4th 1152, 1168; *Friends of Oroville v. City of Oroville* (2013) 219 Cal.App.4th 832, 841); *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal.App.4th 327, 335–336.) As a "constitutionally created state entity," UCSF must apply these significance standards for its revised analysis of GHG emissions. 7

4. Noise

This letter incorporates by reference the comments on the DEIR's noise and vibration section prepared by acoustics and vibration engineer Frank Hubach, which are attached to this letter. (See **Exhibit C**, UCSF Parnassus DEIR Review by Frank Hubach Associates.) Mr. Hubach identified several technical deficiencies in the DEIR's analysis and mitigation for noise and vibration impacts. 8

Mr. Hubach also identified relevant health-based noise standards that must be addressed in a revised and recirculated DEIR. This letter provides additional legal argument explaining why CEQA requires greater analysis of these health-based impacts and significance thresholds.

The DEIR acknowledges that increased noise emissions can result in human health risks. In a section entitled "Health Effects of Environmental Noise," the DEIR provides in relevant part:

> Other potential health effects of high noise levels identified by WHO include decreased performance for complex cognitive tasks, such as reading, attention span, problem solving, and memorization; physiological effects such as hypertension and heart disease (after many years of constant exposure, often by workers, to high noise levels); and hearing impairment (again, generally after long-term occupational exposure, although shorter-term exposure to very high noise levels, for example, exposure several times a year to concert noise at 100 dBA, can also damage hearing). Finally, noise can cause annoyance and can trigger emotional reactions like anger, depression, and anxiety. WHO reports that, during daytime hours, few people are seriously annoyed by activities with noise levels below 55 dBA or moderately annoyed with noise levels below 50 dBA.

(DEIR, p. 4.11-3.)

As a threshold matter, the DEIR's references section for noise (section 4.11.4) discloses that the DEIR is relying on a 1999 version of the WHO guidelines, which was "accessed December, 2019." This violates CEQA because the 1999 WHO guidance was replaced with a new guidance in 2018. (See **Exhibit D**, *Environmental Noise Guidelines for the European Region.* World Health Organization (2018) ("WHO 2018").) Lead agencies have a duty to inform themselves about current methodologies for analyzing an impact and cannot, as here, rely on 20 year-old WHO guidance rather than guidance that is much more recent.[3] This deficiency is prejudicial to informed decision-making because the WHO 2018 guidance identifies additional health impacts associated with noise such increased incidence of stroke, metabolic effects such as type 2 diabetes, and adverse birth outcomes. (See Exhibit D.) Further, WHO 2018 provides updated information correlating noise emissions to all of these identified health effects.

8 cont.

While the DEIR briefly mentions some of these "other potential health effects" from noise emissions, the DEIR does not correlate these various health effects (and others as reflected in WHO 2018) to noise emissions. The California Supreme Court recently addressed the need to correlate air emissions to human health conditions in *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 516 (*Sierra Club*). *Sierra Club* explains:

> The EIR's discussion of health impacts of the named pollutants provides only a general description of symptoms that are associated with exposure to the ozone, particulate

[3] The DEIR's reported hyperlink for the 1999 WHO report does not work, and so it is not possible to determine whether the DEIR authors relied on the 1999 or 2018 WHO guidance.

> matter (PM), carbon monoxide (CO), and nitrogen dioxide (NOx), and the discussion of health impacts regarding each type of pollutant is at most a few sentences of general information. The disclosures of the health effects related to PM, CO, and sulfur dioxide ***fail to indicate the concentrations at which such pollutants would trigger the identified symptoms***.

(*Id*. at 519, emphasis added.)

The same criticism applies to the DEIR's analysis of human health impacts resulting from noise emissions. Although generally acknowledging that there are health impacts associated with noise emissions, this generalized discussion "fail[s] to indicate the concentrations at which such pollutants would trigger the identified symptoms" from noise emissions. Our Supreme Court in *Sierra Club* held that this failed to comply with CEQA's duty to inform, stating in relevant part:

> The EIR must provide an adequate analysis to inform the public how its bare numbers translate to create potential adverse impacts or it must adequately explain what the agency does know and why, given existing scientific constraints, it cannot translate potential health impacts further.

(*Id*. at 522, emphasis added.) 8 cont.

As in *Sierra Club*, the DEIR here fails to adequately correlate noise emissions to identified health impacts, or explain why it is infeasible to do so. The possible correlation of noise levels to health impacts also imposes a duty to adopt significance standards that reflect such correlation. As explained by Frank Hubach, the significance standards applied in the DEIR do not account for human health impacts from noise. While the *Mission Bay Alliance* upheld an "increment above ambient" significance standard for noise emissions based in part on a local noise ordinance (6 Cal.App.5th at 193), "[c]ompliance with the threshold does not relieve a lead agency of the obligation to consider substantial evidence indicating that the project's environmental effects may still be significant." (CEQA Guidelines, § 15064, subd. (b)(2); see also *East Sacramento Partnership for a Livable City v. City of Sacramento* (2016) 5 Cal.App.5th 281, 300.) Further, "[I]n preparing an EIR, the agency must consider and resolve every fair argument that can be made about the possible significant environmental effects of a project" (*Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109).)

In summary, the DEIR will need to be revised and recirculated to correlate noise levels to identified health impacts, or explain why it is infeasible to do so. Second, the revised DEIR will need to include significance standards that are based on human health impacts from noise emissions.

* * *

We thank you for the opportunity to provide comments on this matter.

Very truly yours,
SOLURI MESERVE
A Law Corporation

By:
Patrick M. Soluri

PS/wra
Attachments - Exhibits

List of Exhibits

Exhibit A – Comments on Transportation by Tom Brohard and Associates
Exhibit B – Comments on Energy and Greenhouse Gases by SCS Engineers
Exhibit C – Comments on Noise and Vibration by Frank Hubach Associates, Inc.
Exhibit D – Environmental Noise Guidelines for the European Region, World Health Organization (2018)

EXHIBIT A

Tom Brohard and Associates

September 9, 2020

Mr. Patrick M. Soluri
Soluri Meserve
510 8th Street
Sacramento, California 95814

SUBJECT: UCSF Parnassus Heights Plan (CPHP) Draft EIR – Transportation Issues and Comments

Dear Mr. Soluri:

Tom Brohard, P.E., has reviewed the transportation portions of the July 13, 2020 Draft Environmental Impact Report (Draft EIR) for the University of California, San Francisco (UCSF) Parnassus Heights Plan in the City of San Francisco. The Proposed Project (CPHP) provides for development of approximately 2.9 million square feet of new building space at Parnassus Heights. The total campus building space will increase to nearly 6 million square feet including instruction, research, clinical, and support space; housing; and structured parking.

My review disclosed many transportation and traffic issues have not been thoroughly and/or properly studied. This letter points out those deficiencies, errors, and inconsistencies that must be addressed before considering the UCSF Parnassus Heights Plan (CPHP) further.

Education and Experience

Since receiving a Bachelor of Science in Engineering from Duke University in Durham, North Carolina in 1969, I have gained over 50 years of professional traffic engineering and transportation planning experience. I am licensed as a Professional Civil Engineer both in California and Hawaii and as a Professional Traffic Engineer in California. I formed Tom Brohard and Associates in 2000 and have served many diverse communities as the City Traffic Engineer and/or the Transportation Planner. During my career in both the public and private sectors, I have reviewed numerous environmental documents and traffic studies for various projects as shown in a short summary of my experience in the enclosed resume.

Transportation Issues and Comments

Page 4.15-24 of the Draft EIR, Regulatory Framework, indicates UCSF is situated on land owned or controlled by the Regents of the University of California. As such, "Transportation improvements or modifications required to mitigate impacts of the CPHP under the authority of the City of San Francisco would be the responsibility of the City and would need to be

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approved by the applicable City agencies. However, UCSF consults and coordinates on a regular basis with the City... when planning new development within the City..." For the CPHP, there is no discussion of what communications have occurred, if any, during preparation of the Draft EIR.

All aspects of traffic and transit in and around UCSF already suffer from extreme congestion and overcrowding, and each of these will get much worse with implementation of the CPHP. Key transportation issues have not been properly studied and evaluated for the CPHP. As the second largest employer in San Francisco (as noted on Page 4.15-26), UCSF can significantly improve its coordination with other stakeholders in addressing future issues and problems looming in the 30-year planning horizon.

9 cont.

With the addition of 2.9 million square feet of development proposed in the CPHP, Table 4.15-7 on Page 4.15-29 of the Draft EIR forecasts the total number of external daily and PM peak hour person trips made on all modes of transportation including automobile, transit, bicycle, and pedestrian will increase by 50% with buildout by 2050. Overall, there will be about 52,200 daily external person trips, an average of about 2 daily external person trips made by the increased population of 26,400. PM peak person trips are forecast to increase to 7,100, an increase of 50% over existing conditions.

As discussed throughout this letter, these additional person trips will create significant traffic and transportation impacts on all portions of the existing infrastructure. While the Draft EIR hints at these impacts, there are virtually no mitigation measures planned or proposed to address them. It is certainly to the benefit of all stakeholders to help mitigate issues that will be created by CPHP.

10

Information provided in the Draft EIR regarding mode choice in Table 4.15-8 is based on two prior surveys, one involving employees in 2018 and the other involving patients and visitors in 2017-18. CPHP Mode Split in Year 2050 is presented in Table 4.15-9 but those estimates are not supported by evidence. The table assigns relatively high percentages for transit use for faculty/staff/students as well as residents. The higher transit percentages will likely go down if the transit system is overwhelmed and automobile use goes up as discussed further below. The Draft EIR must support the data that it merely summarizes and cannot rely on it for future conditions without full disclosure, significant additional study, and analysis.

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Based on the information in the July 13, 2020 Draft EIR, each of the following traffic and transportation issues must be fully addressed and evaluated in a revised Draft EIR:

12

1) **<u>Regional Transit Service</u>** – Beginning on Page 4.15-3, the Draft EIR briefly describes regional transit service offered by Golden Gate Transit, AC Transit,

Sam Trans, BART, and Caltrain. The Draft EIR notes that riders must transfer to Muni or UCSF shuttles to access the campus. No analysis of the available capacity on any of these regional providers has been provided and it is unknown how much transit capacity is available. Measures should be offered to UCSF users to facilitate transfers to Muni or UCSF shuttles to encourage the use of regional transit and decrease solo vehicle trips. 12 cont.

2) **Local Transit Services** – Beginning on Page 4.15-6, the Draft EIR briefly describes local transit service with Table 4.15-1 summarizing the services provided on the five local Muni lines. Three of these five Muni lines run at the edge of the UCSF campus. It is my understanding that the "N-Judah" line is the busiest in the Muni system. From the Table, this line has the longest hours of operation and the shortest peak hour headways. Even so, it is commonly acknowledged that the "N-Judah" line is operating over capacity in peak hours. As of now, no feasibility study has been conducted on how much capacity is available to serve the UCSF expansion or how additional transit capacity can be provided to decrease solo vehicle trips. 13

In addition to Muni services, UCSF provides a shuttle service that operates 63 vehicles throughout San Francisco. The average daily boardings for the 14 shuttle lines are shown in Figure 4.15-4 and range from 22 to 1,710. No data is presented to determine if and at what times capacity for additional passengers exists within the UCSF shuttle service or how additional transit capacity can be provided. 14

3) **Transportation Demand Management (TDM) Program** – Table 4.15-13 on Page 4.15-13 of the Draft EIR provides an outline of strategies and brief descriptions of the various elements in the existing UCSF TDM Program. While many different strategies are identified, the Table does not summarize how often these strategies are monitored or describe the expected solo vehicle trip reductions. Without regular monitoring and corrective measures for those that are under performing, the overall effectiveness of the TDM Program is cannot be assessed. TDM Programs for other public agencies are periodically monitored and adjusted based on the effectiveness and/or ineffectiveness of the various measures, but this TDM Program does not appear to have been modified since its inception. 15

In response to the Notice of Preparation, the January 29, 2020 letter from Caltrans listed 19 strategies to reduce vehicle trips. The following five strategies suggested by Caltrans are not included in the UCSF TDM Program and should be added:

- Real-time transit information system
- Transit subsidies on an ongoing basis
- Charging stations and designated parking spaces for electric vehicles

- Employee transportation coordinator
- Aggressive trip reduction targets with monitoring and enforcement

15 cont.

4) **Pedestrian Circulation** – The Draft EIR indicates 16 percent of UCSF employees commute by walking. The text beginning on Page 4.15-14 describes some pedestrian facilities in the area and provides June 2019 pedestrian counts at certain locations. From the Draft EIR discussion, it appears that some pedestrian crossing facilities may not be up to currently accepted standards and some sidewalk widths may be deficient. The Draft EIR must inventory pedestrian facilities on and adjacent to the UCSF campus and provide recommendations to bring deficient facilities up to current standards. The proposed pedestrian bridge and tunnel crossings of Parnassus Avenue must be coordinated with the streetscape project to preclude pedestrian crossings at grade at random locations and force pedestrians to use the proposed bridge and tunnel.

   Page 4.15-16 briefly describes the locations of the 12 pedestrian collisions in the vicinity of UCSF between 2008 and 2017. The Draft EIR essentially dismisses these collisions indicating they occurred on roadway segments that are not a part of the city-wide High-Injury Network and evaluation is unnecessary. Each of these pedestrian collisions should be evaluated to identify collision trends in the UCSF area and then develop remedial measures. The Draft EIR must update the data from 2017 to the present and then evaluate what additional pedestrian safety measures can be incorporated into the CPHP.

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5) **Bicycle Circulation** – Page 4.15-16 describes the different types of bicycle facilities and the discussion indicates that bicycling is a viable and common travel mode in reducing congestion and pollution. However, only 6% of employees travel to and from the campus by bicycle, perhaps because of the steep topography. Page 4.15-18 indicates designated bicycle parking areas are well utilized and some bikes have been observed parked at parking meters and sign poles, indicating a high demand for bicycle parking facilities. To encourage additional people to use bicycles, free, secured bicycle parking must be provided at key locations in the transportation network, and improvements must be made in the network of bicycle lanes.

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6) **Loading Conditions** – Beginning on Page 4.15-18, the Draft EIR describes the existing loading facilities for service vehicles and passenger loading. A number of these loading areas attempt to serve both uses, resulting in conflicts between them. About 2% of employees are dropped off at work, and another 4% use Uber/Lyft/Taxi in competition for the limited available space. The loading area in front of Medical Building 1 also attempts to serve emergency vehicles and valet, further compounding congestion and blocking the adjacent lane of traffic throughout the day.

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As part of the CPHP, additional passenger loading facilities are planned but they will be insufficient to accommodate the peak loading demand. According to Page 4.15-35, the peak minute loading demand for the CPHP will range from 35 to 45 vehicles. While 30 to 35 loading spaces will be provided with the CPHP, the peak loading demand will not even be marginally satisfied as it will be spread out among four separate areas. Furthermore, some of the future passenger loading spaces may be used for other purposes such as service vehicle loading and valet. Additional loading spaces must be provided to meet the forecast demand for passenger and service loading. 18 cont.

7) **Emergency Vehicle Access** – Page 4.15-19 indicates emergency transport vehicles use major streets that allow other traffic to move out of the way as required by the California Vehicle Code. However, wider streets can be gridlocked, do not offer freedom of movement for other vehicles, and do not favor emergency vehicles at traffic signals. Additional measures such as emergency vehicle preemption systems at traffic signals should be considered as part of the expansion CPHP to facilitate emergency vehicles. 19

8) **Vehicle Miles Traveled** – Vehicle miles traveled (VMT) is a measurement of the amount and distance that a resident, employee, or visitor drives. The transportation model used by the Draft EIR estimates daily VMT for residential, office, and retail land use types. Table 4.15-4 provides data on VMT for residential and for office uses but it does not provide data supporting the use of medical work as an office use or any information on medical visits. VMT tables are footnoted by "SOURCE: Adavant Consulting, 2020" but no data has been provided to support VMT, the most critical item in the Draft EIR. At minimum, accepted practice recommends gathering local data to support VMT assumptions but this approach has not been used here.

   Table 4.15-15 on Page 4.15-37 of the Draft EIR provides existing and Year 2040 VMT for residential and office uses. For the Parnassus Heights campus site (the second entry in the Table), VMT significantly increases between existing and Year 2040. For residential, VMT increases from 6.9 to 8.5 (+1.6, +23%) and VMT increases from 9.4 to 10.9 (+1.5, +16%) for office. 20

   With VMT, agencies typically require a decrease of 15% when comparing current conditions to future conditions. Here, VMT is shown to increase by 23% and 15% for the CPHP. This is directly contrary to measures to reduce VMT by 15% used by the City of San Francisco and other agencies. Table 4.15-16 should compare the forecast VMT for UCSF for residents and office uses for existing conditions to Year 2040 conditions rather than compare that data to the San Francisco Bay Regional Average.

9) **Vehicle Delay** – Vehicle delay and intersection level of service are no longer required by the California Environmental Quality Act (CEQA) to determine 21

significant project impacts and necessary mitigation measures. However, vehicle delay and level of service calculations continue to be evaluated by some agencies as part Draft EIR's to inform decision-makers and the public.

For information purposes, Appendix TRANS compares current vehicle delay and Level of Service to CPHP conditions at 17 intersections in Parnassus Heights. While all intersections now operate at acceptable levels of LOS D or better, performance drops at all intersections with CPHP traffic added. The additional roadway congestion caused by the Proposed Project will have an indirect effect of reducing the efficiency of transit in the study area. Five of the intersections become gridlocked at LOS F. While new traffic signals would mitigate the significant traffic impacts at two intersections, the Draft EIR indicates these measures require coordination with SFMTA and then incorrectly defers proper study and evaluation until a later time when Project-Level Draft EIR's are planned to be prepared.

21 cont.

10) **Fourth Avenue Extension** – Page 4.15-43 of the Draft EIR indicates the CPHP includes the extension of Fourth Avenue between Parnassus Avenue and Kirkham Street. While the roadway extension will provide access into the CPHP, it will also create a pathway for vehicles cutting through the campus. With gridlocked traffic conditions, the Fourth Avenue extension will induce vehicle trips and will increase VMT, a topic that has not been addressed, studied, or accounted for in the Draft EIR.

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The UCSF Parnassus Heights Plan (CPHP) in the City of San Francisco creates significant transportation impacts that have not been properly disclosed, analyzed, or mitigated. The Draft EIR errors identified in this letter require that each of these issues be reanalyzed and reevaluated through additional study in a revised Draft Environmental Impact Report. If you have questions regarding these comments, please contact me at your convenience.

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Respectfully submitted,

Tom Brohard and Associates

Tom Brohard, PE
Principal

Enclosure - Resume

EXHIBIT B

SCS ENGINEERS Environmental Consultants & Contractors

September 11, 2020
File No. 01220191.00 Task 00002

MEMORANDUM

TO: Patrick Soluri, Soluri Meserve

FROM: Ray Huff, SCS Engineers
Pat Sullivan, SCS Engineers
John Henkelman, SCS Engineers

SUBJECT: Draft Environmental Impact Report Review, Comprehensive Parnassus Heights Plan, University of California, San Francisco

SCS Engineers (SCS) has reviewed the greenhouse gas (GHG) and Energy analyses prepared for the proposed University of California, San Francisco (UCSF) Comprehensive Parnassus Heights Plan (Project) Draft Environmental Impact Report (DEIR). SCS has performed many GHG analyses for purposes of permitting, mandatory reporting, verification, California Environmental Quality Act (CEQA) and other requirements, and we used this experience and expertise to assess the GHG analysis for the Project.

The documents reviewed included the following:

- *UCSF Comprehensive Parnassus Heights Plan, Draft Environmental Impact Report*, UCSF, July 2020.
- *USCF Climate Action Plan and GHG Reduction Strategy*, UCSF, July 2020.
- *USCF Climate Action Plan and GHG Reduction Strategy*, UCSF, April 2017.
- *Sustainable Practices Policy (SSP)*, University of California Office of the President (UCOP), July 2020

In general, SCS does not agree with the evaluation and mitigation approach contained in the DEIR for GHG and Energy impact evaluation. UCSF is choosing only portions of certain climate reduction plans to follow for this CEQA review, while choosing to ignore other components of the plans, and choosing to ignore other plans entirely. This results in a GHG and energy analysis that is inconsistent, incomplete, and difficult to follow.

The core of this issue is identified by the choice of UCSF to comply with only the UCOP Climate Action Plan (CAP), which includes the UCOP Sustainable Practices Policy and Carbon Neutrality Initiative (CNI), yet excludes local, regional, and statewide climate policies and plans. We understand this is more of a legal applicability question, but it is important to point out that there are several climate impact reduction policies that we believe should be considered in evaluation of the Project. These include, but are not limited to:

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- *Climate Action Plan for San Francisco, San Francisco Department of the Environment, September 2004*
- *Final 2017 Clean Air Plan*, Bay Area Air Quality Management District (BAAQMD), April 2017

We believe that these other plans should at least be considered for the evaluation of the Project. While the DEIR does mention these plans and programs, it chooses to evaluate the Project under the UCSF GHG Reduction Strategy (GHGRS) and 2017 Scoping Plan Update only.

In addition to this general concern, we have also listed specific comments and concerns with the GHG and Energy sections of the DEIR. These are detailed in the sections that follow.

24 cont.

GHG SECTION COMMENTS

Unenforceable Goals of the SSP

It is unclear how the Project will show achievement of the aspirational goals listed in the UCOP CAP. As detailed in the DEIR, the SSP contains aspirational goals associated with new buildings (DEIR pg. 4.7-21) and sustainable transportation (DEIR, pg. 4.7-22). It is unclear how achievement of these goals will be measured for the Project and what enforceable conditions can be implemented to limit GHG impacts to less than significant levels.

For example, the SSP states that UCSF shall "strive" to reduce its percentage of employees and students commuting by single occupancy vehicles (SOVs) by 10% relative to its 2015 comparative commute rates by 2025. In the event that the Project results in an increase in SOV commuting, UCSF will only have to say that they "tried" to reduce by 10% to have been consistent with the SSP, and there will be no mechanism to enforce actual GHG reductions from reduced SOV use.

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Construction Emissions Amortization

As stated on page 4.7-34 of the DEIR, construction emissions were amortized over 30 years and then added to annual operational emissions. By amortizing construction emissions, the Project is effectively reducing them over the time period presented. A more widely accepted method of construction analysis would be to evaluate the worst-case year, which is what is typically done for CEQA evaluations for air quality impact analyses (AQIA).

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GHGRS Inconsistency

As stated in the note to Table 4.7-3 of the DEIR, "*Emission calculations vary from those presented in proposed revisions to the GHGRS due to the inclusion here of all vehicle trips, and not just those associated with staff and students.*" This implies that the GHGRS does not include all trips (e.g. patient trips), so the large number of patient trips associated with the Project would seem to present an inherent conflict with the GHGRS. This type of inconsistency indicates that relying on the GHGRS to evaluate GHG emissions from the Project is not appropriate because the Project emissions are not wholly contained within the GHGRS and were not evaluated by the GHGRS.

27

CPHP Mitigation Measure GHG-1c

Mitigation measure GHG-1c proposes to, "acquire carbon offset credits in conformance with CARB guidance," from the CARB Cap and Trade Program for the Project. This provides another example of

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the selective nature of UCSF's use of regulations and guidance, however this time, in mitigation selection.

Under Section 95854 of the Cap and Trade Regulation, compliance instruments (e.g., credits) are subject to a quantitative usage limit when used to meet a compliance obligation. However, UCSF does not mention these limits in the use of carbon credits as a mitigation measure. Thus, while in one section of the mitigation measure UCSF states that they will comply with the Cap and Trade Regulation, they fail to meet the requirements of the regulation in the same section. This is an example of selective application of guidance/regulation.

Mitigation Measure GHG-1c also on carbon credits from The Climate Action Reserve (CAR), American Carbon Registry (ACR), or Verra could be used for mitigation, which may not be sufficiently robust for CEQA, specifically in light of the recent court ruling on the validity of credits used for CEQA purposes. These are voluntary registries, and most of the credits created under them would not qualify under Cap and Trade. This seems to conflict with their commitment above for Cap and Trade credits.

28 cont.

GHGRS

The DEIR references the 2017 GHGRS, yet the 2020 update is appended to the DEIR. We are uncertain of which document should be referenced and if the 2020 update has been approved. Further to this point, we wonder why the 2017 GHGRS needed to be updated to accommodate the Project. This would seem to infer that the Project was somehow inconsistent with the 2017 GHGRS. At a minimum, the DEIR should address any inconsistencies of the project with the previously approved 2017 GHGRS and confirm that the GHGRS was updated solely to show that the Project was compliant with it. Also, in the event that the GHGRS was revised, per the DEIR then the GHGRS may not meet the qualification of a "previously approved plan" under 15183.5 of the California Environmental Quality Act Guidelines.

In addition, rather than perform CEQA review based on the "previously adopted" 2017 GHGRS (refer to paragraph above), UCSF proposes to analyze Project GHG impacts by using the framework of the CARB 2017 Scoping Plan Update. The DEIR provides, "In lieu of a GHGRS that is qualified per CEQA Guidelines section 15183.5 through the year under the pending adoption as part of the LRDP amend, GHG impact assessment in this EIR with respect to the year 2030 and 2050 reduction targets is based on guidance in the CARB's 2017 Scoping Plan Update."

It does not appear that the CARB 2017 Scoping Plan even applies to the UC Regents. The section cited in the DEIR provides, "To support local governments in their efforts to reduce GHG emissions, the following guidance is provided." We are unclear if and how UCSF qualifies as a "local government." In addition, note that CARB's 2017 Scoping Plan does not purport to address the mandated 2050 emission target.

Lastly, note that the 2017 GHGRS established a midpoint between the 2020 and 2050 levels (2035). It doesn't address the 2050 levels. In the event that the DEIR is reliant upon the UCOP Climate Plan, the Project must address compliance with the 2050 goal.

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UCSF CAP

Page 4.7-20 of the DEIR cites an outdated version of the UCSF CAP, specifically one dated from 2009. It is unclear if DEIR is making a historical citation or were erroneously citing an older version of the Climate Plan. 30

ENERGY SECTION COMMENTS

Energy Supplies

Comparative electricity/natural gas use predictions were completed in the DEIR using a series of ratios referencing statewide usage and predictions compared to utility ratios for the City of San Francisco. We believe that a simpler, direct ratio would be more appropriate for the Project, such as possibly just determining the percentage that UCSF represents of the current statewide total, and scaling that up by the projected increase in statewide usage. 31

Other ratios and scaling methodologies can be completed, and we would recommend selection of a methodology that is clear and easy to follow and thus more transparent.

Impact ENE-2

Referencing back to our general comment regarding the consideration of local, regional, and statewide plans, Impact ENE-2 does not address state/local energy plans. It incorporates by reference to UC Sustainable Practices Policy, but none of the other plans that were discussed in our general comment (BAAQMD, City, and CARB plans). 32

EXHIBIT C

UCSF Parnassus
DEIR Review
10 September 2020

A review of noise and vibration concerns in the DEIR has been completed. This is a summary of those findings.

NOISE

NOI-1: construction noise

Given the high noise levels, sensitive receptors and close proximity a detailed Construction Noise Management Program should be developed further as part of the EIR. 33

DEIR page 4.11-21

"…*along Irving Street where, as discussed in the Environmental Setting, existing noise levels were monitored to be* ***69 dBA*** *due to frequent Muni* ***light rail*** *operations on this street."*

The World Health Organization (WHO) Environmental Noise Guidelines (2018) makes recommendations for various types of noise.

[WHO] strongly recommends reducing noise levels produced by **railway** traffic below 54 dB L_{den}, as railway noise above this level is associated with adverse health effects. 34

[WHO] strongly recommends reducing noise levels produced by **railway** traffic during night time below 44 dB L_{night}, as night-time railway noise above this level is associated with adverse effects on sleep.

Given 15 dB outside to inside noise reduction (4.11-3), the exterior WHO values would be 69 dB Lden and 59 dB Lnight. The nighttime **WHO criterion is possibly exceeded.**

DEIR page 4.11-34 –

TABLE 4.11-8

Kirkham Street between 5th Avenue and 7th Avenue –
Difference between Cumulative Plus CPHP and Existing – 2.7 [dBA] 35

There are five other road segments that will increase by 2 dBA, or more, in this table.

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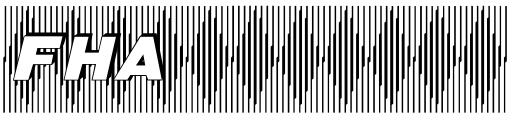

[WHO] strongly recommends reducing noise levels produced by road **traffic** below 53 decibels (dB) L_{den}, as road traffic noise above this level is associated with adverse health effects.

[WHO] strongly recommends reducing noise levels produced by road **traffic** during night time below 45 dB L_{night}, as night-time road traffic noise above this level is associated with adverse effects on sleep.

Given 15 dB outside to inside noise reduction (4.11-3), the exterior WHO values would be 68 dB Lden and 60 dB Lnight. The **WHO criteria are already exceeded** at several locations.

35 cont.

DEIR page 4.11-37 –

Impact C-NOI-4: *Implementation of the CPHP combined with cumulative development in the project area **could** exceed an LRDP EIR operational standard of significance by contributing to an increase in average daily noise levels (L_{dn}) of 3 dB(A) **or more** at property lines, **if** ambient noise levels in areas adjacent to proposed development **already exceed** local noise levels set forth in local general plans or ordinances for such areas based on their use. (**Less than Significant**)*

So, if conditions already exceed criteria levels, it is less than significant, and is it allowed to get even louder?

*As shown in **Table 4.11-8**, the increase in peak` traffic noise in the vicinity of the Parnassus Heights campus site from the Existing Plus Cumulative CPHP traffic scenario compared to the Existing traffic scenario would be **less than 3 dBA** on all roadway segments. Overall, traffic noise increases associated with the CPHP and cumulative development along all analyzed roadway segments in the vicinity of the Parnassus Heights campus site would be **less than 3 dBA** and the cumulative impact related to traffic noise would be **less than significant**.*

The 3 dB is too great an increment above ambient.

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VIBRATION

DEIR page 4.11-4 *"…and the threshold of perception for humans is approximately **65 VdB**."* This is the same level given for vibration-sensitive equipment.

DEIR page 4.11-15 "*The criterion for vibration-sensitive equipment is **65 VdB**, as published by FTA.*" This equates to 2,000 micro-inches per second (mips) which is appropriate criterion for normal microscopes using 100X magnification. Truly vibration-sensitive equipment, i.e. electron microscopes, is 250 mips (48 VdB). **Clearly this 65 VdB criterion is an order of magnitude too high.**

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DEIR page 4.11-31 "*UCSF also operates vibration sensitive equipment in some of its existing buildings, such as MRI machines and **electron microscopes**. Demolition and construction activities in close proximity to such equipment could generate vibration levels of 65 VdB or greater that could affect these operations, depending on the degree of vibration isolation designed into their systems. Therefore, there is a potential for a significant impact to vibration-sensitive equipment and mitigation measure is identified to reduce such impacts to a less than significant level."*

CPHP Mitigation Measure NOI-3b: Assessment and Relocation/Retrofitting of Vibration-Sensitive Equipment

*UCSF shall evaluate the presence of vibration-sensitive equipment within 150 feet of construction and demolition areas. Any sensitive equipment shall be evaluated for the existing extent of vibration isolation and **relocated or further embellish isolation**, as warranted."* Most sensitive equipment e.g. electron microscopes already employ isolation systems. There is no room for improvement and these would have to be re-located – a non-trivial exercise.

37 cont.

World Health Organization (WHO) Environmental Noise Guidelines

The WHO publishes a number of documents regarding developing research of various environmental noise sources, and offers a host of impacts to health and quality of life. There are strong reasons to employ WHO recommendations for noise criteria on this project.

The following recent document is cited: "WHO Environmental Noise Guidelines for the European Region – Executive Summary" (2018) (noise-guidelines-exec-sum-eng.pdf, attached)

Below are excerpts from the Executive Summary:

Page 2 –
Abstract
*"The main purpose of these guidelines is to provide recommendations for protecting human **health** from exposure to environmental **noise** originating from various sources: …"*

The full publication of the guidelines can be downloaded here:
www.euro.who.int/en/env-noise-guidelines

Page 3 –
Objectives

The following two key questions identify the issues addressed by the guidelines.

*•In the general population exposed to environmental noise, what is the **exposure–response relationship** between exposure to environmental noise (reported as various indicators) and the proportion of people with a validated measure of health outcome, when adjusted for confounders?*

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*•In the general population exposed to environmental noise, are interventions effective in reducing exposure to and/or **health outcomes** from environmental noise?*

*In light of these questions, the guidelines set out to **define recommended exposure levels** for environmental noise in order to protect population health.*

38 cont.

Methods used to develop the guidelines

*The process of developing the WHO guidelines followed a rigorous methodology involving several groups with separate roles and responsibilities. Throughout the process, the Grading of Recommendations Assessment, Development and Evaluation (**GRADE**) approach was followed.*

In particular, the different steps in the development of the guidelines included:

•formulation of the scope and key questions of the guidelines;

•review of the pertinent literature;

•selection of priority health outcome measures;

•a systematic review of the evidence;

•assessment of certainty of the bodies of evidence resulting from systematic reviews;

•identification of guideline exposure levels; and

•setting of the strength of recommendations.

Subsequently, the Guideline Development Group (GDG) formulated recommendations, guided by the Systematic Review Team's assessment and informed by of a number of additional contextual parameters.

38 cont.

Page 7 & 8 –
Target audience

*The guidelines are published by the WHO Regional Office for Europe. In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience, as a large body of the evidence underpinning the recommendations was derived not only from European noise effect studies but **also from research in other parts of the world – mainly in America**, Asia and Australia.*

*The main purpose of these guidelines is to provide **recommendations for protecting human health from exposure to environmental noise** originating from various sources: …*

***In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience**.*

A rigorous methodology has been used in developing these guidelines. That effort is reflected in "Annex 2. Systematic reviews and background documents used in preparation of the guidelines" of the Environmental Noise Guidelines. In summary, Annex 2 indicates: Systematic reviews included numerous studies:

"review on environmental noise and effects on **sleep**."
"review of transport noise interventions and their **impacts on health**."
"review on environmental noise and **cognition**."
"review on environmental noise and **quality of life, wellbeing and mental health**."
"review on environmental noise and **annoyance**."
"review on environmental noise and **adverse birth outcomes**."
"review on environmental noise and **permanent hearing loss and tinnitus**."
"review on environmental noise and **cardiovascular and metabolic effects**: a summary."

38 cont.

Responses to Comments from Soluri Meserve, A Law Corporation

O-SM-1 The comment asserts that the analysis presented in the Draft EIR is inadequate for a number of reasons. First, the comment asserts that the Draft EIR should include a determination of project impacts based on transit ridership, capacity, and delay, arguing that the language in CEQA Guidelines Section 15064.3, subdivisions (a) and (b)(3) requires a transit analysis. The comment further asserts that the Draft EIR analysis is inadequate with respect to assessment of how transit capacity and potential increased demand for transit due to the CPHP would result in impacts based on overloading the transit system, delaying transit vehicles, or inducing vehicle demand and increased VMT due to these capacity and delay issues.

CEQA Guidelines Section 15064.3 indicates that a project's effect on transit "may" be a "relevant consideration," and by no means requires its assessment. UCSF has established its thresholds of significance based on the CEQA Guidelines and OPR Technical Advisory, as discussed in Master Response 16.

In addition, although analysis of transit ridership, capacity, and delay are not required under CEQA, the Guidelines indicates that if a project's impacts to the transit system are assessed, analysis "would evaluate factors such as the availability of transit, proximity to other destinations, etc." This analysis is included in the Draft EIR. Transit availability is discussed thoroughly in the Draft EIR on pages 4.15-3 through 4.15-4 and pages 4.15-6 through 4.15-12. The CPHP would not physically affect the services described on those pages and all existing transit infrastructure would remain the same under the CPHP. The proximity between UCSF and other destinations via transit would also remain unchanged, and several elements of the CPHP would facilitate pedestrian access to existing transit facilities, including the Irving Street Arrival project.

A discussion of why the Draft EIR is not required to address impacts to transit capacity and transit delay is provided in Master Response 16 and Master Response 20.

As noted in the comment and in OPR's Technical Advisory, increased ridership on transit should not be considered an adverse effect. The Technical Advisory continues to note that this increased ridership should not be considered an adverse effect, even if it results in increased travel times. As discussed in Master Response 17, the CPHP would result in new transit riders that would distribute among four Muni routes in the immediate vicinity of the campus site, including the N Judah, 6 Haight/Parnassus, 7 Haight/Noriega, and 43 Masonic. However, the requirement of additional or expanded transit infrastructure has not been identified based on these new riders. The CPHP is not responsible for analyzing the potential effects of Muni operational issues or changes, and Muni is expected to adjust operations accordingly in response to changes in demand on a citywide basis over the thirty-year implementation of the CPHP. There is no evidence to

suggest that transit crowding alone leads to an increase in VMT that would result in a significant impact under the CPHP; even if such an effect were present, CPHP VMT would need to increase by more than 60 percent for residents and more than 30 percent for employees to exceed the threshold for a significant VMT impact. As such, the analysis presented in the Draft EIR is both adequate and complete, and no additional analysis is required.

O-SM-2 The commenter states that the EIR should identify a significant energy impact pursuant to CEQA Guidelines section 15126.2, subdivision (b), because the Project's energy use would be "dramatically higher than the statewide average."

It is not clear what is meant by the premise that the CPHP's energy use would be dramatically higher than the statewide average. As stated in the Draft EIR, to provide context so that the reader may better understand the magnitude of the CPHP's 30-year program of energy demand growth, the existing state-wide demand of electricity and natural gas are provided. The numbers are not presented to argue that the CPHP's demand would be a small fraction of the state's demand for electricity and natural gas.

CEQA Guidelines section 15126.2, subdivision (b), focuses on the potential for a project to result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, and includes no recommendation for analyses to consider a comparison of the project's energy use to annual average statewide energy use trends. It does, however, recommend that in addition to building code compliance, other relevant considerations may include, among others, the project's size, location, orientation, equipment use, and any renewable energy features that could be incorporated into the project, and that the analysis should be subject to the rule of reason and shall focus on energy use that would be caused by the project.

Please note that the CPHP's energy demand impact is analyzed in the Draft EIR utilizing Appendix F guidance. The commenter is referred to Draft EIR pages 4.5-19 through -28, which present a detailed analysis of the CPHP's energy demand relative to each impact guidance factor in Appendix F of the CEQA Guidelines. The impact conclusion is based on the entirety of the analysis. The EIR analysis relative to whether the CPHP would cause significant environmental effects due to wasteful, inefficient, or unnecessary use of energy has been appropriately analyzed per the recommendations of CEQA Guidelines section 15126.2, subdivision (b) and CEQA Guidelines Appendix F (see Draft EIR pages 4.5-19 through 4.5-28 for the Impact ENE-1 analysis).

O-SM-3 The commenter asserts that by comparing the CPHP's projected energy demand to state-wide demand, the Draft EIR is relying on the "ratio theory" analysis. In the case referenced by the commenter, the Court found the EIR preparers concluded that the project would not have a significant air quality cumulative

impact because it would contribute less than one percent of area emissions for all criteria pollutants in the valley, and that this "ratio theory improperly focused upon the individual project's relative effects and omitted facts relevant to an analysis of the collective effect this and other sources will have upon air quality." The Draft EIR does not rely on ratio theory for its significance determinations relative to energy use. The EIR comparisons of the energy use that would be caused by the CPHP relative to statewide and regional energy use amounts are provided for informational purposes to establish a frame of reference relative to the proposed project's energy use, and the impact determinations are primarily based on other factors relevant to the analysis, including those recommended in CEQA Guidelines section 15126.2, subdivision (b), and CEQA Guidelines Appendix F.

In addition, it is noted that Exhibit B in the commenter's letter provides a recommendation to include "a simpler, direct ratio" relative to the percentage of energy use that UCSF represents of the current statewide total, and scaling that up by the projected increase in statewide usage (see Comment O-SM-31). Therefore, the expert retained by the commenter in Exhibit B appears to be at odds with the commenter, and consistent with the EIR with respect to ratios of project energy use relative to documented statewide use.

O-SM-4 The comment includes a partial quote from the Draft EIR to support an assertion that the Draft EIR relies on a flawed and misleading strategy to dismiss the CPHP's cumulative impact on energy consumption. However, when the full text of that discussion is considered, it is evident that the purpose of the statement is to not only describe the estimated consumption rates as "not substantial," but to also reflect the facts relevant to the collective effect of the project, in terms of whether or not it would use fuel or energy in a wasteful or inefficient manner, combined with the other cumulative projects discussed in Draft EIR Section 4.0:

> "Given the relatively small percentage of the CPHP's other fuel and energy uses compared to existing fuel and energy use in the region, the CPHP's less-than-significant incremental impacts related to the use of other forms of fuel or energy in a wasteful or inefficient manner would not be expected to combine with the incremental impacts of other projects to cause an adverse cumulative impact. The operational electricity requirements of the CPHP would not be cumulatively considerable and the estimated consumption rates would not be substantial compared to the 2018 citywide consumption."

The Draft EIR cumulative analysis for energy goes on to also discuss how vehicle use associated with operations of the CPHP would be reduced due to implementation of UCSF's Transportation Demand Management (TDM) program, which would include reductions in transportation and associated energy usage at full buildout, and how the "cumulative projects" would be subject to the same applicable federal, state, and local energy efficiency requirements (e.g., the

State's Title 24 requirements) that would be required of the CPHP, which would result in efficient energy use during their construction and operation. Therefore, the Draft EIR cumulative energy impact analysis does not consider the CPHP "in a vacuum," but rather, considers it with the combined effects of other cumulative projects.

O-SM-5 This comment opines that the use of a net zero increase significance criterion is inappropriate to determine whether the proposed CPHP would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The commenter is conflating two separate CEQA thresholds with respect to greenhouse gas emissions. As stated in the Draft EIR Section 4.7, Greenhouse Gas Emissions on page 4.7-33, there are two significance criteria identified in CEQA Guidelines Appendix G for greenhouse emissions and used in the Draft EIR. Specifically, would implementation of the CPHP:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The commenter claims that the net zero significance criterion applied in the Draft EIR is inappropriate to address CEQA criterion b) above with respect to conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. However, the net zero significance criterion is applied in Impact GHG-1 on Draft EIR pages 4.7-34 through 4.7-43 to assess whether implementation of the CPHP would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and the analysis concludes that the impact would be significant due to the increase in emissions. However, mitigation is included in the Draft EIR to reduce the effect to less than significant. The determination with respect to whether the proposed CPHP would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases is presented in Impact GHG-2 on Draft EIR pages 4.7-43 through 4.7-45. The analysis of whether the proposed CPHP would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases utilizes a qualitative approach that first addresses consistency of the proposed CPHP with UC plans and policies, including the UC *Sustainable Practices Policy*, the Carbon Neutrality Initiative (CNI), UC Regents Direct Access Program, and purchase of carbon-free electricity. The analysis in Impact GHG-2 then qualitatively addresses consistency with other plans, including 2040 Plan Bay Area, CARB's 2017 Scoping Plan Update, and with Executive Order S-3-05.

With mitigation, the proposed CPHP is consistent with UCSF's efforts to achieve the GHG reduction goals mandated by SB 32 (40 percent reduction in GHGs, compared to 1990 levels by 2030). It is not the role of the Draft EIR to demonstrate that the proposed CPHP would result in such a reduction, but rather to demonstrate that even with the resultant development and growth under the CPHP, UCSF can still achieve carbon neutrality for its development projects, while implementing plans and policies such as the revised GHGRS that to reduce GHG emissions throughout its campus sites. An updated Greenhouse Gas Reduction Strategy included as part of the CPHP in Appendix GHGRS of the DEIR is intended to minimize the effects of GHGs at a programmatic level across the Parnassus Heights campus site through 2050 and includes a target for climate neutrality for Scope 3 emissions from business airline travel and commuting by UCSF staff and students by 2050.

With respect to the 2050 reduction goals, the California Supreme Court in *Cleveland National Forest Foundation, et al v. San Diego Association of Governments* ((2017) 3 Cal. 5th 497, Supreme Court Case No. 5223603), upheld SANDAG's EIR in its approach of not determining project impacts for 2050 based on Executive Order No. S-3-05 goal for 2050, noting that "the [Executive Order No. S-3-05] lacks the force of a legal mandate binding on SANDAG in the preparation of its EIR" and that the EIR was not required to "explicitly engage in an analysis of the consistency of projected 2050 emissions" with Executive Order No. S-3-05. Therefore, determining impacts based on the CPHP's consistency with Executive Order No. S-3-05 is not required under CEQA.

O-SM-6 This comment avers that the 2017 Scoping Plan update is not an applicable plan policy or regulation for this project but, rather, applies to cities and counties, and therefore should not be considered relative to the greenhouse emissions significance criterion b) "would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases."

The language of greenhouse gas emissions significance criteria b) "conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases" does not specify any particular type of plan that is appropriate for the CPHP, and the Draft EIR addressed a variety of plans in order to address this topic robustly. Consequently, as stated above in Response O-SM-5, the analysis of whether the proposed CPHP would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases is addressed on Draft EIR pages 4.7-43 through 4.7-45 by first analyzing the CPHP's consistency with UC plans and policies, followed by consistency of the CPHP with other plans, including 2040 Plan Bay Area, CARB's 2017 Scoping Plan Update, and with Executive Order S-3-05 in order to fully consider the range of local, regional and statewide planning efforts. Please refer to Response O-SM-5, above, with respect to the proposed CPHP's

consistency with UCSF's efforts to achieve the GHG reduction goals mandated by SB 32 (40 percent reduction in GHGs compared to 1990 levels by 2030) and the goals established by Executive Order S-3-05.

O-SM-7 This comment repeats the ideas stated in Comment O-SM-6 above in terms of the Draft EIR assessing impact relative to the 2017 Scoping Plan Update of the CARB. Please refer to the Response O-SM-6 which addresses the Draft EIR approach to assessing whether the proposed CPHP would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Please refer to Response O-SM-5, above, with respect to the proposed CPHP's consistency with UCSF's efforts to achieve the GHG reduction goals mandated by SB 32 (40 percent reduction in GHGs compared to 1990 levels by 2030) and the goals established by Executive Order S-3-05.

O-SM-8 This comment asserts that the Draft EIR fails to fully analyze the health effects of high noise levels and challenges the thresholds of significance applied to assess noise-related impacts and suggests that the Draft EIR should apply recommendations of the World Health Organization (WHO) as significance criteria with respect to noise impacts assessed in Draft EIR Section 4.11, Noise and Vibration.

The Draft EIR broadly discusses the health effects of environmental noise on Draft EIR pages 4.11-3 and 4.11-4 as introductory information. The analysis of noise impacts in the Draft EIR addresses the CEQA Guidelines Appendix G checklist question as to whether the proposed CPHP would generate "a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies." Because the Parnassus Heights campus site is located within the City of San Francisco, the impact analysis applies the standards established in the City's Police Code and General Plan. As stated on Draft EIR page 4.11-13, "with respect to criterion a) above, this analysis applies the restrictions of the City of San Francisco Police Code Sections 2907 and 2908 and the 90 dBA daytime construction noise criteria of the FTA for residential uses. Additionally, an increase of 10 dBA representing a doubling of perceived loudness is also considered, although not a regulatory threshold." After identifying the significant and unavoidable construction noise impact relative to these criteria, the Draft EIR presents a section entitled "*Potential Health Effects of Significant CPHP Construction Noise Impacts*" on page 4.11-26. This discussion addresses how project construction noise would not result in adverse health effects related to pain, the onset of hearing loss or other significant health effects.

As stated on Draft EIR page 4.11-15 regarding assessment of operational noise impacts, "UCSF voluntarily strives to meet the City's Police Code, according to

which stationary mechanical equipment noise for commercial and industrial uses is limited to 8 dB(A) in excess of the ambient noise environment. The Code also provides an interior noise limit, stating that noise levels from mechanical sources may not exceed 45 dB(A) between the hours of 10:00 PM and 7:00 AM or 55 dB(A) between the hours of 7:00 AM and 10:00 PM with windows open except where building ventilation is achieved through mechanical systems that allow windows to remain closed."

By applying the local standards of the City noise ordinance where off-site receptors would have a potential to be impacted by the proposed project, the analysis of the Draft EIR directly addresses the checklist question regarding noise impacts in CEQA Guidelines Appendix G.

The WHO-published documentation cited by the commenter represents updated information that can also be used for the generalized discussion of the health effects of environmental noise on Draft EIR pages 4.11-3 and 4.11-4. However, with respect to the thresholds of significance, as lead agency, the University of California has discretion to rely on the General Plan and noise ordinance standards of the local jurisdiction and the use of those standards is supported by substantial evidence.

O-SM-9 The comment states that the EIR does not include a discussion of communication that has occurred between UCSF, the City of San Francisco, and other stakeholders during preparation of the EIR. Information about public process, including public meetings and noticing, NOP, etc. in development of the Draft EIR can be found in the Draft EIR Chapter 1, Introduction, pages 1-6 to 1-7. Additional information about UCSF's robust public outreach process can be found at https://www.ucsf.edu/cphp/community#tabs-2.

The comment also asserts that key transportation issues such as traffic congestion and transit have not been properly studied and evaluated. As discussed in Master Response 16, there are no significance criteria related to these topics and as such, the Draft EIR is not lacking and the analysis presented therein is adequate and complete. Refer to Master Response 19 and Master Response 20 for additional discussion of the CPHP's effects on the transportation system and transit.

O-SM-10 The comment asserts that the Draft EIR does not adequately identify transportation impacts caused by the increase in the number of person trips from the implementation of the CPHP. Refer to Master Response 19 for a discussion of the analysis of the transportation effects of the population increase. The comment also asserts that the Draft EIR hints at transportation impacts but does not put forth mitigation for the impacts of the CPHP. All of the transportation impacts of the CPHP are fully evaluated and disclosed in the Draft EIR. Please refer to Master Response 16 for a discussion of the scope of the impact analysis and transportation significance criteria used in the Draft EIR to analyze impacts. With the exception

of a potentially significant transportation impact during construction, no significant impacts were identified, and therefore no mitigation measures, other than that for the construction-related impact, are required.

O-SM-11 The comment asserts that analysis of transportation impacts is inadequate because it does not account for how travel behavior might change if the transit system is at capacity in its future year mode assumptions. The methodology for assigning the future year transit mode share is discussed in Master Response 17. It is based on real, observed trends in travel behavior of UCSF staff, students, residents and visitors; this locally collected recurring data serves as high quality evidence for travel behavior preferences that is specific to both the nature of the CPHP and the project location.

O-SM-12 The comment asserts that the regional transit analysis/findings included in the Draft EIR are inadequate. For a discussion of why the Draft EIR is not required to address impacts to transit capacity, please see Master Response 20. The comment further states that the CPHP should offer measures to facilitate transfers between regional transit and Muni or UCSF shuttles. UCSF operates a robust shuttle program, described on pages 4.15-10 through 4.15-12 of the Draft EIR, which serves this purpose, particularly for connections between UCSF campuses and 16th Street BART Station. In addition, UCSF implements a robust TDM program that encourages transit use and discourages drive-alone vehicle use, as described on pages 4.15-12 through 4.15-14 of the Draft EIR.

O-SM-13 The comment expresses concern that the Draft EIR does not adequately incorporate crowding or capacity on the N-Judah into its analysis. Refer to Master Response 20 for additional discussion of why Muni operational issues are not a CEQA concern, and therefore analysis of these effects is not required in the EIR.

O-SM-14 The comment requests additional information on planned changes in shuttle service to accommodate the projected demand for shuttle service under the CPHP. The shuttle service is one component of UCSF's TDM strategy, and UCSF will continue to revise and adjust shuttle services to best serve its employee and patient populations as growth occurs over a 30-year period. As noted on page 4.15-10 of the Draft EIR, "UCSF has made and will continue to make periodic minor operational changes to improve operations, expand service to accommodate new facilities or to respond to specific community concerns."

O-SM-15 The comment requests additional information on how UCSF implements and monitors its TDM program. As noted on page 4.15-30, UCSF's robust TDM program resulted in a reduction in drive alone commute percentage from 32 to 23 percent of employees in the five-year period from 2013 to 2018. As a comparison, the 2018 *San Francisco Travel Demand Update* study found that office workers drove alone at a rate of approximately 28 and 56 percent, respectively, in Place Type 2 and Place Type 3 areas of San Francisco; UCSF is

located on the border of Place Type 2 and Place Type 3, and currently has a lower employee drive alone rate than these local averages. The TDM program is monitored via annual surveys, as noted in Table 4.15-2. The success of this program demonstrates that UCSF is dedicated to reducing drive alone trips as a percentage of total trips to each of its campuses. Exclusion of some measures from a blanket list suggested by Caltrans does not mean that the TDM program is inadequate. For the record, UCSF does maintain a real-time information system so that users can track UCSF shuttle arrivals, and SFMTA provides a similar service for all SF Muni bus and light rail services.

O-SM-16 The comment suggests that the Draft EIR does not appropriately inventory pedestrian facilities on and adjacent to the campus site and that the Draft EIR does not provide recommendations to bring deficient facilities up to current standards. Documentation of existing pedestrian facilities at the campus site is included in the Draft EIR on pages 4.15-14 through 4.15-16, and follows past precedents, is thorough, and is appropriate for both a plan- and program-level EIR. As discussed in Impact TRANS-1 on pages 4.15-38 through 4.15-42, implementation of the CPHP would not result in a conflict with a program, plan, ordinance or policy addressing the circulation system, including pedestrian facilities. As discussed in Impact TRANS-3, on pages 4.15-47 through 4.15-49, implementation of the CPHP would not substantially increase hazards due to a geometric design feature or incompatible uses. Therefore, no impact related to pedestrian facilities was identified and no mitigation measures are required. Further, the CPHP includes the Parnassus Streetscape Plan (previously evaluated and approved as part of the 2014 LRDP and 2014 LRDP Final EIR) and the Irving Street Arrival project, which would improve pedestrian circulation and access on the campus site along Parnassus Avenue, along Irving Street and between Irving Street and Parnassus Avenue.

O-SM-17 The comment notes that some designated bicycle parking areas are currently well utilized on the campus site. As noted in Impact TRANS-1 in the Draft EIR, under the CPHP, UCSF would maintain existing short-term and long-term bicycle parking facilities as well as provide additional short-term and long-term bicycling parking facilities in convenient locations, as needed to maintain adequate bicycling parking facilities on campus.

O-SM-18 The comment describes portions of the existing conditions loading discussion presented on Draft EIR pages 4.15-18 to 4.15-19, travel demand estimates analysis presented on pages 4.15-29 to 4.15-33, and loading demand discussion presented on pages 15-34 to 4.15-35 in support of the assertion that additional loading spaces must be provided to meet future passenger and service loading demands.

It is important to note that with implementation of the CPHP, the increase in campus population is expected to occur over a 30-year timeline and the loading

demand discussion refers to a projection of a peak minute within a peak hour. UCSF monitors transportation conditions at all campus sites where development is proposed and would continue to monitor vehicle traffic conditions, inclusive of passenger and commercial loading and seek to remedy potential effects of any recurring shortfall. However, UCSF does not believe this operational concern to be a CEQA matter. Master Response 16 notes that CEQA provides for lead agencies, such as UC, to adopt their own thresholds of significance and to evaluate the significance of a project's impact based on substantial evidence. UC's significance thresholds for the CPHP are presented and discussed in Master Response 16, and do not include a significance threshold related to loading.

O-SM-19 The comment suggests that as part of the CPHP, preemptive systems at signals should be considered to facilitate emergency vehicles. This comment is not on the adequacy or completeness of the transportation-based impacts found in the Draft EIR. However, UCSF may consider changes to existing or proposed new Parnassus Avenue traffic signals as part of the New Hospital project, which will be studied at a project-level in the future.

O-SM-20 The comment states that sufficient evidence to support the Draft EIR's VMT analysis is not provided in the Draft EIR. More specifically, the comment asserts that the Draft EIR does not provide data supporting the use of medical work as an office use, does not provide information related to medical visits, and does not provide local data to support VMT assumptions Finally, the comment asserts that the Draft EIR should compare the projected VMT to the existing VMT for the campus site to evaluate the significance of the change in VMT, and should not evaluate the impact by comparing the projected VMT to regional forecasts.

The evaluation of medical work VMT as an office use is consistent with the City of San Francisco's *Transportation Impact Analysis Guidelines* ("SF TIA Guidelines"); Appendix L ("Vehicle Miles Traveled/Induced Automobile Travel Memorandum") to the SF TIA Guidelines states "medical… land uses should be treated as office for screening and analysis." While the City of San Francisco is not the lead agency for the CPHP, UCSF has opted to its guidance for purposes of VMT analysis, per CEQA Guidelines section 15065.7(c). Use of the work VMT per employee metric represents a comparison of the VMT efficiency of a land use's location relative to elsewhere in the region; land use that results in shorter per capita trips for employees would also be expected to result in less VMT per capita for visitors as well due to centralized locations, availability of transit, and other infill-related efficiencies in the transportation system. Finally, while the Draft EIR opted to present VMT per capita results, the Parnassus Heights campus site is also located immediately adjacent to a major transit stop and a high quality transit corridor; as such, transportation impacts are presumed to be less than significant unless there is a clear reason to find otherwise per CEQA Guidelines section 15064.3(b)(1).

The VMT analysis presented in the Draft EIR is based on real, observed trends in travel behavior of UCSF staff, students, residents and visitors (see Master Response 17 for more information on robust travel behavior survey data that UCSF routinely collects). This locally collected data serves as high quality evidence for travel behavior preferences that is specific to both the nature of the CPHP and the project location. Additional information has been added to Appendix TR, to detail local data used in the Draft EIR's VMT assessment. Therefore, the Draft EIR did in fact collect local data, and used it in the assessment of VMT impacts.

The comment further asserts that the Draft EIR should compare the CPHP's estimated VMT per capita (an efficiency metric) for employees and residents to the estimated existing VMT per capita for the campus site. The Draft EIR correctly compares the estimated VMT per capita at buildout of the CPHP to the significance threshold of 15 percent below regional VMT per capita, as presented in Table 4.15-17, which is consistent with the *OPR Technical Advisory* and the SF TIA Guidelines.

Master Response 16 notes that CEQA provides for lead agencies, such as UC, to adopt their own thresholds of significance and to evaluate the significance of a project's impact based on substantial evidence. UC's significance thresholds used to evaluate impacts of the CPHP are presented and discussed in Master Response 16. As such, the analysis presented in the Draft EIR is both adequate and complete.

O-SM-21 The comment states that vehicle delay and intersection level of service analysis, which are included in Appendix TRANS for informational purposes only, are no longer required by CEQA. It then summarizes some of the traffic and transit operations discussion from the Appendix, including that addition of CPHP-generated traffic could cause five study intersections to operate at LOS F during the weekday PM peak hour and may periodically result in transit delay on Parnassus Avenue, as described in the Appendix. As noted in the comment and discussed in Master Response 19, a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA. Therefore, transportation impacts based on congestion and vehicular delay are appropriately not analyzed in the Draft EIR A discussion of why the Draft EIR is not required to address impacts to transit delay is provided in Master Response 16 and Master Response 20.

O-SM-22 The comment asserts that the Fourth Avenue extension (one-block extension between Parnassus Avenue and Kirkham Street) will induce vehicle trips and VMT and that this was not assessed in the transportation impact analysis of the project.

An evaluation of the effects of the Fourth Avenue extension on VMT is discussed as part of Impact TRANS-2 on page 4.15-44:

> *"The CPHP would add a new section of roadway between Parnassus Avenue and Kirkham Street and provide access to the future planned uses in the West End. This roadway would be a local street, primarily designed to provide access to the Parnassus Heights campus site and would include traffic-calming design elements such as narrow lanes, pedestrian crosswalks, full sidewalks, and bicycle infrastructure. In addition, the primary purpose of this roadway would be to provide access to the site, and not to provide a pathway for through traffic. The extension of Fourth Avenue would also provide access for service vehicles to/from the proposed multi-level service corridor between Medical Center Way and the Fourth Avenue extension. As such, this transportation improvement would not be expected to result in a significant impact on VMT."*

As noted, the Fourth Avenue Extension is not expected to result in a significant impact on VMT since this one-block roadway extension would be designed primarily for local-access and with traffic-calming design elements. Additionally, the Fourth Avenue Extension does not change the results of the development of the VMT per capita at buildout of the CPHP given that it will not alter commute travel behavior to/from the campus or the comparison to the significance threshold of 15 percent below regional VMT per capita, as presented in Table 4.15-17. No impact has been identified per UCSF established thresholds of significance based on the CEQA Guidelines and OPR Technical Advisory, as discussed in Master Response 16. The analysis found in the transportation (4.15) section of the EIR follows past accepted practices, is thorough, and is appropriate and adequate for a program-level EIR.

O-SM-23 The comment asserts that the Draft EIR does not adequately assess the transportation impacts of the project and that the Draft EIR errors that are identified in the letter require reanalysis and reevaluation in a revised EIR. As Responses O-SM-9 to O-SM-22 above demonstrate, there are no errors in the Draft EIR transportation impact assessment. Therefore, reanalysis in a revised Draft EIR is not required.

O-SM-24 This comment asserts that the GHG analysis of the Draft EIR focused its analysis of the CPHP's consistency with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases on a few applicable plans and excludes other plans that should have been included. Specifically, the comment suggests that the assessment of plan consistency should also include the City of San Francisco s 2004 Climate Action Plan and the Final 2017 Clean Air Plan of the Bay Area Air Quality Management District (BAAQMD).

As a statewide entity, the University of California Office of the President (UCOP) addresses GHG planning and strategy through its own efforts as it is

independent of the governance of cities and counties where its campuses exist, such as the City of San Francisco. Therefore, consistency with the City of San Francisco's Greenhouse Gas Reduction Strategy (which supersedes the 2004 Climate Action Plan) is not applicable to the proposed CPHP and does not represent an applicable plan to be considered relative to the development under the CPHP.

With respect to the Final 2017 Clean Air Plan of the BAAQMD, consistency with this document is detailed measure-by-measure in Table 4.2-20 on Draft EIR pages 4.2-66 and 4.2-67. For clarity, text is added on page 4.7-45 of the Draft EIR referring the reader to this consistency discussion. Please refer to Section 8.5 of this Comments and Responses document for this staff-initiated change.

O-SM-25 This comment is concerned that the goals of the UC Sustainable Practices Policy (SPP) may not be achieved, including the goal related to single-occupancy vehicle trip reduction.

For decades, UCSF's Transportation Demand Management (TDM) program has been successful at reducing single-occupancy vehicle trips. Through improvements to the UCSF shuttle system, increases in parking fees, dissemination of alternative transportation information, and a full suite of TDM offerings (guaranteed ride home, car and bike-share, etc.), UCSF's employee drive-alone rate in 2018 was approximately 23 percent. By comparison, the UCSF employee drive-alone rate in 1990 was about 48 percent. The University intends to continue building on this success and explore ways to further reduce commuter trips by single-occupancy vehicle.

The Draft EIR addresses whether implementation of the CPHP would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases on pages 4.7-43 through 4.7-45. In this discussion, the Draft EIR demonstrated that the proposed CPHP does not include development that would conflict with the goals of applicable plans for reducing GHGs. Reduction of single occupancy vehicles associated with the CPHP would be predominantly achieved through implementation of mitigation measures. As discussed on Draft EIR pages 4.2-36 and 4.2-37 in Section 4.2, Air Quality, CPHP Mitigation Measure AIR-2b: (TDM) Program Enhancements would be implemented to reduce on- and off-campus vehicle trips and resulting air quality impacts, and correspondingly, reduce GHG impacts as well. UCSF would implement TDM program enhancements such that the number of new average daily vehicle trips to and from the campus site is reduced by at least 15 percent from the estimated new average daily vehicle trips without these program enhancements. It is not the role of the Draft EIR to demonstrate that the proposed CPHP would achieve all of the goals of the SPP to demonstrate a less than significant finding, but rather, to demonstrate that there are no inconsistencies between the proposed CPHP and applicable plans to reduce GHGs.

As specified in Draft EIR CPHP Mitigation Measure AIR-2b, the TDM program enhancements/strategies shall be monitored annually for their combined effectiveness in meeting the performance standard. The annual monitoring and reporting program shall include: (a) an annual calculation of baseline new average daily vehicle trips without TDM program enhancements for each year starting in 2030[16]; (b) an annual calculation of new average daily vehicle trips with the TDM program enhancements; and (c) a comparison of the results of (a) and (b) against the "existing" average daily vehicle trips to determine whether the performance standard of a 15 percent reduction in new average daily vehicle trips is achieved.

Implementation of CPHP Mitigation Measure AIR-2b: TDM Program Enhancements would ensure the number of new average daily vehicle trips to and from the campus site is reduced by at least 15 percent from the estimated new average daily vehicle trips which would contribute to the achievement of the trip reduction goals and performance standards of the SPP.

O-SM-26 This comment takes issue with the methodology used in the Draft EIR of amortizing temporary construction emissions over the life of the project, and suggests that instead the Draft EIR should have evaluated GHG emissions for the "worst year" of construction, as is done for criteria pollutant emissions. The comment asserts that by amortizing over 30 years, the effect of the CPHP's construction-phase GHG emissions is being minimized.

The analysis of the CPHP's construction GHG emissions is provided in Section 4.7, Greenhouse Gas Emissions, on page 4.7-34 of the Draft EIR. As stated on page 4.6-36, the BAAQMD has not put forth a significance criterion that may be used to evaluate the significance of a project's construction emissions which are by nature short-term. Therefore, the computed total construction-phase emissions or the worst-year emissions (as suggested by the commenter) cannot be evaluated for their significance. In the absence of a significance criterion and with a view to making sure that these emissions are not overlooked, lead agencies commonly amortize these emissions over the life of the project; amortization of temporary construction-related GHG emissions over the lifetime of the project is now a standard practice under CEQA. This method was first developed in 2008 by the South Coast Air Quality Management District (SCAQMD).[17] Since that time several other jurisdictions have formally adopted this methodology including the City of Oakland[18], and the Sacramento Metropolitan Air Quality Management District (SMAQMD).[19]

16 The baseline new average daily vehicle trips without TDM program enhancements would be based on the average daily vehicle trip estimates for "Existing Conditions" and "CPHP (Future Phase)" scenarios, as presented in Appendix TRANS.

17 SCAQMD Draft Guidance Document Interim CEQA Greenhouse Gas Significance Threshold, October, 2008.

18 City of Oakland, CEQA Thresholds of Significance Guidelines, October 17, 2016.

19 SMAQMD, Guide to Air Quality Assessment in Sacramento County, April 2020, pages 6-15.

The SCAQMD guidance recognizes that "GHG emission reduction measures for construction equipment are relatively limited." In recognition of the short-term duration of construction GHG emissions, the relatively small contribution to a project's overall lifetime GHG emissions, and the limited options for reducing construction GHG emissions, the SCAQMD guidance recommends that construction project GHG emissions should be "amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies."

As the evaluation of construction-related GHG emissions is consistent with multiple guidance documents in California, in lieu of any direct guidance from BAAQMD with respect to construction-related GHG emissions, the University of California, as lead agency, has determined that the amortization of construction GHG emissions is a reasonable approach and is based on substantial evidence.

CPHP Mitigation Measure GHG-1c, identified on pages 4.7-39 through 4.7-41 of the Draft EIR, would require acquisition of carbon offset credits in conformance with the California Air Resources Board (CARB) guidance, prioritizing local and in-State offsets to achieve and maintain carbon neutrality for the Parnassus Heights campus site under the CPHP, inclusive of construction-related emissions. Therefore, the net increase in construction emissions over the lifetime of the CPHP would be offset though implementation of CPHP Mitigation Measure GHG-1c.

O-SM-27 This comment states that there is a potential inconsistency in the number of vehicle trips considered in the GHGRS and those considered in the CPHP CEQA analysis, as the former does not consider patient trips.

The assessment of GHG emissions is provided on pages 4.7-34 through 4.7-43 of the Draft EIR, and includes all VMT associated with full buildout of the CPHP, including VMT associated with patient and visitor trips to the campus site. CPHP Mitigation Measure GHG-1c, identified on pages 4.7-39 through 4.7-41 of the Draft EIR, would require acquisition of carbon offset credits in conformance with CARB guidance, prioritizing local and in-State offsets to achieve and maintain carbon neutrality for the Parnassus Heights campus site under the CPHP and would fully mitigate the emissions associated with new trips generated by patients and visitors to the Parnassus Heights campus site under buildout of the CPHP. Accordingly, the Draft EIR identified a less than significant impact with implementation of CPHP Mitigation Measure GHG-1c.

Please note, however, as stated on page 30 of the GHGRS in Draft EIR Appendix GHGRS, UCSF has no authority to restrict or otherwise control the VMT generated by patients and visitors through implementation of its GHGRS and, as a result, that component of VMT is not included in the GHGRS. The exclusion of GHG emissions associated with the Parnassus Heights patient and visitor trips from the GHGRS does not create any inconsistency between the Draft EIR

analysis of the CPHP and the GHGRS because all of the emissions associated with all trip types as analyzed in the Draft EIR with respect to CEQA would be fully mitigated by implementation of the mitigation set forth in CPHP Mitigation Measure GHG-1c.

O-SM-28 This comment asserts that CPHP Mitigation Measure GHG-1c identified on pages 4.7-39 through 4.7-41 of the Draft EIR is selective in identification of Cap and Trade requirements inclusive of quantitative limits on usage established by the Cap and Trade regulation cited.

CPHP Mitigation Measure GHG-1c makes it clear that UCSF is making separate, though overlapping, GHG emission reduction commitments that include the use of offsets: "(1) As a CARB-covered entity, UCSF will maintain compliance with CARB's cap and trade program; (2) Per existing UC Policy, UCSF's Scope 1 and Scope 2 GHG emissions shall, commencing in 2050, be entirely carbon neutral; (3) Also per existing UC Policy, commencing in 2020, UCSF's Scope 1, Scope 2, and Scope 3 emissions from commuters and air travel shall be voluntarily offset; and (4) UCSF's total GHG operational emissions from all Scope 1, 2, and 3 sources (as defined in this EIR) shall not exceed the Parnassus Heights campus's baseline emissions from these sources in 2018."

CEQA and California's Cap and Trade program represent different statutes with different goals and different rules for compliance. The Cap and Trade program applies to large industrial sources and power generating facilities, including UCSF's Central Utility Plant (CUP). For the CUP, UCSF can retire offsets for up to 8 percent of its compliance obligation under CARB's Cap and Trade Program – anything in excess of that is not allowed under the law. For emissions from its CUP which is under the Cap and Trade program, UCSF must use compliance offsets, known as California Carbon Offsets, which are not intended to be used in the voluntary carbon offset market, or for the purposes of CEQA mitigation. In fact, Section 95820(d) of the Cap and Trade regulation stipulates that compliance instruments can only be used for the purposes of Cap and Trade, which means they cannot be retired for compliance with CEQA or any projects under CEQA jurisdiction.

As shown in the Draft EIR Table 4.7-3 on page 4.7-36, the CPHP includes emissions from a range of sources that include CUP natural gas use, but also includes on-road vehicles, purchased electricity, non-CUP natural gas, solid waste, emergency power generators, water, and wastewater. Once UCSF reaches the 8 percent limit on the use of offsets for its CUP obligation under the Cap and Trade program, it will necessarily have to utilize the voluntary carbon market to offset the remainder of the emissions from the CPHP that are above the project significance criterion.

CPHP Mitigation Measure GHG1-c specifically indicates that any carbon offset credits purchased for the purpose of compliance with CARB's Cap and Trade program (i.e., California Carbon Offsets) shall be purchased from an Offset Project Registry approved by the California Air Resources Board as defined in 17 California Code of Regulations § 95802(a). For compliance with UC's Carbon Neutrality Initiative and its SPP to reduce Scope 1, 2, and certain transportation-related Scope 3 emissions below 1990 levels pursuant to AB 32 and SB 32, CPHP Mitigation Measure GHG-1c states that carbon offsets will come from the voluntary carbon offset market, which is separate from the compliance offset market. Per the guidelines of UC's Carbon Neutrality Initiative, any voluntary carbon offsets used for mitigation must be publicly reported and tracked through the Climate Registry (TCR), and shall originate from a voluntary carbon credit registry that is recognized by TCR, including the Climate Action Reserve (CAR), the American Carbon Registry (ACR) and Verra. These are the same three registries that are currently approved by CARB to help administer the Compliance Offset Program. Both CARB and TCR approve of these offset project registries because of their commitment to the highest quality in ensuring that the offsets they contain are real, permanent, additional, quantifiable, enforceable, and third-party verified.

O-SM-29 This comment requests clarification as to the referencing of the 2017 GHGRS, and the updated 2020 GHGRS appended to the Draft EIR, requests to know why the 2017 GHGRS needed to be updated, and raises concern that the 2020 update may not represent a "previously approved plan" relative to CEQA Guidelines Section 15183.5. The comment further raises concern that CARB's 2017 Scoping Plan Update and its reduction targets may not apply to the UC Regents and as such, that the 2050 reduction target is not an element of CARB's 2017 Scoping Plan Update and so the CPHP's consistency with the 2050 reduction target must be addressed in another way.

First, as stated on Draft EIR page 4.7-33, the 2017 GHGRS provides a framework for meeting the new (in 2017) statewide 2030 GHG emissions reduction target of 40 percent below 1990 levels and maintaining its status as a qualified GHG reduction plan per CEQA Guidelines Section 15183.5, through the year 2035.

As discussed in Draft EIR Chapter 3, *Project Description*, a 2020 update to the GHGRS has been prepared as part of a proposed amendment to the LRDP that incorporates CPHP construction and operations emissions. As stated on page 4.7-43 of the Draft EIR Section 4.7, Greenhouse Gas Emissions, the updated GHGRS addresses UCSF's achievement of goals set forth in the adopted Carbon Neutrality Initiative (CNI), which has goals more stringent than the statewide target of achieving 80 percent below 1990 emission levels by 2050. In compliance with the *Sustainable Practices Policy*, as well as the CNI, UCSF currently undergoes annual inventories of GHG.

This 2020 updated GHGRS is not a "previously approved plan" under CEQA Guidelines Section 15183.5, but rather is part of the proposed project. This 2020 updated GHGRS is contained in Appendix GHGRS of the Draft EIR. The purpose of the 2020 updated GHGRS is stated in pages 1 and 2 of the GHGRS:

> "This document is an update of the 2014 *Long Range Development Plan* (LRDP) Greenhouse Gas Reduction Strategy Reduction Strategy and the subsequent 2017 UCSF Climate Action Plan & Greenhouse Gas Reduction Strategy. The 2014 document was prepared to ensure that the LRDP is implemented in alignment with the UC Sustainable Practices Policy[20]; in particular the policies on greenhouse gases (GHGs), to fulfill the GHG reduction requirements of the State of California (AB 32)[21], and, to allow for CEQA analysis of the necessary actions to meet University policy while implementing the projects outlined in the campus 2014 LRDP as amended.
>
> UC San Francisco (UCSF) has prepared this update to reflect changes that have occurred since 2014 and 2017 in both the goals outlined in the UC Sustainable Practices Policy and, in the addition of new campus projects unforeseen at the time of LRDP adoption. The plan also updates the underlying quantitative analyses.
>
> Relevant changes since 2014 include:
>
> - As of June 2015, the UC Sustainable Practices Policy required each campus to develop strategies for meeting the following UC goals: 1. Climate neutrality from scope 1 and 2 sources by 2025, 2. Climate neutrality from specific scope 3 sources by 2050 or sooner.
> - The University of California began directly supplying electricity under a wholesale power program as part of the initiative to achieve carbon neutrality by 2025. Specifically making Clean Carbon free electricity (0 lbs/CO_2/MWh) available to its individual campuses in 2019.[22]
> - Voluntary purchase of carbon offsets at UCSF beginning in 2018. Revisions to policy on the purchase of carbon offsets to mitigate GHG emissions starting in 2020.[23]
> - Five amendments to the 2014 LRDP to accommodate campus projects unforeseen or not fully developed at the time of 2014 LRDP.
> - The development of the Comprehensive Parnassus Heights Plan (CPHP). A proposal that would provide for development of approximately 2.04 million gsf of net new building space with

20 UC Office of the President (UCOP). http://policy.ucop.edu/doc/3100155/Sustainable%20Practices

21 State of California. www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf

22 https://www.universityofcalifornia.edu/press-room/university-california-supply-electricity-select-campuses-medical-centers

23 https://ucop.edu/carbon-neutrality-initiative/_files/overcoming-barriers-to-carbon-neutrality.pdf

significant new clinical, research, and housing facilities at that campus site.

This *GHG Reduction Strategy*:

- Consolidates GHG reduction efforts already underway and planned by UCSF over the life of the LRDP (through 2035); and reflects the growth planned at Parnassus under the Comprehensive Parnassus Heights Plan (through 2050)
- Quantifies the impact on GHG emissions of projected land use as represented by the LRDP as amended
- Reflects and reinforces the policy direction regarding GHG reduction provided by the regular ongoing public meetings with the UCSF campus community and the annual reporting to the UC Regents
- Creates a framework for the ongoing monitoring and revision of this Greenhouse Gas Reduction Strategy; and
- Helps streamline California Environmental Quality Act (CEQA) review of future campus development projects as consistent with the LRDP growth projections and the GHG reduction policies and programs contained in the GHG Reduction Strategy."

With respect to the 2017 CARB Scoping Plan Update, the first Climate Change Scoping Plan and its subsequent two updates were prepared pursuant to Assembly Bill 32, the California Global Warming Solutions Act of 2006 – California Global Warming Solutions Act. AB 32 requires that *statewide* GHG emissions be reduced to 1990 levels by 2020. Not only are UC campuses located within the State of California, they are State entities, and it is, therefore, reasonable to expect that all UC campuses would be subject to its conditions and developed reduction targets.

It is acknowledged that the 2017 Scoping Plan only identifies how the State can substantially advance toward the State's 2050 climate goal to reduce GHG emissions by 80 percent below 1990 levels and not, necessarily, meet them. However, as stated on page 4.7-15 of the Draft EIR, in the 2017 Scoping Plan Update, CARB recommends statewide targets of no more than six metric tons CO_2e per capita by 2030 and no more than two metric tons CO_2e per capita by 2050.

As stated on page 15 of the Draft EIR Appendix GHGRS, "this updated GHGRS includes strategies to meet UC goals to achieve climate neutrality from Scope 1 and Scope 2 emissions by 2025, and from Scope 3 emissions by 2050, incorporating the new proposed CPHP development at Parnassus Heights." Parnassus Heights-campus site-wide carbon neutrality by 2050 would be consistent with the compliance goals of the UCOP Climate Plan as well as the state's 2050 climate goals. Further, with respect to the 2050 reduction goals, the California Supreme Court in *Cleveland National Forest Foundation, et al v. San Diego Association of Governments* ((2017) 3 Cal. 5th 497, Supreme Court Case

No. 5223603), upheld SANDAG's EIR in its approach of not determining project impacts for 2050 based on Executive Order No. S-3-05 goal for 2050, noting that "the [Executive Order No. S-3-05] lacks the force of a legal mandate binding on SANDAG in the preparation of its EIR" and that the EIR was not required to "explicitly engage in an analysis of the consistency of projected 2050 emissions" with Executive Order No. S-3-05. Therefore, determining impacts based on the CPHP's consistency with Executive Order No. S-3-05 is not required under CEQA.

O-SM-30 The commenter states that the Draft EIR cites an outdated version of the UCSF Climate Action Plan on page 4.7-20 of the Draft EIR and asks for clarification.

The citation on page 4.7-20 of the Draft EIR is referencing the original Climate Action Plan that first introduced the adoption of the *Policy on Sustainable Practices (Sustainable Practices Policy)* in 2007. The text in which this citation resides is purely a chronological explanation of Policies and Plans of the UC Regents and UCOP, as identified in the sub-header above it.

O-SM-31 The commenter does not provide a compelling reason to support the recommendation that the Draft EIR should possibly disclose the energy use percentage that UCSF represents of the current statewide total, and scaling that up by the projected increase in statewide usage. The Draft EIR comparisons of the energy use that would be caused by the CPHP relative to existing statewide and regional energy use amounts are adequate for informational purposes and to provide a frame of reference of the proposed project's energy use relative to existing statewide and regional conditions. Therefore, the suggested additional ratios are not required to be added to the Draft EIR energy analysis.

O-SM-32 Pursuant to the University of California's constitutional autonomy, development and uses on property under the control of the University that are in furtherance of the University's educational purposes are not subject to local regulations or plans; therefore, City plans are not applicable to the proposed CPHP.

Regarding the potential for the CPHP to conflict with or obstruct Bay Area Air Quality Management District (BAAQMD) and California Air Resources Board (CARB) plans, those issues are addressed in Draft EIR Section 4.2, *Air Quality*, and Section 4.7, *Greenhouse Gas Emissions*, respectively. Draft EIR Impact AIR-5 addresses whether the CPHP could conflict with or obstruct implementation of the BAAQMD's 2017 Clean Air Plan (see Draft EIR pages 4.2-63 through 4.2-68), and Impact GHG-2 addresses CPHP consistency with CARB's 2017 Scoping Plan Update, which describes how the State will achieve the 2030 GHG emission reduction goal for California of 40 percent below 1990 levels by 2030 as mandated by Senate Bill 32, and with Plan Bay Area 2040, which includes the Regional Transportation Plan, and was adopted as

the Bay Area's Sustainable Communities Strategy pursuant to California Senate Bill 375 (see Draft EIR pages 4.7-44 and 4.7-45).

O-SM-33 This comment suggests that the Construction Noise Management Plan should be further developed as part of the Draft EIR.

The Construction Noise Management Plan is identified as a part of CPHP Mitigation Measure NOI-1a: Construction Noise Control Measures, on page 4.11-18 of the Draft EIR. This measure identifies four specific components to be included within a Construction Noise Management Plan for the CPHP and was developed based on UCSF's history of conducting construction activities in a dense urban area and proximate to residential land uses. The contents identified for this Construction Noise Management Plan are consistent with measures used for similar types of construction proposed under the 2014 LRDP, including projects at both the Parnassus Heights and Mission Bay campus sites over the past several years. The comment does not suggest any specific additional measures to be considered.

O-SM-34 This comment states that existing noise levels from the Muni railway along Irving Street exceed exposure recommendations published by the World Health Organization (WHO).

The proposed CPHP does not propose any increased rail activity along the N-Judah Muni rail line. In addition, operations of the rail line are under the purview of Muni and not UCSF. Therefore, Muni rail noise is not an impact that would result from implementation of the CPHP, but is included in the Draft EIR as part of the existing noise environment.

O-SM-35 This comment refers to the increases in traffic noise presented in Table 4.11-8 on Draft EIR page 4.11-34 and notes that resultant noise levels may exceed noise levels recommended by the WHO.

The analysis of noise impacts in the Draft EIR addresses the CEQA Guidelines Appendix G checklist question as to whether the proposed CPHP would generate "a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies." As the proposed CPHP would be implemented at the Parnassus Heights campus site in San Francisco, the noise analysis uses the City's General Plan to establish the ambient noise standards that apply to the neighborhoods surrounding the campus site, and does not use criteria set forth by the WHO. Further, as lead agency, the University of California has discretion to use an appropriate quantitative significance criterion to establish what level of noise increase would constitute a substantial increase. Traffic noise has been extensively analyzed by Caltrans. According to Caltrans, outside of the laboratory, a 3 dB change in noise levels is

considered a barely perceptible increase in environmental roadway noise.[24] Because the 3-dBA increase is based on Caltrans' (a State of California entity) definition of perceptibility, the analysis in the Draft EIR uses a noise increase of 3 dBA to represent a substantial noise increase.

As stated on Draft EIR page 4.11-16, traffic noise modeling to address the effects of the traffic generated by the CPHP was completed using a spreadsheet based on the FHWA Traffic Noise Model and the significance of the change in noise levels was determined by comparing the increase in noise levels (traffic contribution only) to a permanent increase of 3 dBA or more if noise levels without the project already exceed those identified as appropriate for a given land use within the San Francisco General Plan, as presented in Figure 4.11-2 of the Draft EIR. Increases in roadway noise levels of less than 3 dBA represent a less than significant noise impact.

O-SM-36 This comment is concerned that significance criteria used to assess traffic noise impacts imposes a more lenient criterion if receptors are located in an already noise-impacted area, and asserts that the 3 dBA increase in noise is an increment that is too great.

The significance criteria used to assess increases in traffic noise is based on guidance on the significance of transportation-related changes to ambient noise levels, provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed the annoyance effects of changes in ambient noise levels caused by aircraft operations.[25] Although the FICON recommendations were specifically developed to assess aircraft noise impacts, they apply to all sources of transportation noise described in terms of cumulative noise exposure metrics such as the DNL. **Table 8.4.2.2-2**, below presents the FICON's recommended criteria. If the existing sound level is below 60 dBA, DNL, which is the standard for normally acceptable residential noise exposure in the San Francisco General Plan, then an increase of 5 dBA or more is considered significant. However, because existing transportation noise levels along impacted roadways are generally between 60 and 65 dBA, a more restrictive criterion of a 3 dBA increase is applied in the Draft EIR. In this way, more restrictive criteria are applied to noise-impacted environments. As stated above with Response O-SM-35, according to Caltrans, outside of the laboratory, a 3 dB change in noise levels is considered a barely perceptible increase in environmental roadway noise.

[24] Caltrans, 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013

[25] Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

TABLE 8.4.2.2-2
MEASURES OF A SUBSTANTIAL INCREASE IN TRANSPORTATION NOISE EXPOSURE

Ambient Noise Level without Project (DNL)	Significant Impact Assumed to Occur if Project Site Development Increases Ambient Noise Levels by:
<60 dB	+ 5.0 dB or more
60–65 dB	+ 3.0 dB or more
>65 dB	+ 1.5 dB or more[a]

NOTES:

dB = decibels; DNL = day-night average noise level

[a] According to the Federal Interagency Committee on Noise report, the 1.5 A-weighted decibel (dBA) increase in environments that exceed 65 dBA is not necessarily a significant increase but, rather, an increase warranting further investigation.

SOURCE: Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

O-SM-37 This comment takes issue with the significance criterion of 65 VdB used to evaluate vibration impacts to vibration-sensitive equipment on page 4.11-15 of the Draft EIR and suggests an alternative threshold of 48 VdB. The comment also expresses concern that CPHP Mitigation Measure NOI-3b: Assessment and Relocation/Retrofitting of Vibration-Sensitive Equipment**,** on Draft EIR page 4.11-31 may be onerous.

The significance criterion for vibration-sensitive equipment is a standard criterion under CEQA analysis and is published in a 2018 guidance document, as indicated on page 4.11-15 of the Draft EIR. The commenter does not cite a source for the suggested alternative criterion and as such provides no substantial evidence to support its use.

The commenter also indicates that most sensitive equipment already employs isolation systems, and as a result, there is no room for improvement and would have to be relocated. With respect to the requirements of CPHP Mitigation Measure NOI-3b, the University of California, as lead agency, would be responsible for implementing this measure as it is expected to affect equipment operated by UCSF. Vibrations during construction under the CPHP would primarily occur during demolition activities which are temporary and temporary suspension in the use of the equipment during proximate demolition activities may represent an additional option. Accordingly, CPHP Mitigation Measure NOI-3b is modified to provide UCSF the option to suspend use of vibration-sensitive equipment during substantial vibration-generating activities within 150 feet. Please refer to Section 8.5 of this Comments and Responses document for this modification.

O-SM-38 This comment provides numerous noise exposure recommendations published by the WHO.

Please refer to the Response O-SM-8, above, with respect to significance criteria applied in Section 4.11, Noise and Vibration of the Draft EIR as it concerns noise exposure to humans, the potential health effects, and the requirements of CEQA.

Please note Comment Letter O-SM contained an Exhibit D, and attachments to Exhibits A, B and C which did not comment directly on the Draft EIR. These attachments are included in Appendix O-SM in this Comments and Responses document.

wittwer / parkin

September 11, 2020

VIA EMAIL

Diane Wong
OCSF Real Estate—Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286
EIR@ucsf.edu

Re: Comments on Draft EIR for UCSF Comprehensive Parnassus Heights Plan

Dear Ms. Wong:

This law firm represents San Franciscans for Balanced and Livable Communities, a citizen's group composed of San Francisco residents. We are submitting these comments on behalf of our client with respect to the Draft Environmental Impact Report (DEIR) for the Comprehensive Parnassus Heights Plan (CPHP). Our comments are limited to aesthetics, wind, shadow, land use, population and housing, and biological resources. Others are submitting separate comments on other sections of the DEIR.

For the reasons stated below, the DEIR is fatally flawed in that it fails to comply with the California Environmental Quality Act (CEQA). Therefore, it must be revised to correct the infirmities identified herein and must be recirculated for further public review and comment. 1

A. The DEIR Incorrectly Claims that the CPHP is a Project as Defined by Public Resources Code Section 21099, and Thus Claims That Aesthetic and Parking Impacts are not Required to be Analyzed Under CEQA

Page 4.0-3 of the DEIR states that "aesthetic and parking impacts are not be considered in determining if a project has the potential to result in significant environmental effects pursuant to Public Resources Code section 21099(d) because the project is in a transit priority area, is an infill site, and is a residential, mixed-use residential, or an employment center project." It is true that section 21099(d)(1) states that "Aesthetic and parking impacts of a residential, mixed use-residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment." Leaving aside the question of whether this is truly an infill site given the project is adjacent to the Mount Sutro Open Space Reserve, the CPHP clearly does not qualify as a residential, mixed-use residential or employment center project. 2

While the term "project" as a stand-alone term is interpreted broadly under CEQA, the

term "project" in section 21099 is modified by the terms "residential, mixed-use residential, or employment center." The interpretation of the narrower meaning of "project" under section 21099 must be viewed in the context of CEQA's purpose.

The California Supreme Court has held that CEQA is to "'be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.'" *Friends of Mammoth v. Board of Supervisors* (1972) 8 Cal.3d 247, 259 (disapproved on other grounds); *Laurel Heights Improvement Ass'n v. Regents of Univ. of California* (1988) 47 Cal.3d 376, 390; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 563. In the analogous context of exemptions, which likewise limit the application of CEQA, courts have reviewed them narrowly. "Because the exemptions operate as exceptions to CEQA, they are narrowly construed. [Citation.]" *San Lorenzo Valley Community Advocates for Responsible Education v. San Lorenzo Valley Unified School Dist. (San Lorenzo Valley)* (2006) 139 Cal. App. 4th 1356, 1382. According to the California Supreme Court, CEQA exemptions must be narrowly construed and "[e]xemption categories are not to be expanded beyond the reasonable scope of their statutory language." *Mountain Lion Foundation v. Fish & Game Comm.* (1997) 16 Cal.4th 105, 125; *San Lorenzo Valley, supra,* 139 Cal.App.4th at 1382. *see also, McQueen v. Board of Directors* (1988) 202 Cal.App.3d 1136, 1148. Erroneous reliance by an agency on an exemption constitutes a prejudicial abuse of discretion and a violation of CEQA. *Azusa Land Reclamation Co. v. Main San Gabriel Basin Watermaster* (1997) 52 Cal.App.4th 1165, 1192. Similarly, the CPHP does not qualify as a "residential, mixed-use residential or employment center project."

2 cont.

First and foremost, the CPHP is a planning document that also amends the Long Range Development Plan (LRDP). It is more akin to a General Plan than a specific residential, mixed use residential or employment center project. Section 21099 assumes that general plan's and local zoning underwent environmental review. In other words, aesthetics and parking are not now considered in the context of the narrow set of projects when they were likely considered for overarching planning documents. It is noteworthy that Education Code 67504(b)(1) states that

> The Legislature further finds and declares that the expansion of campus enrollment and facilities may negatively affect the surrounding environment. Consistent with the requirements of ... CEQA, it is the intent of the Legislature that the University of California sufficiently mitigate significant off-campus impacts related to campus growth and development.

UCSF cannot fulfill this mandate if they are permitted to excuse or dismiss aesthetic and parking impacts for the CPHP, which includes an amendment to the LRDP.

3

Second, the CPHP is clearly not solely a residential project. Housing is a relatively small component of the CPHP. Thus, the project does not qualify as a "residential project."

4

Third, the CPHP cannot qualify as a mixed-use residential project. Section 21099 does

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not define "mixed-use residential project." However, elsewhere in CEQA, mixed-use residential projects are defined. Public Resources Code section 21159.25(a)(1) provides that a "'Residential or mixed-use housing project' means a project consisting of multifamily residential uses only or a mix of multifamily residential or nonresidential uses, ***with at least two-thirds of the square footage of the development designated for residential use***." (Emphasis added.)[1] Public Resources Code section 21159.28(d) related to a sustainable communities strategy defines "A residential or mixed-use residential project is a project ***where at least 75 percent of the total building square footage of the project*** consists of residential use or a project that is a transit priority project as defined in Section 21155." Regardless of what standard is applicable, the CPHP does not qualify as mixed-use residential project under any standard as the residential component is dwarfed by other development envisioned under the CPHP. The existing square footage of housing at the Parnassus Heights Campus is 241,900 and will increase by 673,400 square feet for a total square footage in 2060 of 915,300. However, the total of all other development on the campus is currently 3,678,600 square feet, with an increase of 1,371,400 square feet to 5,050,000 square feet. (DEIR p. 3-42.) These numbers are simply raw number comparisons of total square footage when the actual development is greater than the increase in square footage as development will also involve demolition of existing structures. Nevertheless, the residential component of the project is overwhelmed by other development. Moreover, mixed-use projects are considered residential/commercial developments, not a plan for development of a university campus.

5 cont.

Finally, the CPHP cannot qualify as an employment center project. Section 21099(a)(1) defines an "employment center project" as "a project located on property ***zoned for commercial uses with a floor area ratio of no less than 0.75*** and that is located within a transit priority area." A prerequisite for an employment center project is that it be on property ***zoned for commercial use***. The reference to zoning clearly refers to local zoning, not UCSF's designation of campus uses in the LRDP or the CPHP. Moreover, the LRDP does not have commercial designation (see DEIR, p. 3-41, 42), and if did, UCSF would lose its alleged status as an institution that would not have to comply with local zoning. UCSF's claim that it is constitutionally exempt for local land use regulation is limited in nature.[2] As the DEIR at page 4.7-32 admits, "Pursuant to Article 9, Section 9 of the California State Constitution, UCSF is constitutionally exempt from local land use regulations whenever using property under its control in furtherance of its educational purposes." A UC campus must be used solely for educational purposes to be exempt from local land use regulation. *Regents of University of California v. City of Santa Monica* (1978) 77 Cal.App.3d 130. Since section 21099(a)(1) is referring to local zoning, there is no local

6

[1] Similarly, Government Code section 65589.5(h)(2)(B), defines "Mixed-use "developments related to affordable housing as development containing at least two-thirds of the square footage for residential uses.

[2] As will be noted by other commenters, UCSF has made previous commitments to the community that call into question the assertions that it can blithely dismiss local land use regulations.

commercial zoning for the Parnassus Campus. The DEIR at 4.10-7 states that the "campus site is primarily located in the City's P (Public) Zoning District…. Housing located along Third and Fifth Avenues is designated by the City as Residential House District, Two-Family (RH-2)."

6 cont.

The DEIR states that it will perform aesthetic analysis despite claiming that is unnecessary. We anticipate the response to comments may note that the DEIR nonetheless provided the analysis. However, by asserting that there is no requirement to provide the analysis in the first place, the DEIR improperly minimizes the impacts. (The DEIR, page 4.1-30, makes the same fatal flaw with respect to examination of consistency with the City of San Francisco General Plan and Planning Code, and states that the DEIR provides analysis "for informational purposes" as if the standard is somehow lower.) First, by mistakenly claiming that aesthetic analysis need not be performed, the DEIR dissuaded the public from commenting on aesthetics, so the error of law is prejudicial (i.e., it prevents meaningful public comment.)

Moreover, decisionmakers are misled. One of the stated purposes of CEQA is to "[i]nform governmental decision makers and the public about the potential, significant environmental effects of proposed activities." 14 Cal. Code Regs. § 15002(a)(1). "The courts have repeatedly stated that informed decision making and public participation are fundamental purposes of the CEQA process." Kostka & Zischke, Practice Under the California Environmental Quality Act (Cont. Ed. Bar 2014) § 1.18, *citing Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, *Laurel Heights Improvement Ass'n v. Regents of Univ. of California* (1988) 47 Cal.3d 376, and *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68.

7

Furthermore, the DEIR's incorrect assertion that aesthetics does not need to be analyzed renders the conclusions questionable as the preparers of the DEIR may not have taken their charge seriously enough. This renders the analysis questionable. If the DEIR took aesthetic impacts seriously, the conclusions regarding aesthetic impacts would have recognized the serious visual intrusions and impacts that are going to occur as a result of the massive increase in development on the Parnassus Heights campus.

B. The Aesthetic Impact Analysis is Inadequate and Fatally Flawed

As stated above, the aesthetic impacts are downplayed as unnecessary analysis in the DEIR. As an example of the carelessness of the aesthetic impact analysis, the DEIR at page 4.1-27 states that "development under the CPHP may obstruct northerly and westerly views of the Marin Headlands or Golder Gate Park from the corner of Edgewood Avenue and Belmont Avenue, but not obstruct views of downtown San Francisco from any vantage point on Clarendon Avenue or Willard Street." But unlike other vantage points, the DEIR does not provide any simulations with respect to views from Edgewood and Belmont. The impacts cannot be judged based on the absence of information.

8

As the DEIR acknowledges, the City's General Plan considers the vicinity of the Parnassus Heights campus to have excellent quality street views. Even if UCSF does not have to comply with the City's General Plan, it cannot ignore the impact associated with destruction of these views. 9

Furthermore, Figure 4.1-10 on page 4.1-28 of the DEIR shows potentially significant aesthetic impacts from an existing trail in the Mount Sutro Open Space Reserve by providing a simulation of the development. The picture and simulation show eucalyptus trees as somewhat screening, however ineffectively, the large development that would result from the CPHP. However, the DEIR on page 4.3-3 states:

> UCSF determined there were too many trees in the Reserve to support a healthy canopy, and that more small-diameter trees were needed to diversify the forest. To address this, UCSF developed the Mount Sutro Open Space Reserve Vegetation Management Plan, a 20-year plan to achieve short- and long-term goals to improve ecosystem health, regenerate the forest, maintain and ensure public access to the Reserve, and minimize fire risk (see Section 4.3.2 for more detail), small diameter trees were required to diversify forest.

Given that the forest will obviously be thinned, the figure needs to reflect potential removal of trees. The simulations are misleading if the intervening eucalyptus trees are affected by the Forest Management Plan. The simulation underestimates the impacts of the large development that will loom over the trail. Moreover, any mitigations for the large building need to incorporate design mitigations that will reduce significant impacts. 10

The DEIR on page 4.1-29 also concludes that while the Aldea Housing Densification

> may be visible from Tank Hill, it is likely that intervening vegetation would largely obstruct views of this Initial Phase project (surrounding dense vegetation and eucalyptus trees can grow to over 100 feet tall in the Aldea Housing complex). Therefore, the initial Aldea Housing Densification project would not be expected to substantially or adversely affect scenic vistas.

Again, this assumption does not account for the fact that the Forest Management Plan will reduce the density of trees.

Perhaps the most troubling aesthetic impact analysis related to the New Hospital project. The 2014 LRDP objectives include the following sub-objectives: 11

> 1B. Acknowledge and respond to local zoning and height and bulk limitations to the extent possible.
>
> 1C. Design new buildings to be sensitive to the surrounding neighborhood and

landscape, taking into account use, scale, potential noise generation, and density.

The DEIR states that the "proposed LRPD Amendment would clarify that sub-objectives 1B and 1C would not apply to the New Hospital project, in recognition of the substantial amount of space required for the New Hospital, although UCSF would make efforts during the design process to come as close as possible to meeting these objectives, if feasible." (DEIR, p. 4.1-31.) This flimsy, and contradictory, assertion ignores that the New Hospital will result in an enormous aesthetic impact as shown by the simulations provided. (*See* Figures 4.1-14, 4.1-16, 4.1-17, 4.18.) As the DEIR admits, "The proposed New Hospital would also be nearly 100 feet taller than other existing buildings on the campus site (adjacent Moffitt Hospital is currently the tallest building at 197 feet). In addition, the proposed New Hospital would also be a prominent newly visible feature in the viewsheds from nearby neighborhoods...." (DEIR, p. 4.1-35.) The DEIR cannot argue that a massive building could "come as close to meeting" the very objectives from which it is being exempted. Moreover, many of the buildings exceed the height limits imposed by San Francisco zoning. (DEIR, p. 4.1-31, 4.1-42; *see also*, 4.10-20, Initial Aldea Housing exceeds height limit.) Then the DEIR makes the absurd statement that "from a use perspective, the proposed CPHP would be generally consistent with the surrounding neighborhood." (DEIR, p. 4.1-31.) In other instances, the DEIR declares that in other instances there is only a "nominal exceedance" of City height limits as if some exceedance is of no consequence. (DEIR, p. 4.1-41; see also, 4.10-18, 19.)

11 cont.

Despite these admitted, and obvious, enormous visual impacts, the DEIR concludes throughout the Aesthetics section that no mitigations are required. Indeed, the DEIR concludes that "To the extent the CPHP would be inconsistent with applicable 2014 LRDP objectives as described above, UCSF would seek amendments to the 2014 LRDP to bring the CPHP and 2014 LRDP into conformity." (DEIR, p. 4.1-41.) This includes amending sub-objectives 1B and 1C. Therefore, the DEIR concludes the impact is less-than-significant and no mitigations are required. However, amending the LRPD does not resolve the aesthetic impacts from the proposed buildings wildly exceeding the City's height limits and all other development in the vicinity. Scrapping the current LRDP policies does not simply mitigate what are significant aesthetic impacts on the ground. Moreover, the DEIR glosses over the inconsistencies with City zoning concerning height limits due to its claimed constitutional authority. This is all the more frustrating for the community because the DEIR assumes there will be no cumulative aesthetic impacts as a result of the project because other projects would have to comply with the City's General Plan and Zoning regulations, including 40-foot height limits. (DEIR, p. 4.1-77.) UCSF flaunts local policies and zoning to suit it and attempts to minimize cumulative impacts because others must comply with City requirements.

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C. Other Aesthetic Impacts are not Adequately Analyzed or Mitigated

The DEIR ignores certain potentially significant aesthetic impacts without analysis or mitigation.

1) Page 4.1-42 of the DEIR states that the initial Aldea Housing Densification "would be developed in a way that would reinforce its connection with Mount Sutro, respect the existing wooded setting and open space areas, refrain from impacting the extent of the Reserve, and establish discrete facade treatments to embrace the surrounding context." Therefore, the DEIR concludes that impacts would not be less-than-significant, and mitigations are not required. However, nothing in the DEIR explains the design elements that would mitigate these impacts. The simulation in Figure 4.1-19 does not show any actual design that would allow UCSF to make the conclusions made regarding the aesthetic impacts of this component of the project. Environmental review is inadequate when "it fails to provide sufficient evidence or analysis of the potential environmental effects of the [Project]. 'The agency should not be allowed to hide behind its own failure to gather relevant data.'" *City of Redlands v. County of San Bernardino* (2002) 96 Cal.App.4th 398, 408. The DEIR cannot conclude that no mitigations are needed when the analysis was not done in the first place. Bare conclusions that the Aldea Housing Densification will "reinforce its connection with Mount Sutro, respect the existing wooded setting and open space areas, refrain from impacting the extent of the Reserve, and establish discrete facade treatments to embrace the surrounding context," are inadequate. 13

2) Page 4.1-45 of the DEIR states that mitigation for light and glare would include "Reflective metal walls and mirrored glass walls shall not be used as ***primary*** building materials for facades." (Emphasis added.) The term "primary" allows wiggle room that could result in significant impacts from glare. The mitigation should prohibit such materials to reduce glare. 14

D. The DEIR's Analysis of Wind Impacts is Inadequate and the DEIR Improperly Defers the Formulation of Mitigations

The DEIR at page 4.1-12 concludes that wind is already uncomfortable on Parnassus Avenue in the vicinity of Moffitt-Long Hospital and Medical Building 1. The DEIR then analyzes the wind impacts in the vicinity of the New Hospital and other buildings and concludes that wind would exceed the comfort criterion for pedestrians. (DEIR, p. 4.1-46.) However, the DEIR makes a fatal mistake when it fails to examine with particularity the wind impacts associated with the most significant structure proposed on the Parnassus Heights campus. 15

> Although compliance with the wind hazard criterion was not evaluated as a design of the New Hospital is not yet available, it can be reasonably predicted that, depending on the ultimate design, the hazard criterion could be exceeded around the northeast corner of the

> New Hospital, where the greatest increases in pedestrian-level wind speeds would be anticipated. This would be a significant impact. **CPHP Mitigation Measure AES-4** would require that wind-tunnel testing of specific building designs for structures 80 feet tall or greater be implemented to reduce wind impacts as feasible. However, in the absence of wind tunnel testing of specific building designs, it cannot be concluded that effects would be reduced to a less than significant level. Therefore, this impact would be significant and unavoidable with mitigation.
>
> It is noted that, as stated above in the Approach to Analysis, this analysis is likely conservative in that it was based on a simple massing model of the proposed CPHP, and not on actual building designs, which have not yet been prepared. ***In general, a more likely building scenario includes building setbacks and other building sculpting features, such as podiums, would be expected to result in less substantial wind effects.*** (DEIR, p. 4.1-47.)

The mitigation proposed then states that:

> UCSF shall work with the wind consultant to identify feasible mitigation strategies, including design changes (e.g., setbacks, rounded/chamfered building corners, stepped facades, etc.), to eliminate or reduce wind hazards to the maximum feasible extent. If UCSF finds that these changes or other wind speed reduction strategies are not feasible as they would unduly restrict the proposed building's space program, result in operational inefficiencies, and/or substantially higher costs, the building(s) may nonetheless be approved provided that the project incorporates wind speed reduction strategies to the maximum feasible extent, as determined by UCSF in consultation with the wind consultant. (DEIR, p. 4.1-47; see also 4.10-17.)

15 cont.

The DEIR kicks the proverbial can down the road. The DEIR identifies possible ways to mitigate impacts associated with wind, but then decides not to do the analysis and claims that the analysis and formulation of mitigation measures will be done later. This is improper deferral of mitigation.

The DEIR does the same thing with respect to wind impacts associate with the Irving Street Arrival, RAB and Initial Aldea Housing Densification in that "no separate analysis was undertaken for each project on its own. However, the analysis did evaluate the Irving Street Arrival and the RAB projects, along with the New Hospital, absent other longer-term campus development, to identify the impacts of these projects from other longer-term development." (DEIR, p. 4.1-48.) Then the DEIR requires wind-tunnel testing of the specific designs and concludes again that the impact is significant and unavoidable. (DEIR, p. 4.1-49.)

The problem with the DEIR is that on the one hand it states that setbacks and other features could reduce wind impacts but claims that the analysis cannot be done without a specific building design. However, it is obvious that analysis of a structure without any features or

articulation could be examined to determine how significant the environmental impact may be without any mitigations. Indeed, the DEIR touts the ability to do the analysis. "The screening-level analysis involved computer simulation of wind effects using a tool known as computational wind engineering, a specialized sub-set of computational fluid dynamics." (DEIR, p. 4.1-21.)

One of the main purposes of an EIR is to identify ways to mitigate or avoid potentially significant impacts. Pub. Res. Code §§ 21002.1(a), 21061. CEQA therefore requires that the lead agency propose and describe mitigation measures aimed at minimizing any significant impact identified in an EIR. Pub. Res. Code §§ 21002.1(a), 21100(b)(3); 14 CCR §§ 15121(a), 15126.4. The fact that the EIR does not investigate the impacts and analyze the feasibility of mitigation is grave error. Environmental review is inadequate when "it fails to provide sufficient evidence or analysis of the potential environmental effects of the [Project]. 'The agency should not be allowed to hide behind its own failure to gather relevant data.'" *City of Redlands v. County of San Bernardino*, *supra*, 96 Cal.App.4th at 408.

> CEQA advances a policy of requiring an agency to evaluate the environmental effects of a project at the earliest possible stage in the planning process. We conclude that, by failing to accurately describe the agency action and by deferring full environmental assessment of the consequences of such action, the County has failed to comply with CEQA's policy and requirements.

Id. at 410 (emphasis added). "By deferring environmental assessment to a future date, the conditions run counter to that policy of CEQA which requires environmental review at the earliest feasible stage in the planning process. [Citations]." *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 307. "A study conducted after approval of a project will inevitably have a diminished influence on decisionmaking. Even if the study is subject to administrative approval, it is analogous to the sort of *post hoc* rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA. [Citations]." *Id.* at 307; *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 92.

The DEIR's analysis of wind impacts is inadequate as a matter of law. UCSF is required to analyze the impacts in the DEIR, not defer the analysis until there is a formal design. The problem is real, and there are tools to investigate the potential impacts. Moreover, the DEIR can set forth what types of setbacks, features and articulation that could be incorporated into the design to mitigate for these significant impacts. The DEIR admits that such design features exist. Instead, the public and the decisionmakers were deprived of meaningful information that could result in mitigation of these impacts.

15 cont.

E. The Impacts from Shadow Are Improperly Dismissed

The DEIR admits that there would be shadow impacts to Golden Gate Park from the New Hospital in the morning between 8:19 a.m. to 9:30 a.m. on the winter solstice. (DEIR, p. 4.1-67,

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Table, 4.1-51, Fig. 4.1-30, 4.1-35.) The DEIR dismisses the impact because it is limited to one of the baseball fields. The DEIR argues that "Baseball fields are typically utilized for games or practice during the midday or in the afternoon. While some may use baseball fields early in the morning, the periods of heaviest use would be around midday or in the afternoon when baseball games would be expected to occur." (DEIR, p. 4.1-67.) Therefore, the DEIR concludes that the impact is less-than-significant. This ignores that the baseball field may be used for other activities in the morning, such as walking or exercise, and that shadow during the winter will cause an impact. Moreover, the DEIR admits that the impact analysis excludes consideration of a potential rooftop observation deck and vestibule, but also states that "No rooftop mechanical equipment/enclosures are proposed for the New Hospital." (DEIR, p. 4.1-67, fn. 11.) This is at odds with other information in the DEIR regarding the New Hospital:

> Including potential rooftop observation deck and elevator vestibule that would occupy a portion of the roof. As currently conceived, the majority of mechanical equipment would be contained within various levels of the New Hospital to minimize the amount of equipment located on the roof; ***components of mechanical equipment located on the roof may slightly exceed the 294 feet in height."*** (DEIR, p. 4.10-16, fn. 2.)

16 cont.

With respect to Grattan Park, the DEIR concludes that shadow impacts are less-than-significant because the impact only is for 37 minutes and "this shadow would not substantially and adversely affect the use and enjoyment of this park considering it would occur at the end of the day at a time when park users would expect waning sunlight." (DEIR, p. 4.1-72.)

The DEIR dismisses the fact that these shadow impacts violates section 295 of the City's Planning Code, which regulates solar access. While UCSF claims that it has does not have to abide by local regulation, the conflict does prove that there is a significant environmental impact regarding shadow from development, particularly from the New Hospital.

F. The DEIR Fails to Employ the Correct Legal Standard in Analyzing Impacts Associated with Land Use

The DEIR relies significantly on the concept that UCSF does not need to comply with local land use regulation under Article 9, Section 9 of the California Constitution. Furthermore, with respect to the San Francisco General Plan, the DEIR concludes that "Because of the University's constitutional exemption from local land use regulation, conflicts with City regulations would not constitute significant environmental effects." (DEIR, p. 4.1-42.) This ignores the fact that whether UCSF is required to comply with local land use regulations, conflicts with local land use regulations could cause significant environmental impacts. It also ignores UCSF's promise in its LRDP to consider local land use regulations in development of

17

the Parnassus Heights campus. For instance, sub-objection 1B states "Acknowledge and respond to local zoning and height and bulk limitations to the extent possible." Moreover, the 2014 LRDP included Community Planning Principles that included Principle LU1, which stated that UCSF would "Plan for growth and renovations that are substantially consistent with use limitations and height and bulk limitations in City planning and zoning codes that exist at the time UCSF initiates the site selection process for such growth and renovation projects." (DEIR, p. 4.10-3.) Principle LU3 states that UCSF would "Ensure that future UCSF development is compatible with physical surroundings in use, scale, and density, and that do not negatively affect surrounding land uses." (DEIR, p. 4.10-4.) The LRDP also included an objective to "Acknowledge and respond to local zoning and height and bulk limitations to the extent possible." (DEIR, p. 4.10-2.) UCSF cannot now dismiss the grave inconsistencies with local land use regulations as having no environmental impacts because of UCSF's claim of constitutional authority.

Regardless of UCSF's ability to ignore local land use regulation, it must analyze the impacts of the project on the community as a result of the glaring inconsistencies. In fact, the inconsistencies are significant and unavoidable without major revision to the CPHP. As noted earlier, Education Code 67504(b)(1) states that "The Legislature further finds and declares that the expansion of campus enrollment and facilities may negatively affect the surrounding environment. Consistent with the requirements of ... CEQA, it is the intent of the Legislature that the University of California sufficiently mitigate significant off-campus impacts related to campus growth and development." The Legislature envisioned that UCSF would consider the impacts, including the land use impacts, on local communities. UCSF's dismissal of inconsistencies with local land use regulation is also inconsistent with the DEIR's promises: "In addition, it is UCSF's intent to adhere to the extent practicable, to City zoning codes related to building use, height, and bulk limitations; floor area ratios; and parking requirements or restrictions for the purpose of ensuring compatibility with the surrounding areas." This statement is meaningless if the DEIR fails to acknowledge the significant environmental impact associated with the CPHP. It also glosses over the significance criteria set forth in the DEIR at page 4.10-8, to wit, would the CPHP:

1) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

2) Exceed an LRDP EIR standard of significance by conflicting with local land use regulations such that a significant incompatibility is created with adjacent land uses?

(DEIR, p. 4.10-8.)

17 cont.

Furthermore, the DEIR erroneously concludes that "the CPHP does not substantially depart from the planning principles and concepts set forth in the 2014 LRDP." (DEIR, p. 4.10-

18

10.) The CPHP is completely exempting the New Hospital from critical principles and concepts set forth in the 2014 LRDP, which were no doubt part of UCSF's plan to mitigate impacts to the community. Absurdly, the DEIR concludes that "on balance, the proposed New Hospital would be compatible with adjacent land uses and would not create a significant land use impact." It also makes the erroneous assertion that "As described in Section 4.1, Impact AES-2 finds that the New Hospital would be the most noticeable visual change under the CPHP program, and would contrast sharply both in height and scale with the nearby residential development; however, with the proposed amendments to the 2014 LRDP, the CPHP would not conflict with applicable zoning and other regulations governing scenic quality." (DEIR, p. 4.10-17.) This ignores that height and bulk limitations, which the DEIR admits are exceeded and cannot be disputed, are directly related to scenic quality.

18 cont.

Finally, as stated on page 4.10-14 of the DEIR, a pedestrian bridge is proposed to cross Parnassus Avenue. However, the DEIR does not the discuss the applicability of local land use regulation that applies to such a pedestrian bridge. Because the bridge crosses a City street, UCSF must comply with local regulations regardless of UCSF's constitutional authority to control its own land. It cannot control the City's land under the same claimed authority.

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G. The DEIR Makes Absurd Arguments Regarding Population and Housing

The DEIR makes several assumptions regarding population and housing that is not borne out by common understanding in the City of San Francisco, the Bay Area or in the Legislature. With all of the constant assertions regarding a housing shortfall, the DEIR makes absurd conclusions regarding the jobs/housing imbalance and the CPHP's impact on housing. What is clear is that UCSF will not meet its current housing need with the proposed housing and will exacerbate the problem by creating even more jobs.

The DEIR concludes that jobs in San Francisco increased by 22 percent since 2010. The rate of job growth in the five-county study area was lower, at 15 percent. (DEIR, p. 4.12-2.) Consequently, San Francisco created more jobs than the average in the study area and has the least room for new housing than other areas.

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The DEIR outlines the 2014 objectives to address the need for housing and increase opportunities for housing. (DEIR, p. 4.12-4.) The DEIR estimates that the CPMP would result in a population increase of 4,100 by 2030 and about 5,180 by 2050. Then the DEIR states that "Assuming only one UCSF employee/student per household and based on 2.36 persons per household for San Francisco, the total population in San Francisco associated with UCSF growth under the proposed CPHP would be approximately 5,800 by 2030 and about 7,330 by 2050." (DEIR, p. 4.12-8.) Clearly, most of the growth will occur in the near-term, which will exacerbate the shortage of housing in the area.

The DEIR dismisses the impact by claiming that "The amount of employment growth at

the Parnassus Heights campus site under the proposed CPHP would not add significantly to the amount of employment forecast for San Francisco during this period." (DEIR, p. 4.12-8.) The DEIR also claims that

> Development of additional residential units on the Parnassus Heights campus sites would allow UCSF to provide more on-campus housing to students, postdoctoral scholars, clinical residents, and faculty near their classrooms and workplaces, thereby reducing demand for off-campus housing in San Francisco and the Bay Area. It would also promote sustainability objectives of the 2014 LRDP by reducing the amount of private vehicle and UCSF shuttle traffic between these and other campus sites. (DEIR, p. 4.12-9.)

These assumptions are absurd.

The DEIR states that the current population of the Parnassus Heights campus, excluding patients and visitors, is 4,900 students and 7,400 faculty and staff. Currently, 580 residents reside on campus. Based on a 2015 Housing Study, there will be a demand for in 2025 of student/trainee housing of 2,030 units and 345 units for faculty. (DEIR, p. 3-12.) The Initial Aldea Housing Densification project would increase the number of dwelling units by 142 units. West Side Housing development under the CPHP proposes 430 units. Future phases of Aldea Housing would increase the number of dwelling units by 332 units. (DEIR, p. 3-34.) The construction of these units does not even meet the demand for housing under the 2014 LRDP as determined in the 2015 Housing Study. The CPHP will only exacerbate the current shortfall. However, the DEIR makes the absurd conclusion that "In addition, some of the additional population associated with the proposed CPHP would be housed in the approximately 762 new units planned under the proposed CPHP on the Parnassus Heights campus site, thereby reducing demand for off-campus housing in San Francisco and the Bay Area." (DEIR, p. 4.12-13.) Then the DEIR concludes that "the population growth would not result in a demand for new housing that would exceed the capacity of the five-county market area. The CPHP's impact related to population and housing would be less than significant." (DEIR, p. 4.12-9.) This is contrary to the everyday assertions of housing shortages throughout Bay Area.

Part of the assumption of the DEIR is that "Implementation of the proposed CPHP would induce population growth in the Bay Area, but the population growth would not be substantial in comparison to the growth that is projected and planned for San Francisco and the four study area counties in *Plan Bay Area 2040* and the local General Plans for the study area communities." (DEIR, p. 4.12-9.) However, not only is there a direct impact because it will exacerbate the lack of housing in San Francisco and induce travel for housing, but the DEIR absurdly concludes that there is no cumulative impact. (DEIR, p. 4.12-13.) To say that the CPHP's contribution to the housing shortage will not result in a cumulative impact because it is not cumulatively

20 cont.

considerable misses the heart of a cumulative impacts inquiry. In San Francisco, the housing shortage is particularly acute. This is undisputable. In an analogous case,

> the significance of an activity depends upon the setting. (Guidelines § 15064, subd. (b)). The relevant question to be addressed in the EIR is not the relative amount of precursors emitted by the project when compared with preexisting emissions, but whether any additional amount of precursor emissions should be considered significant in light of the serious nature of the ozone problems in this air basin.

Kings County Farm Bureau v. City of Hanford, *supra*, 221 Cal.App.3d at 718. Here, the DEIR asserts that the CPHP's contribution to the problem is small, thus, there is no cumulative impact. The whole point of the cumulative impact analysis is to look at those impacts in conjunction with other developments to determine whether the impacts are cumulatively significant. "Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time." 14 Cal. Code Regs. § 15355. UCSF cannot escape this analysis by simply asserting that the CPHP's contribution is small. This failure to conduct a sufficient cumulative impacts analysis renders the DEIR "inadequate as an informational document." *Kings County Farm Bureau v. City of Hanford*, *supra*, 221 Cal.App.3d at 718.

20 cont.

H. The DEIR Fails to Adequately Analyze the Impacts to Biological Resources and Fails to Disclose Critical Information Regarding the Loss of Reserve Lands

The DEIR fails to analyze several impacts associated with biological resources, especially with respect to the Mount Sutro Open Space Reserve. Below is a list of these impacts, all of which must be addressed in the DEIR.

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1) The DEIR fails to adequately address the impact of light on the Reserve. This impact must be analyzed in the DEIR.

2) The DEIR concludes that coastal triquetrella, a special-status moss, "***may*** occur in open gravel areas along roadsides and hillsides, such as in the Aldea Housing area and in areas adjacent to Surge and Woods buildings." (DEIR, p. 4.3-14, emphasis added.) There was no attempt to determine where the moss is located. Just assertions of where it may occur. The mitigation for potential impacts is to simply conduct surveys prior to construction. Environmental review is inadequate when "it fails to provide sufficient evidence or analysis of the potential environmental effects of the [Project]. 'The agency should not be allowed to hide behind its own failure to gather relevant data.'" *City of Redlands v. County of San Bernardino*, *supra*, 96 Cal.App.4th at 408. "By deferring environmental assessment to a future date, the conditions run counter to that policy of CEQA which requires environmental review at the earliest feasible stage

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in the planning process. [Citations]." *Sundstrom v. County of Mendocino, supra*, 202 Cal.App.3d at 307. "A study conducted after approval of a project will inevitably have a diminished influence on decisionmaking. Even if the study is subject to administrative approval, it is analogous to the sort of *post hoc* rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA. [Citations]." *Id.* at 307; *Communities for a Better Environment v. City of Richmond, supra,* 184 Cal.App.4th at 92. Determining the location of moss is not a difficult feat and must be done as part of the environmental review.

> Compounding the error, the DEIR then concludes:
>
> If special-status plant species, including coastal triquetrella are observed, the plants will be avoided with a suitable buffer, determined in coordination with CDFW. The buffer zone shall be clearly demarcated using exclusion fencing. If establishing an avoidance buffer is not feasible, individual plants shall be transplanted to an area with suitable physical and biological conditions outside of the work area and monitored and adaptively managed for five years. (DEIR, p. 4.3-16.)

This proves that the failure to analyze the existing of coastal triquetrella is fatal. The DEIR assumes that a buffer is possible and then allows transplanting of the moss if it is determined it is not feasible. The DEIR also fails to analyze where the relocation areas of the moss, or parameter to measure its success.

22 cont.

3) The DEIR again clams that UCSF is not subject to local land use regulations. But then claims that "UCSF will adopt mitigation that is ***generally consistent*** with the City's *Standards for Bird-Safe Buildings* for new construction proposed under the CPHP." (DEIR, p. 4.3-19.) Regardless of UCSF's ability to override local land use regulations, it is incumbent upon UCSF to mitigate for environmental impacts. Bird strikes are a significant environmental impact. To be "generally consistent" with the City's standards is diminishing the importance of mitigations for bird strikes and allows UCSF to ignore aspects of the standards that could reduce bird strikes. For instance, the City's Standards require that "No more than 10 percent untreated glazing is allowed on building façades within the bird collision zone." (DEIR, p. 4.3-12.) However, the DEIR's mitigation simply requires that "Employ glazing options such as use of either fritted glass, Dichroic glass, etched glass, translucent glass, or glass that reflects ultraviolet light in appropriate portions of the building façade." (DEIR, p. 4.3-20.) The DEIR does not define what "appropriate portions of the building facade" means. The DEIR ignores mitigation measures that could reduce potentially significant impacts. The California Supreme Court has stated that the alternatives and mitigation sections are "the core" of an EIR. *Citizens of Goleta Valley v. Board of Supervisors, supra,* 52 Cal.3d at 564; *Los Angeles Unified School Dist. v. City of Los Angeles* (1997) 58 Cal.App.4th 1019, 1029; *Preservation Action Council v. City of San Jose, supra,* 141 Cal.App.4th at 1350.

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> Our Supreme Court has described the alternatives and mitigation sections as 'the core' of an EIR." (*Los Angeles Unified School Dist. v. City of Los Angeles* (1997) 58 Cal.App.4th 1019, 1029.) In furtherance of this policy, section 21081, subdivision (a), "contains a 'substantive mandate' requiring public agencies to refrain from approving projects with significant environmental effects if 'there are feasible alternatives or mitigation measures' that can substantially lessen or avoid those effects." (*County of San Diego v. Grossmont-Cuyamaca Community College Dist.* (2006) 141 Cal.App.4th 86, 98, italics omitted; *Mountain Lion Foundation v. Fish & Game Com.* (1997) 16 Cal.4th 105, 134.)

Uphold Our Heritage v. Town of Woodside (2007) 147 Cal.App.4th 587, 597-598 (review denied); *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883. The DEIR must incorporate all feasible mitigations. This is especially important given that the New Hospital will be the tallest structure in the area and is adjacent to the Mount Sutro Open Space Reserve and near Golden Gate Park. Moreover, Aldea Housing will be located adjacent to the Reserve. These factors increase the chance of bird strikes. 23 cont.

Furthermore, given the serious nature of bird strikes, the cumulative impact analysis does not include analysis regarding the cumulative impact to birds. (DEIR, p. 4.3-23 to 24.) The failure to include a cumulative impacts analysis is a failure to proceed in a manner required by law. Failure to provide adequate reasoning for exclusion of an environmental topic from further consideration invalidates the EIR: "A statement of reasons is necessary to assure meaningful judicial review in the event, as here, the EIR is challenged in court. 'Mere conclusions simply provide no vehicle for judicial review.'" *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1111 (quoting *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 171). Here, there was not even any conclusion regarding cumulative impacts associated with bird strikes. Crucially, "An EIR ***shall*** identify and focus on the significant effects of the proposed project on the environment . . . . Direct and indirect significant effects of the project on the environment shall be clearly identified and described [in the EIR], giving due consideration to both the short-term and long-term effects." 14 Cal. Code Regs. § 15126.2(a), emphasis added.

4) The DEIR at page 3-34, new "pathways" leading to the Mount Sutro Open Space Reserve. However, the DEIR does not provide any analysis of impacts associated with these additional pathways. These impacts must be discussed in the DEIR. 24

5) The DEIR at page 4.8-7 states "Under the Vegetation Management Plan, vegetation management is conducted in accordance with guidelines established by the San Francisco Fire Department and Cal Fire to create and maintain defensible space between vegetation and buildings." Will additional development adjacent to the Mount Sutro Open Space Reserve, including but not limited to the denser Aldea Housing, create the need for additional defensible space and clearing? The increase in potential for additional clearing of trees, bushes and habitat must be analyzed in the DEIR. 25

I. Request for Notice of Determination

Finally, pursuant to Public Resources Code § 21167(f), we are requesting that UCSF forward a Notice of Determination to this office when the CPHP is approved. Section 21167(f) provides:

> If a person has made a written request to the public agency for a copy of the notice specified in Section 21108 or 21152 prior to the date on which the agency approves or determines to carry out the project, then not later than five days from the date of the agency's action, the public agency shall deposit a written copy of the notice addressed to that person in the United States mail, first class postage prepaid.

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Thank you for your consideration of these comments. I look forward to UCSF's written responses.

Very truly yours,
WITTWER PARKIN LLP

William P. Parkin

cc: client

Responses to Comments from Wittwer Parkin, LLP

O-PARKIN-1 The commenter makes a general introductory statement that the Draft EIR is fatally flawed; and that the Draft EIR must be revised and recirculated.

As demonstrated in the individual responses provided to the comments raised, below, and further in Section 8.1.4 in this Comments and Responses document, none of the specific issues identified in the comments, or response to these comments, result in any of the conditions of Section 15088.5(a) being met. Thus, UCSF has determined that recirculation of the Draft EIR on the issues raised by the comments is not warranted.

O-PARKIN-2 The commenter asserts that the proposed CPHP does not meet the eligibility requirements for Public Resources Code Section 21099 because it does not meet the definition of being a residential or mixed-use residential project, or employment center; or the definition of an infill site. Please see Master Response 6: Public Resources Code Section 21099. The reference to Education Code Section 67504(b)(1) indicates that the statute is to be interpreted "consistent with the requirements of CEQA."

O-PARKIN-3 The commenter asserts the proposed CPHP does not meet the eligibility requirements for Public Resources Code Section 21099 because the CPHP is a planning document and not a project, and because it includes an amendment to the 2014 LRDP. Please see Master Response 6: Public Resources Code Section 21099.

O-PARKIN-4 The commenter asserts the CPHP does not meet the eligibility requirements for Public Resources Code Section 21099, because it does not meet the definition of being a residential project. Please see Master Response 6: Public Resources Code Section 21099.

O-PARKIN-5 The commenter asserts the CPHP does not meet the eligibility requirements for Public Resources Code Section 21099, because it does not meet the definition of being a mixed-use residential project. Please see Master Response 6: Public Resources Code Section 21099.

O-PARKIN-6 The commenter asserts that the proposed CPHP does not meet the eligibility requirements for Public Resources Code Section 21099 because the CPHP because it does not meet the definition of being an employment center. Please see Master Response 6: Public Resources Code Section 21099.

O-PARKIN-7 The commenter claims that the Draft EIR improperly minimizes its aesthetics impacts by dissuading the public from commenting on this issue, misleads decision-makers and that the aesthetics analysis was not addressed seriously in the Draft EIR. Please see Master Response 6: Public Resources Code Section 21099.

O-PARKIN-8 The comment states that the Draft EIR downplays the aesthetic effects of the proposed project, and notes that the Draft EIR does not include visual simulations from Edgewood and Belmont Avenues. Please refer to Master Response 7: Aesthetic Impacts.

O-PARKIN-9 The comment states that the Draft EIR fails to acknowledge alleged conflicts with the San Francisco General Plan. Please refer to Master Response 7: Aesthetic Impacts.

O-PARKIN-10 The comment states that that the Draft EIR's analysis of aesthetics does not adequately account for the removal of existing trees pursuant to UCSF's adopted Mount Sutro Open Space Reserve Vegetation Management Plan. Please refer to Master Response 7: Aesthetic Impacts.

O-PARKIN-11 The comment objects to the CPHP's proposed amendment to the UCSF LRDP to clarify that sub-objectives 1B and 1C would not apply to the New Hospital project and claims that this change would result in a significant aesthetic impact. Please refer to Master Response 7: Aesthetic Impacts.

O-PARKIN-12 The comment states that the Draft EIR should incorporate mitigation measures for adverse aesthetic effects. Please refer to Master Response 7: Aesthetic Impacts.

O-PARKIN-13 The comment makes reference to a statement in the Draft EIR that the Initial Aldea Housing Densification project component "would be developed in a way that would reinforce its connection with Mount Sutro, respect the existing wooded setting and open space areas, refrain from impacting the extent of the Reserve, and establish discrete façade treatments to embrace the surrounding context," and states that the Draft EIR provides no evidence for this statement supporting the conclusion that the proposed CPHP would have a less-than-significant aesthetic effect. First, the statement quoted is in the discussion of Impact AES-2, and the impact statement reads, "Development under the CPHP, including the proposed open space improvements and street network changes, would occur in an urbanized area and would not conflict with applicable zoning and other regulations governing scenic quality." Therefore, the relevant question is whether the project would "conflict with applicable zoning and other regulations governing scenic quality." The complete paragraph in the Draft EIR, including the quoted passage, reads:

> *As shown in **Figure 4.1-19**, buildings proposed as part of the initial Aldea Housing Densification project would be up to 96 feet in height in an area of the city currently zoned for 40 feet. As such, this project would not align with 2014 LRDP sub-objective 1B because it would not be consistent with local zoning and height and bulk limitations for the site. However, consistent with the CPHP design guidelines, the initial Aldea Housing Densification project* would be developed in a way that

> would reinforce its connection with Mount Sutro, respect the existing wooded setting and open space areas, refrain from impacting the extent of the Reserve, and establish discrete façade treatments to embrace the surrounding context. *This project would also continue the existing use of the Aldea Housing complex site for residential uses. For these reasons, this project would be consistent with 2014 LRDP sub-objective 1C. As a result, the initial Aldea Housing Densification project would not conflict with applicable regulations governing scenic quality.* (*italics* indicates text not quoted by commenter)

As can be seen, the Draft EIR concludes that the proposed project "would not conflict with applicable regulations governing scenic quality," thereby rendering Impact AES-2 less than significant with respect to the Initial Aldea Housing Densification project. For clarification, the paragraph on Draft EIR page 4.1-42 under the Initial Aldea Housing Densification is revised. Please refer to Section 8.5 of this Comments and Responses document for the proposed revision.

O-PARKIN-14 The commenter states that the mitigation measure pertaining to light and glare (CPHP Mitigation Measure AES-3), which requires that reflective metal walls and mirrored glass not be used as primary building materials for facades, could result in significant impacts because the word "primary" allows for wiggle room. The commenter suggests a ban on such materials.

The process of designing buildings is driven by technological, cost, and artistic considerations. A ban on reflective materials is unnecessarily restrictive, as such materials may be innocuous as accent features, in small amounts, in the right location. In designing buildings, the University would abide by the UCSF Parnassus Heights Design Guidelines, which recommends contextuality in material selections and fenestration. In addition, UCSF's practice is to engage a Design Advisory Committee, comprised of local architects outside of the University system, to review proposed campus building designs and to provide critique and advice. UCSF's practice also involves presenting preliminary designs to the community to receive feedback, and to make changes when warranted. This practice has been successful and to date no new buildings at any of UCSF's campus sites have resulted in significant light or glare impacts. Given these circumstances, CPHP Mitigation Measure AES-3 is adequate to mitigate potential light and glare impacts to less than significant levels.

O-PARKIN-15 The comment states that the EIR defers mitigation of effects related to pedestrian wind conditions. Please refer to Master Response 8: Wind Impacts.

O-PARKIN-16 The comment states that the Draft EIR's shadow analysis is inadequate because it fails to fails to properly account for the uses of park areas that would be shaded. Please refer to Master Response 9: Shadow Impacts.

O-PARKIN-17 The commenter assert the Draft EIR fails to employ the correct legal standards in analyzing impacts associated with land use. Please see Master Response 13: Land Use Impacts.

O-PARKIN-18 The commenter disputes language in Draft EIR Impact LU-1 that the CPHP does not substantially depart from the planning principles and concepts set forth in the 2014 LRDP. Please see Master Response 13: Land Use Impacts.

The commenter also objects to language from Draft EIR Impact AES-2 in Section 4.1, Aesthetics, Wind and Shadow that with UCSF's proposed LRDP Amendment, the CPHP would not conflict with applicable zoning and other regulations governing scenic quality. The commenter further asserts that this language ignores the height and bulk limitations. Please see Master Response 7: Aesthetic Impacts.

O-PARKIN-19 The commenter indicates the proposed pedestrian bridge across Parnassus Avenue must comply with local land use regulations regardless of UCSF's constitutional authority to control its own land. As noted on Draft EIR Section 4.10, Land Use and Planning, page 4.110-14, the proposed bridge would need to conform to applicable City standards. Please also see Draft EIR Chapter 1, Introduction, Approvals Required, on pages 1-8 to 1-9, which notes the bridge would be subject to City Board of Supervisors approval for construction within the City right-of-way; including lease air rights above Parnassus Avenue.

O-PARKIN-20 The commenter disagrees with the analysis and conclusions of the Draft EIR with regard to population impacts, arguing that the CPHP will create more jobs than housing, that there is a housing shortage throughout the Bay Area, and that the Draft EIR is incorrect in concluding that the project would not result in a demand for new housing that would exceed the capacity of the five county market area.

Please see Master Response 14: Population and Housing Impacts, which explains the scope of the population and housing impacts, as defined under Appendix G of the State CEQA Guidelines. For a project or plan that would support new jobs, such as the CPHP, CEQA requires that the environmental document evaluate whether the project-related new jobs would result in substantial unplanned population growth. CEQA does not require that the increase in employment be evaluated for its effects on housing supply. The Draft EIR does include an additional analysis of the CPHP's effect on housing based on a significance criterion set forth in the UCSF 2014 LRDP EIR, and finds that the project's demand for housing, which will incrementally develop over the plan period of 30 years, would be small relative to the housing growth projections of the City and the four surrounding counties. Please also see Master Response 14: Population and Housing Impacts regarding cumulative population and housing impacts.

O-PARKIN-21 The commenter states that the Draft EIR fails to analyze the impact of light on the Reserve. The comment does not indicate the nature of the potential impact of light, or cite a specific deficiency in the Draft EIR analysis.

Impacts of artificial light on migrating birds during both CPHP construction and operation is addressed in Section 4.3 in Impact BIO-2 and identified as potentially significant, and mitigated to a less than significant level with implementation of CPHP Mitigation Measure BIO-2a for construction light, and CPHP Mitigation Measure BIO-2b for operational light.

Draft EIR Section 4.1, Aesthetics, Wind and Shadow also addressed potential lighting effects of the CPHP on people, and identified CPHP Mitigation Measure AES-3 to ensure appropriate design standards would be employed to mitigate light impacts on people to a less-than-significant level. CPHP Mitigation Measure AES-3 would also be expected to further minimize potential effects of new lighting on nearby wildlife as well.

O-PARKIN-22 The commenter states that the Draft EIR fails to identify the locations of coastal triquetrella, a rare moss species that may grow along roadsides in gravelly areas. Vegetation surveys conducted for the Mount Sutro Open Space Reserve Vegetation Management Plan Final Environmental Impact Report (2017) did not observe this plant, nor was it observed during biological reconnaissance conducted for the CPHP Draft EIR. Hence, there is no evidence to suggest that this plant is present. However, potentially suitable habitat for this plant is present, therefore, the Draft EIR conservatively concluded that the species could occur within portions of the project site and could be affected by ground disturbing activities. With regard to the commenter's assertion that the survey for the plant should have been done as part of the Draft EIR studies, please note that plant sightings are prone to change from year to year depending on light, hydrology, and other climatic factors. Thus, any currently identified locations of triquetrella may not accurately indicate the locations of this plant at the time of construction; a new survey prior to construction would always be required. For this reason, mitigation for this species calls for a survey prior to construction, with time for relocation and salvage if the plant is identified in an area that will be impacted. If identified during this survey, the removal and damage of the moss will be avoided by establishing a buffer. If avoidance is not possible, the moss will be transplanted. Mosses such as coastal triquetrella can be readily transplanted. Ample relocation sites are available on the Reserve for any plants that are removed during the implementation of projects under the CPHP. As specified in CPHP Mitigation Measure BIO-1a, Botanical Surveys, any translocated plants would be managed and monitored for five years.

O-PARKIN-23 The commenter takes issue with the bird-safe mitigation included in the Draft EIR, and questions why the City's Standards for City's Bird Safe Buildings are not used instead. There is presently no federal or State law protecting birds from

window strikes.t. As discussed in the Draft EIR, Section 4.3, page 4.3-12, the City of San Francisco published bird-safe guidance in 2011. Although, as noted in Section 4.3, UCSF is not subject to local land use regulation whenever using land under its control in furtherance of its educational mission, UCSF has voluntarily elected to implement mitigation (CPHP Mitigation Measures BIO-2a and 2b) generally consistent with the City's Standards for Bird-Safe Buildings for new construction in order to protect birds from window strikes to the maximum extent feasible. While buildout of the CPHP would increase the likelihood of bird strikes from the larger structures, in the context of the Pacific Flyway, used by an estimated billion birds per year, these impacts are minor, and not cumulatively considerable. UCSF is proactively addressing the bird-strike issue by implementing mitigation based on local guidance, and its later New Hospital project-level EIR will address this issue specifically. Please also refer to Master Response 10: Bird Strikes.

O-PARKIN-24 The commenter requests analysis of biological impacts of new pathways leading to the Reserve. The CPHP does not propose any expansion of trails within the Reserve, rather, it would only coordinate planned trailheads to the Reserve, which would not result in adverse effects on the Reserve itself.

O-PARKIN-25 The commenter asks whether the increase in size and density of Aldea Housing structures may necessitate greater clearing for fire avoidance, and that the impacts from that clearing be analyzed in the Draft EIR. As discussed in the Draft EIR Chapter 3, Project Description, the new housing structures are anticipated to use approximately the same footprint as the present housing structures. As discussed in the Draft Section 4.13, Public Services, page 4.13-9, the new Aldea Housing would be designed and constructed to comply with building and fire codes and include appropriate fire safety measures and equipment. This would also apply to any modifications to defensible space and clearing that would be required. As discussed in Section 4.8, Hazards and Hazardous Materials, page 4.8-7, UCSF plans for fire prevention in accordance with guidelines established by the San Francisco Fire Department and Cal Fire to create and maintain defensible space between vegetation and buildings. The Draft EIR Section 4.3, Biological Resources, page 4.3-22 acknowledges that certain vegetation removal would be required at the campus site as a result of clearing, excavation and regrading activities conducted in support of the CPHP. The general removal of non-sensitive vegetation would be considered a less than significant effect. There are no sensitive habitats, including wetlands, riparian areas, or sensitive natural communities, present within the Reserve or elsewhere on the campus site. Potential effects to special-status plants are analyzed in Impact BIO-1, and would be less than significant with mitigation. Regarding replacement of removed trees, UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP when detailed designs become available.

O-PARKIN-26 The commenter requests the UCSF provide a copy of the Notice of Determination to the commenter when the CPHP is approved. The comment is acknowledged.

From:	86 Dwellers
To:	Campus Planning - EIR
Subject:	CPHP EIR
Date:	Tuesday, September 8, 2020 3:46:21 PM

RE: Response to UCSF EIR plan for 2020

Element of draft EIR that incomplete :

Housing Element: Student housing does not include all the student housing in San Francisco that is planned to be built, for example the 40% funded housing with UC Hasting planned for completion in phase 1 2022 and phase 2 2024. 1

The use of the projected increase of bay area 9 counties to grow 1% every year. 2

COVID was not included in this EIR; it affected the outreach meeting limit to people on the internet. 3

Also the rapid changes to the California economy,unemployment and population leaving the bay area. 4

UCSF: A total of 239 owned, leased or subleased buildings will be evaluated. For some buildings, simple retrofits could improve their seismic rating. In other cases, engineers may recommend more significant retrofits, or in some cases, vacating and retiring an entire building. Not spelled out reason for these projects. 5

Parnassus Heights is the oldest and largest campus site belonging to UC San Francisco. It comprises approximately 107 acres of land at the base of Mount Sutro. The 61-acre Mount Sutro Open Space Reserve (the Reserve) occupies the central and southern portion of the campus site, reaching 400 feet in elevation above Parnassus Avenue Figure 3-21 changes use of land. Which would affect the current forest, ecosystem and endangered species located on the 107 acres. 6

Lastly the plan does not currently coordinate with the 4 UC Medical Centers and duplicates the services offered at the other locations. 7

Sincerely,

Executive Committee of 86 Dwellers

Responses to Comments from Executive Committee of 86 Dwellers

O-86D-1 The commenter is correct in noting that UCSF is working with UC Hastings to make accessible to UCSF students newly developed student housing on the UC Hastings campus in San Francisco. However, that housing is not a part of the proposed CPHP and is therefore not discussed in the Draft EIR.

O-86D-2 As stated on page 4.12-1 in the Draft EIR, the study area used to evaluate the population and housing impacts of the CPHP includes San Francisco and the four surrounding counties, and not the nine-county Bay Area referenced by the commenter. The reason for using the 5-county study area is that according to the 2018 UCSF Transportation Commute Survey, most of the UCSF students and employees live within the 5-county study area.

O-86D-3 The commenter asserts COVID was not included in the EIR. Please see Master Response 3: COVID-19.

O-86D-4 The commenter references rapid changes to the California economy, unemployment, and population leaving the Bay Area. All potential CPHP impacts on population and housing are adequately addressed in Section 4.12, Population and Housing, in the Draft EIR.

O-86D-5 The commenter makes a statement that 239 owned, leased or subleased building will be evaluated; that for some buildings simple retrofits could improve their seismic rating; and that in other cases, engineers may recommend significant retrofits, or vacating and retiring an entire building. These comments do not specifically address the adequacy of the Draft EIR; please see Master Response 1: Non-CEQA Comments.

O-86D-6 The commenter refers to the Reserve, and Draft EIR Figure 3-21, and then asserts the current forest, ecosystem and endangered species would be affected. All potential impacts on biological resources are adequately addressed in Section 4.3, Biological Resources, in the Draft EIR.

O-86D-7 The commenter indicates the CPHP does not coordinate with the four UC medical centers and duplicates the services offered at the other locations. This comment does not specifically address the adequacy of the Draft EIR; please see Master Response 1: Non-CEQA Comments. However, the comment has been noted and will be forwarded to decision-makers.

From:	SF Forest
To:	Campus Planning - EIR
Subject:	Comment on DEIR for UCSFComprehensive Parnassus Heights Plan
Date:	Thursday, September 10, 2020 12:58:04 AM

Dear UCSF,

We were dismayed to see the planned effects of the amended LRDP, particularly on Sutro Forest.

1) Hundreds of trees will be removed for this project. 1

2) With the removal of Aldea Student Housing from the space ceiling, the plan is to build taller buildings – up to 96 feet high – in an area where other buildings are restricted to 40 feet. The construction space that the process of building these structures will require is likely to destroy more trees. 2

3) Furthermore, an oblique reference to "a completely reconfigured and redesigned site" raises the possibility that this redesigned site may no longer be a forested area at all. It will certainly lose its charming woodsy character of wood-shingled low-rise buildings. 3

4) The revised plan will remove an area of Sutro Forest (near Parnassus and Edgewood). In "compensation" an area that is already de facto part of the forest would be technically included in the forest. 4

5) In addition to the impact on Sutro Forest – the entire redwood grove on Parnassus would be felled. 5

The cumulative effect of all these removals on San Francisco's shrinking tree cover is dismal. At 13.7%, San Francisco has the smallest tree canopy cover of any major city. (This percentage was calculated in 2013, and is likely even lower now with the continuing destruction of trees in Sutro Forest and elsewhere in San Francisco.) 6

In these times of climate change, removing trees is an environmental hazard. Furthermore, the cumulative effect on Sutro Forest is to make it drier and less self-sustaining, and thus, riskier -especially as climate change hits California harder each year. It also sacrifices all the ecosystem services provided by the trees. 7

We ask that these projects be revised to protect the trees. 8

Sincerely

San Francisco Forest Alliance

Responses to Comments from San Francisco Forest Alliance

O-SFFA-1 The commenter states that hundreds of trees will be removed for the project. The Draft EIR Chapter 3, Project Description on page 3-38 acknowledges certain tree removal would be required under the CPHP as a result of clearing, excavation and regrading activities. Regarding replacement of removed trees, UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP when detailed designs become available.

O-SFFA-2 The commenter suggests that construction of larger and denser housing at Aldea would result in the loss of hundreds of trees. As discussed in the Draft EIR Chapter 3, Project Description, the new housing structures at Aldea are anticipated to use approximately the same footprint as the present housing structures and therefore, tree removal at the Aldea Housing Complex would be minimized. The Draft EIR Section 4.3, Biological Resources, page 4.3-22 acknowledges that certain vegetation removal would be required at the campus site as a result of clearing, excavation and regrading activities conducted in support of the CPHP. The general removal of non-sensitive vegetation would be a less than significant impact. Regarding replacement of removed trees, UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP when detailed designs become available.

O-SFFA-3 The comment states that redevelopment of the Aldea Housing complex would cause the complex to lose its "charming woodsy character." Please refer to Master Response 7: Aesthetic Impacts.

O-SFFA-4 The commenter indicates the proposed Plan will remove an area of Sutro Forest near Parnassus and Edgewood, and that in compensation, an area that is already defacto part of the forest would be technically included in the forest.

The Draft EIR Chapter 3, Project Description states on page 3-19 that there is the potential for the New Hospital and widening of Medical Center Way to result in the need to modify the Reserve boundary. UCSF proposes to replace any area of the Reserve that is lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site in an amount equal to or greater than the area lost.

The area that the commenter characterizes as already defacto part of the forest is currently designated as a "Support" zone in UCSF's existing functional zone map, and under the CPHP would be designated as an "Open Space Reserve" zone. Accordingly, the CPHP would provide permanent open space reserve protection that is not currently provided for this area.

O-SFFA-5 The commenter indicates the redwood grove on Parnassus would be felled. The Draft EIR Chapter 3, Project Description on page 3-38 acknowledges certain tree removal would be required under the CPHP as a result of clearing, excavation

and regrading activities, including the redwood grove along Parnassus Avenue west of UC Hall. Regarding replacement of removed trees, UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP when detailed designs become available.

O-SFFA-6 The commenter notes the low percent cover of trees in San Francisco, and requests analysis of the cumulative effect of tree removal. While the number and types of trees to be removed under the CPHP have not been determined, the redevelopment of the vast majority of the campus buildings would take place primarily in areas which are already developed, thereby minimizing the number of trees requiring removal. As stated above, UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP when detailed designs become available. As stated in Section 4.3.3, these actions would not result in a cumulatively considerable contribution to impacts on biological resources.

O-SFFA-7 The commenter notes the connection between tree removal and climate change and states that the Sutro Forest may become drier, less "self-sustaining" and lose ecosystem services if trees are removed. While certain trees may be removed within the Reserve to accommodate proposed development (e.g., on the hillside east of the New Hospital, and certain locations adjacent to Medical Center Way), these primarily trees located on the margins of the Reserve, and would not have a significant adverse effect on the Forest as a whole. As discussed in the Draft EIR, UCSF would also continue to implement its Vegetation Management Plan to protect, enhance and restore vegetation in the Reserve; improve ecosystem health; maintain and ensure public access within the Reserve, and minimize fire risk.

September 10, 2020

Ms. Diane Wong, Environmental Coordinator
UCSF Campus Planning
Box 0286
San Francisco, CA 9414
EIR@ucsf.edu

Re: Draft Environmental Impact Report for the Comprehensive Parnassus Heights Plan

Dear Ms. Diane Wong,

Thank you for the opportunity to comment on the DEIR for the Comprehensive Parnassus Heights Plan. The Yerba Buena Chapter of the California Native Plant Society is a non-profit organization with over 600 members in San Francisco. Our parent organization has over 10,000 members statewide. The mission of CNPS is to conserve California native plants and their natural habitats, and increase understanding, appreciation, and horticultural use of native plants. Our vision includes a future where Californians can experience thriving biological diversity, even in human-altered landscapes.

We support bringing the campus up to modern seismic standards and transforming it into a world-class scientific research facility. However, we're concerned about the impact the 30-year build out and acceleration of human activity will have on the local breeding birds, butterflies, bees and remnant native plants that reside on, and near, Mount Sutro. 1

We support CPHP Mitigation Measure BIO-1a, Botanical Surveys for coastal triquetrella, a special-status moss, as well as the creation of special buffers to protect it from construction damage. 2

We endorse the creation of the 'Park to Peak' route that will improve access to the Mt. Sutro OSP trail system. We ask that any damage to the mountain that comes from the creation of new trails be mitigated with trailside native plant restoration, with plants preferably coming from locally sourced stock at Sutro Stewards Native Plant Nursery. As a science-based entity, you can appreciate the importance that local genetics may make for maintaining resilience in the face of climate change, for instance. 3

We consider the mitigation measures for the removal of a quarter acre of habitat for the proposed hospital construction to be insufficient when you couple it with the sizable expansion of the campus population, the removal of the redwood grove near UC Hall and other vegetation within the campus community. We encourage UCSF to greatly increase the mitigation acreage. One possibility is green rooftops with native plants. 4

We welcome the long-term plan to green Sanders Court and Promenade, the terrace at Millberry, Parnassus and Irving Streets. Extending the landscaping from the campus to Golden Gate Park as part of the 'Park to Peaks' route is particularly appealing. As you know from U.N. reports[i], the world is in the midst of a biodiversity crisis that has been accelerated by the climate crisis. Prioritizing the creation of a wildlife corridor or habitat highway will go a long way toward staunching the damages caused by this development. 5

CNPS Yerba Buena chapter considers the way the proposed new landscapes may be greened to be a glaring omission. While the CPHP Final Report mentions that native plants may be used, the addition of other "adapted or culturally significant" plants is concerning. Exotic plants are of little or no value to local wildlife. Exotics already proliferate in the city to the extreme. Native plants co-evolved with the local wildlife and supply forage and hosting that most exotic plants cannot provide. We recommend landscaping with 100% local, native plants and comply with the spirit of the San Francisco Board of Supervisors', Biodiversity Resolution (signed April, 2018) and the State of California's Biodiversity Initiative (launched September 2019). If you intend to plant for cultural purposes, we urge you to consider an Ohlone medicinal garden. Since this land we stand on was taken from the Ohlone people, it would be a nominal gesture to honor their traditions. As an added bonus, an Ohlone garden would supply the biodiversity our local wildlife needs. 6

Should the need arise, we'd be delighted to consult with your team on the landscaping plant lists. Please don't hesitate to contact us or use our information-rich website as a resource, http://cnps-yerbabuena.org 7

Sincerely,

Eddie Bartley

Eddie Bartley

President

California Native Plant Society, Yerba Buena chapter

[i] https://www.unenvironment.org/news-and-stories/press-release/natures-dangerous-decline-unprecedented-species-extinction-rates

Responses to Comments from California Native Plant Society, Yerba Buena Chapter

O-CNPS-1 The commenters makes a number of introductory remarks; and expresses support for bringing the campus up to seismic standards. The comments are noted, however, they do not address the adequacy of the Draft EIR. No response is required.

The commenter also expresses concern about impacts to local breeding birds, butterflies, bees and remnant native plants that reside on and near Mount Sutro. All potential impacts to biological resources, including sensitive wildlife and plant species, are adequately addressed and mitigated to the extent feasible in Section 4.3, Biological Resources, in the Draft EIR.

O-CNPS-2 The commenter expresses support for CPHP Mitigation Measure BIO-1a, Botanical Surveys, for coastal triquetrella. The comment is noted; no response is required.

O-CNPS-3 The commenter endorses the creation of the "Park to Peak" routes; and requests that any incidental damage that occurs related to the development of the trail be mitigated with native plant restoration. The comment is acknowledged, however, please note that the Park to Peak route is not specifically an element of the CPHP. Nevertheless, the CPHP would be compatible with the proposed Park to Peak improvements, and furthermore, the CPHP would coordinate with planned trailheads to Mount Sutro.

O-CNPS-4 The commenter asserts that the mitigation for the removal of habitat on the location of the New Hospital is insufficient. As explained in the Draft EIR Chapter 3, Project Description page 3-19, UCSF proposes to replace any area of the Reserve that may be lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site in an amount equal to or greater than the area lost. Please note this is not a mitigation measure, but rather, an element of the proposed CPHP.

The commenter suggests the use of green rooftops with native plants. The comment is acknowledged. As discussed in the Draft EIR Chapter 3, Project Description page 3-34, the CPHP envisions an increase in the amount of open space on the campus site, including at Millberry Terrace, expanded Saunders Court and proposed Promenade. These and other open spaces within the campus site would provide the opportunity for additional landscape planting, including the use of native plants.

O-CNPS-5 The commenter expresses support for the proposed landscaped improvements for Saunders Court and Promenade, and the Millberry terrace. Regarding the commenter remarks on the Park to Peak trail, please see Response O-CNPS-3, above.

The comments are noted, however, they do not address the adequacy of the Draft EIR. No response is required.

O-CNPS-6 The commenter suggests the use of landscaping with 100 percent local, native plants and complying with the spirit of the San Francisco Board of Supervisors Biodiversity Initiative and State Biodiversity Initiative. The commenter also suggests planting an Ohlone medicinal garden for cultural purposes. These comments are noted and will be forwarded to decision-makers.

O-CNPS-7 The commenter offers to consult with UCSF on landscaping plants lists. The comment is appreciated.

NATHAN ZAKHEIM ASSSOCIATES

September 8, 2020

By Email: *EIR@ucsf.edu*
Ms. Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Zakheim Murals and the Comprehensive Parnassus Heights Plan Draft Environmental Impact Report

Dear Ms. Wong:

I write to comment on the discussion of the "Zakheim Murals" in the Draft Environmental Impact Report for the Comprehensive Parnassus Heights Plan (DEIR). These murals are frescoes created and painted by my father, Bernard Zakheim. 1

The DEIR concludes that it is technically and financially infeasible to preserve and remove the murals, starting:

> in 2020, UCSF completed two independent studies that include detailed technical assessments on how the Zakheim murals could be physically preserved, removed and relocated from their current location in UC Hall. (Page & Turnbull, 2020; Architectural Resources Group 2020.) Given the nature of the frescoes and their vulnerability to cracking, the physical condition of some of the panels which have experienced water damage over the years, the murals' large size, the curved shape of the walls on which most of the panels are painted, ground movements, and the aging of UC Hall (all described in the above noted studies), UCSF has determined that it may be infeasible to remove and relocate the Zakheim murals as there is no guarantee that any effort to remove the Zakheim murals would be successful. Based on those independent studies, there is a likelihood that removal of the Zakheim murals may potentially cause serious damage to at least some of the panels such that the integrity of the entire series is destroyed (Page & Turnbull, 2020). In addition, UCSF has determined that the estimated $7.6 million cost of physical preservation, removal and relocation is prohibitive in light of UCSF's primary responsibility to support its academic health care mission.

(DEIR 4.4-14, 15; pdf 328-329.) This conclusion is incorrect. Also, the DEIR's conclusion is not supported by either of the two studies cited (i.e., "Page & Turnbull, 2020" and 2

"Architectural Resources Group 2020") because neither study presents any conclusion or expert opinion that it is infeasible to conserve, remove, and preserve these murals. 2 cont.

My Qualifications

I have been, and I have been recognized as, one of the leading art conservators in the world for over 50 years. My CV is attached.

From 1953-1966 I worked with my father as an apprentice. As a result, I am intimately familiar with the techniques and materials my father used to create the Zakheim murals. Please see the section of my CV entitled "A Brief Summary of the Core Contributions of NZA to the Field of Mural Conservation."

Over the past 50 years I have performed maintenance and restoration conservation work on the Zakheim murals under contract with UCSF on many occasions, including repairing broken fresco plaster and retouching faded or missing fresco paint.

I have also successfully conserved, removed, and preserved many large-scale fresco murals similar to the Zakheim Murals. These projects include the removing and preserving eight major large-scale frescoes, including removal and conservation of the two Cole Hall Frescos (named "Ancient Medicine" and "Rational Medicine") at the University of California, San Francisco. These frescoes were also created and painted by my father, Bernard Zakheim. Over fifty years ago, I successfully relocated these frescoes from Cole Hall to the Health Sciences West building at UCSF. For this conservation project, I developed the techniques for using AIC Conservation Consolidant Resins to stabilize the three layers of plaster in the frescoes. These frescoes remain on display to this day, in fully stable condition and with no need for periodic conservation. These conservation techniques have not changed over the last 50+ years. 3

I have done major conservation work on the (Victor Arnautoff) Coit Tower Frescoes, the City Club Rivera Fresco, the City College Rivera Frescoes, the Jewish Center Fresco, Jose Clemente Orozco fresco (Pomona College), Rico Lebrun Fresco (Pomona College), four major Ramos Martinez frescoes (removed and re-installed), and the Peter Hurd fresco (Houston MD Anderson Building (removed and transported to Artesia Public Library). NZA has also done extensive conservation work in India on Frescoes in Jaipur, and Nanda Kunj, and Kusham Sarova, and I have done extensive conservation studies on the frescoes in the Taj Mahal, the Govinda Deva Temple in Jaipur, and the Jaipur City Palace. Please see the section of my CV entitled "Partial List of Murals and Out of Door Art Conserved."

A. REMOVING AND PRESERVING THE ZAKHEIM MURALS IS TECHNICALLY FEASIBLE. 4

Bernard Zakheim created the frescoes on the interior concrete walls of Toland Hall by installing a wire mesh (also known as an expanded metal lath) across the entire surface of the

concrete wall to be plastered and painted. To this mesh, the artist applied two layers of base plaster (known as the "Arriccio" layers), then a third, surface layer of lime plaster (known as the "Intonaco" layer), on which the artist painted the murals.

The Intonaco layer was plastered a few square feet at a time on each day for 12 hours (open time) for the artist to paint using only earth pigments in water into the fresh lime plaster. Each completed daily section is known as the "Giornata."

The frescoes are held in place and secured to the concrete wall of the building by thin baling wire running through and attached to the exterior surface of the concrete wall. Thus, the frescoes are "floating" on the concrete wall.

There are three structural challenges to be met in order to safely remove the frescoes without damages.

1. There will be areas of "delamination" (separation) of the 1/8-inch-thick marble dust/lime plaster finish layer from the rough plaster layer immediately beneath the finish layer.

The Intonaco plaster layer is hard and brittle, and tends to "separate" from the Arriccio layers when dry. This dynamic is exacerbated by the fact that only a few square feet are plastered for the artist to decorate each day (each completed daily section is known as the "Giornata").

This delamination can and must be treated by both wet saturation (with low viscosity AIC Conservation Resin) of the Intonaco layer, as well as injection by syringe of a higher viscosity AIC Conservation Resin into the gap between the Intonaco and Arriccio layers. This treatment will prevent them from ever separating regardless of shock, weather conditions, temperature variations, storage conditions, etc.

2. There will be a tendency for the two Arriccio (substrate) layers of rough plaster to crack, crumble or be eroded by water exposure, which will weaken these two layers beneath the Intonaco (white lime plaster).

This crumbling and cracking will be consolidated by the AIC Conservation Resins applied by spray and brush. Any remaining separated or crumbled areas can be treated with a further application of AIC Conservation Resins prior to applying Conservation Plaster to the damaged or crumbled areas.

The procedure for addressing these concerns and successfully removing the murals is well-established and technically feasible, as follows:

4 cont.

5

Conserving the Front Surface, Lime plaster Layer and Underlying Plaster Layers.

1. Before removing a fresco, the surface must be cleaned with water miscible cleaners as well as carefully chosen solvent based cleaners. (The cleaning removes, grime, wax, dust and other pollutants from the pristine surface of the 1/8 thick lime plaster surface.)

2. As soon as the surface of the fresco has been carefully cleaned, a saturation of an AIC Museum Grade Conservation Resin in Conservation Solvent is applied, either by brush, spray, or both. This treatment allows the resins to absorb into (or even completely penetrate through the lime plaster/ fresco- paint layer. The resins also fill and strengthens any visible, or even invisible cracks in the lime plaster, so that pieces of painted lime plaster will not fall away from the surface.

Injection of a higher viscosity AIC Conservation Resin in Solvents can be accomplished using a conservation grade syringe with a metal injection tube. The tube introduces the resin between the Arriccio and Intonaco layers.

3. Loss areas (of any size) caused by physical or water damage are then saturated with Conservation Resins to penetrate damaged, underlying plaster layers so that crumbly or shattered areas become quite solid. Loss areas can now be filled with tooling plaster, topped with fresh fresco lime plaster. All such areas are then saturated with the same Conservation Resin in Solvents used on the front surface of the fresco.

4. When completely dry, a “non-woven” fabric is applied in two or more layers to the surface of the conserved fresco, using easily removable adhesives.

Supporting the Front of the Fresco.

5. A wooden platform “drawbridge” is built in front of each fresco panel using 2x12 lumber faced with 5/8” plywood on each side glued in place. Each “drawbridge” platform will have “pivots” below the fresco level so that the “drawbridge” can be raised and lowered easily with chain hoists. A curved plywood shape will be installed on each of the drawbridges to match the curvature of the curved fresco panels (12” from flat by 14’ wide.) The curved support above the drawbridge will be padded with a solid piece of 3" soft foam rubber.

6. The hollow white plaster columns on either side of each curved fresco panel will be removed using fine toothed power saws (and vacuum cleaners). All other white plaster surrounding the frescoes will be removed at this time as well.

7. The drawbridge is then raised from horizontal to vertical (using a chain hoist) and then placed firmly against the fresco surface (with the 3" foam rubber in place.) Each

5 cont.

drawbridge is then bolted with threaded rod to the solid concrete structural wall behind the frescoes.

Separating the Fresco from the Support Wall.

8. Using a long-handled tree trimming hand saw with a metal blade, all wires and thin channels holding the fresco panel to the structural concrete wall will be separated from the frescoes until each Fresco Panel is standing free.

9. Using the chain hoists, each fresco panel will be lowered on the drawbridge to a horizontal position, fully cushioned by the 3" foam rubber over the drawbridge curve.

10. At this point all redundant plaster “globs” poking through the expanded metal lath can be mechanically removed, and all extra metal channels removed in order to make the back of the fresco as smooth as possible without weakening its infrastructure.

Consolidating the Back and Substance of the Fresco.

11. All dust and gravel residue will be vacuumed from the back of each curved fresco panel.

5 cont.

12. Using a wide tapered drill bit, carefully drilled holes (usually 8"x8" from hole to hole) will be drilled through the expanded metal lath and the first two layers of plaster from the rear forward, and all dust will be vacuumed away.

13. A 3/4" inch carbon steel drill bit will be used, very carefully by hand, to "twist down" through the last of the rough plaster until the "white" of the 1/8" lime plaster is encountered, but not penetrated. All dust will be vacuumed away.

14. Thin Viscosity AIC Conservation Resin (Paraloid B-66 or B-44 or B-72) will then be applied to the two rough plaster layers with a brush until full saturation has been accomplished. (Several layers must be applied, and when soaked in, several more layers applied, until the surface will accept no more solvent based resin).

15. When fully dried (to the core) the drill holes are then painted with a high index Acrylic emulsion, and when still wet, the holes are filled with a high-grade tooling plaster such as Hydro Stone, or Ultra Cal.

Completing the Infrastructure and Readying for Transport.

16. A steel grid (composed of galvanized 20-gauge 2"x4" or 2"x6" "wall studs" bolted "back to back") is then applied to the back (and flat) of each curved fresco piece.

17. Polyester resin (or low viscosity epoxy resin) is then used to saturate fiberglass cloth and fiberglass matting that will then adhere the steel structure to the now "solid as a rock" consolidated back each of the curved fresco panels.

18. Plywood will then be attached to the steel studs attached to the fiber-glassed back of each panel with heavy sheet metal screws.

19. Double plywood will then be attached to all four sides of the now encapsulated Fresco Panel, joining the plywood at the back of the panel to the drawbridge at the front of the panel.

20. The drawbridge will remain on the fresco panel during transport and storage. The drawbridge will be removed only when the frescoes are in front of the new installation location, at which point it can be discarded.

Results.

21. The fresco panels are now virtually indestructible. They could be dropped from a truck without damage. They can also be stored without regard to temperature or moisture control.

22. The life expectancy of the frescoes saturated with AIC Conservation Resins should extend (without maintenance or further aesthetic treatment) for at least several hundred years.

23. When re-installed, no maintenance will be required, other than occasional dust removal.

Notes.

The Conservation Resins used to treat the Toland Hall Frescoes will be the same AIC Conservation Resins used more than 20 years ago to consolidate the Sistine Chapel Frescoes of Michelangelo Buonarroti.

The 10'x12' Cole Hall Frescoes (now in HSW 2) were successfully conserved in place, removed, and reinstalled using the exact same techniques described above. In over 55 years, no further conservation work or even routine maintenance has been required, and the two frescoes have endured many earthquakes with absolutely no damage.

5 cont.

B. REMOVING AND PRESERVING THE ZAKHEIM MURALS IS FINANCIALLY FEASIBLE.

6

In my opinion, the work described above to safely and successfully conserve, remove, store, and reinstall the Zakheim Murals can be done by a competent and properly supervised art conservator for less than the $1,500,000 “Target Contract Amount” or the $1,800,000

"Maximum Acceptance Cost" set forth in the Advertisement for Proposals for UCSF Project No.: PRJ-000293; Contract No.: PRJ-000293-CC-001, that I received in early August, 2020. In fact, before UCSF issued its RFP in August, 2020, NZA submitted a bid proposal to UCSF offering to conserve and remove the murals for an amount not to exceed $1,000,000.

Considering the cultural, historic, and artistic value these murals have provided for over seventy years to UCSF, the City of San Francisco, the state of California and the entire country, and considering the vast expenditure that UCSF is undertaking to carry out the Comprehensive Parnassus Heights Plan, the relatively small expense required to preserve these works of art is eminently feasible. 6 cont.

Thank you for your attention to this matter.

Nathan Zakheim
Director, NZA

Responses to Comments from Nathan Zakheim Associates

O-NZA-1 This introductory remark is noted, however, it does not require a response.

O-NZA-2 The commenter asserts that the Draft EIR's conclusion that conserving and moving the Zakheim murals is infeasible is not supported by substantial evidence. The commenter states that the neither of the two studies cited in the Draft EIR presents any conclusion or expert opinion that it is infeasible to conserve, remove, and preserve the murals. Please refer to Master Response 11: Toland Hall Murals.

O-NZA-3 The commenter summarizes his qualifications. This comment is noted; no response is required.

O-NZA-4 The commenter asserts that removing and preserving the Zakheim murals is technically feasible. The commenter describes the process in which the murals were installed and identifies structural challenges that need to be addressed to remove the frescoes. Please refer to Master Response 11: Toland Hall Murals.

O-NZA-5 The commenter states that it is technically feasible to remove and preserve the Zakheim murals and describes a series of steps that would address the structural challenges identified in comment O-NZA-4. Please refer to Master Response 11: Toland Hall Murals.

O-NZA-6 The commenter asserts that removing and preserving the Zakheim murals is financially feasible. The commenter opines that the conservation, removal, storage, and reinstallation of the murals can be done for less than $1.5 million "Target Contract Amount" or the $1.8 million "Maximum Acceptance Cost" set forth in UCSF's August 2020 Advertisement for Proposals. The commenter's suggestions for conserving, removing, and transporting the Murals will be considered by UCSF and its consultants as they implement plans to remove and store the Murals.

Please note Comment Letter O-NZA contained an attachment which did not comment directly on the Draft EIR. This attachment is included in Appendix O-NZA in this Comments and Responses document.

The Yerba Buena Neighborhood Consortium
c/o 230 Fourth St. San Francisco, CA 94103
A Council of the Yerba Buena Neighborhood's Residents and Community Organizations

September 11, 2020

Diane Wong, Principal Planner
University of California, San Francisco Real Estate - Campus Planning
654 Minnesota Street
San Francisco, California 94143-0286
via email EIR@ucsf.edu.

RE: UCSF COMPREHENSIVE PARNASSUS HEIGHTS PLAN
Draft Environmental Impact Report
State Clearinghouse Number 2020010175

Dear Ms. Wong:

The subject Draft EIR is legally inadequate.

The EIR fails to consider a range of reasonable alternatives for all or part of the 2 million square-feet of new development proposed for the Parnassus Heights campus.

The EIR should be revised to identify, fully evaluate, and recirculate for public review and comment potentially-feasible alternatives that:

- Implement only the existing 2014 Long Range Development Plan for the Parnassus Heights campus, totaling approximately 400,000 square feet of new development.

- Locate additional proposed development of about 1,600,000 square feet at one of the four already-approved major development sites along the City's Third Street Corridor:

    - The Mission Rock Project
    - The Pier 70 Project
    - The Potrero Power Plan Project
    - The Candlestick Redevelopment Project

1

All four of these very large master planned projects are in early/planning stages of development and could be readily modified to fully accommodate expanded UCSF development of this scale and meet *fundamental* project objectives. (*In re Bay-Delta* (2008) 43 Cal.4th 1143.) That of course is exactly what happened once before in 1996 with the decision to locate a new UCSF research campus in the already-approved Mission Bay Redevelopment Project.

All four of these sites are inarguably environmentally superior because they are much closer to the Mission Bay campus and directly connect to it by the existing MUNI Metro Third Street route that has far more potential capacity than is now being utilized.

USCF expansion would be accommodated by supplanting and replacing an equal amount of the commercial development currently-proposed on any of these four sites.

There would be little or no net new environmental impacts at the four existing development sites, and the very significant environmental impacts of net new development at the constrained Parnassus Heights campus would be avoided. CEQA mandates no less: Guidelines section 15126.6 (f)(2) pronounces that "the key question and first step" in analysis of alternate sites is whether any of a project's significant effects "would be avoided or substantially lessened by putting the project in another location."

Otherwise, the current UCSF proposal in Parnassus Heights is absolutely insane.

2

John Elberling
Manager
YBNC

Responses to Comments from The Yerba Buena Neighborhood Consortium

O-YBNC-1 The commenter asserts that Draft EIR does not identify, fully evaluate, and recirculate for public review potentially feasible alternatives. Please see Master Response 5: EIR Alternatives.

O-YBNC-2 The commenter expresses an opinion of the merits of the CPHP. This comment does not address the adequacy of the Draft EIR; no response is required.

inspiring people to protect Bay Area birds since 1917

Ms. Diane Wong
UCSF Campus Planning, Box 0286
San Francisco, CA 94143-0286
EIR@ucsf.edu

11Sep2020

Re: Draft Environmental Report for the Comprehensive Parnassus Heights Plan

Dear Ms. Wong,

Thank you for the opportunity to comment on the DEIR for the CPHP. GGAS is a non-profit organization with over 7,000 members in San Francisco and the East Bay. Our mission is to engage people to experience the wonder of birds and translate that wonder into action to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity. 1

The Parnassus Heights campus is the oldest UCSF campus, and any project that brings the campus up to current seismic standards and modern research and clinical standards needs to be substantial. The preferred alternative in the CPHP proposes to increase the square footage of the UCSF Parnassus from 3.92 million to 5.97 million. This represents a massive increase in urban development with proposed stages of demolition and construction that span 30 years. The size, scale, and duration of this project will inevitably have a negative effect on birds and other wildlife that inhabit this part of the city. As we have learned from the bird surveys conducted in response to the Vegetative Management Plan, Mount Sutro is an important habitat for both breeding and overwintering bird species. 2

We strongly support the proposed bird safe glass for the buildings and wind screens, lighting, and collision mitigation strategies outlined in the DEIR, and ask that UCSF and their contracted architects use the most up-to-date bird safe design and building practices in both the Aldea renovations and new Hospital design. Without significant mitigation, including placement location of buildings, materials, design, and lighting, the new Hospital and Aldea buildings will be detrimental to birds. 3

One positive aspect of the plan is the 'Park to Peak' route that would be created during the reorganization of the campus. This way through the campus would improve access to the Mount Sutro Trail system. If it can be realized, public transit users, and users from further away, will be able to access the open space without walking up Medical Center Way (very narrow or no sidewalk in the lower portion near the main campus). 4

The new hospital in the preferred alternative will encroach on the Mount Sutro OSP, removing about ¼ acre out of 61 acres. The site of this subtraction is not prime bird nesting territory; however the mature trees in and adjacent to this site provide important habitat for migrating birds and wintering flocks. The proposed mitigation for decrease in the OSP is a small plot that is already effectively part of the open space, and it looks like a change in designation. By itself, this would be insufficient. However, it is adjacent to the sites of the Surge and Woods buildings, which are slated to be torn down and converted into Open Space according to the Long Range Development plan. We would consider the addition of all 5

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three pieces sufficient mitigation to the ¼ acre removed. Continuity of the OSP is essential as a habitat for wildlife.

5 cont.

The DEIR notes other green spaces on the campus that will also be negatively impacted by demolition and construction outlined in the Plan. Most notable, a small redwood grove adjacent to UC Hall will be eliminated along with street trees at other sites. In the long term, proposed additional green space on the Campus includes an expanded Sanders Court and Promenade, a terrace over Millberry Union, and several small 'pocket' plots. UCSF has mentioned "green roofs' as a building principle. Incorporation of green roofs represents huge opportunity to increase biodiversity while increasing campus space. The cost can be equivalent to a regular rooftop depending on what is planted there. Local native groundcovers would be considered least expensive in terms of installation and maintenance. The plan also proposes extensive street landscaping on Parnassus, around the Irving St entrance, and connecting toward Golden Gate Park as part of the Park to Peaks route. It will take years for these planned landscapes to mature, but in the end the campus does look greener.

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A glaring omission in the DEIR is how these new green spaces are going to be landscaped. In the Oct 19, 2019 CPHP (Updated June, 2020) Final Report, the use of native plants is mentioned--along with the use of other "adapted or culturally significant" plants. GGAS strongly favors native plants for their much greater value to the ecosystem, providing edible berries and habitat for insects which in turn support birds and other wildlife. Much research has emerged in recent years on the value of native plants in urban settings. Many adapted plants may survive and do not become invasive, but they simply do not add the same ecosystem value. We strongly encourage a commitment to at least 80% natives throughout the new landscaping scheme.

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We also advocate continued support for the Sutro Stewards and their native plant nursery, which propagates hyper local plants. Craig Dawson, Senior Program Advisor for the Sutro Stewards, voiced a number of concerns about the impact of the increased population density at Aldea and height of new buildings immediately adjacent to the core of the Mount Sutro OSP. We share the Stewards' concerns, and we hope that adjustments can be made to the current plan to mitigate their concerns without impacting the goal of increased housing.

8

Please notify us of all proceedings and materials relating to this project.

Sincerely,

Pam Young

Pam Young
Executive Director

Responses to Comments from Golden Gate Audubon Society

O-GGAS-1 The commenter describes the Golden Gate Audubon Society's purpose and mission. The comment is noted; no response is required.

O-GGAS-2 The commenter notes the increase in size of the campus site at buildout and states that this large and long-duration project will have a negative effect on birds and other wildlife, and that the Reserve is an important breeding and overwintering site for migratory birds. All potential impacts to wildlife, including birds, from construction and operation throughout the duration of the CPHP are adequately addressed in Section 4.3, Biological Resources and feasibly mitigated to a less than significant level.

O-GGAS-3 The commenter expresses support for the proposed bird-safe glass and other measures in CPHP Mitigation Measure BIO-2b, and requests the best feasible design and practices be incorporated into the Aldea Housing Densification and New Hospital projects to mitigate this impact. The potential impact from development under the CPHP to result in bird strikes is addressed in Impact BIO-2 and mitigated by CPHP Mitigation Measure BIO-2b to a less than significant level. As discussed in Impact BIO-2, CPHP Mitigation Measure BIO-2b includes bird-safe design measures generally consistent with the City of San Francisco's *Standards for Bird-Safe Buildings*.

O-GGAS-4 The commenter expresses support for the "Park to Peak" route. The comment is acknowledged, however, please note that the Park to Peak route is not specifically an element of the CPHP. Nevertheless, the CPHP would be compatible with the proposed Park to Peak improvements, and furthermore, the CPHP would coordinate with planned trailheads to Mount Sutro.

O-GGAS-5 The commenter indicates the site of the potential removal of mature trees in the Reserve under the CPHP provides habitat for migrating birds and wintering flocks. As discussed in Responses O-GGAS-2 and O-GGAS-3, above, the Draft EIR analyzes all potential impacts to birds under the CPHP. Please refer to Impact BIO-2 in the Draft EIR which addresses potential effects to migrating birds, including temporary measures to prevent harm to migrating birds during construction, and bird-safe building treatments to reduce potential for bird strikes. In addition, Impact BIO-1 addresses potential effects on nesting birds during construction, including the implementation of pre-construction surveys during the nesting season, and use of buffer zones as needed.

The commenter suggests adding the sites of the Surge and Woods buildings (that are planned to be demolished as authorized under the 2014 LRDP) as additional areas to be designated as Open Space Reserve under the CPHP. As explained in the Draft EIR Chapter 3, Project Description page 3-19, UCSF proposes to replace any area of the Reserve that may be lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site in an

amount equal to or greater than the area lost. As noted in the Project Description, page 3-39, the CPHP proposes an approximate 0.4-acre area of undeveloped land within the Surge/Woods parking area to be redesignated from Support to Open Space Reserve. As such, it would provide conserved open space that would not be developed for any other purpose. The inclusion of area redesignated Open Space Reserve would adequately offset any potential existing Open Space Reserve land that would be lost under the CPHP. Nevertheless, this suggestion from the commenter is part of the public record on the CPHP, and will be considered by the UC decision-makers prior to considering CPHP approval.

O-GGAS-6 The commenter notes that the Draft EIR discusses other green spaces that would be impacted by the CPHP, including the redwood grove along Parnassus Avenue. All potential environmental effects associated with the tree removal on the campus site under the CPHP, including this redwood grove, are disclosed in the CPHP Draft EIR and mitigated to the extent feasible.

The commenter also refers to increases in green spaces areas on the campus site proposed under the CPHP, including at Millberry Terrace, expanded Saunders Court and proposed Promenade, and indicates the benefits of incorporation of green roofs, including to increase biodiversity. This suggestion from the commenter does not address the adequacy of the Draft EIR but is part of the public record on the CPHP, and will be considered by the UC decision-makers prior to considering CPHP approval.

O-GGAS-7 The commenter indicates an omission in the Draft EIR is how green spaces proposed under the CPHP would be landscaped. Please note that only programmatic information for the proposed open space areas are known at this time; as such, no detailed landscaping plan is available at this time. The commenter notes that the CPHP indicates the use of native plants, and the commenter encourages the use native plants for their value for the ecosystem, and providing edible berries and habitat for insects, which supports birds and other wildlife. This suggestion from the commenter is part of the public record on the CPHP, and will be considered by the UC decision-makers prior to considering CPHP approval.

O-GGAS-8 The commenter notes concerns from the Sutro Stewards about the impact of increased population density at Aldea and the height of new buildings adjacent to the core of the Reserve. Please refer to responses to Comment Letter O-SUT in this Comments and Responses document.

From:	harvey smith Campus
To:	Planning - EIR
Subject:	Comments on UCSF Comprehensive Parnassus Heights Plan Draft EIR
Date:	Friday, September 11, 2020 11:14:30 AM

Harvey Smith, President

National New Deal Preservation Association

1801 McGee Avenue

Berkeley, CA 94703

harveysmithberkeley@yahoo.com

September 11, 2020

Diane Wong

UCSF Real Estate-Campus Planning

654 Minnesota Street

San Francisco, CA 94143-0286 Via

email: EIR@ucsf.edu

Subject: Comments on UCSF Comprehensive Parnassus Heights Plan Draft EIR – State Clearinghouse Number 2020010175

I write on behalf of the National New Deal Preservation Association, a nonprofit organization created to promote the identification, documentation, preservation and education of people about the New Deal. 1

We have a major issue regarding the Draft Environmental Impact Report (DEIR) dated July 13, 2020 for the proposed Comprehensive Parnassus Heights Plan (CPHP). The DEIR's Chapter 4, Cultural Resources and Tribal Resources Section 4.4.4 "Impacts and Mitigation Measures," proposes a plan to demolish "History of Medicine in California" frescoes created by Bernard Zakheim in the Toland Hall auditorium in UC Hall. The project alternatives provided in this DEIR are inadequate and inappropriate, and new alternatives need to be developed for the final CPHP EIR to preserve these murals and display them for the public on the UCSF Parnassus Heights campus. 2

These murals, created in the 1930s through support from the Works Progress Administration, have educated and inspired generations of the

public and students of UCSF. They are threatened with destruction when UCSF demolishes Toland Hall to make way for a new building. However, the murals are entirely removable and could be conserved, removed, stored, and reinstalled by UCSF in its new facility. Instead UCSF contacted the family of the artist and asked it to remove the murals at the family's expense. Additionally the ownership status is under review by the federal General Services Administration calling into question UCSF's right to destroy artwork it does not own.

We disagree with the actions to UCSF in this matter. We are also aware that the new Mission Bay campus of UCSF has a public art program and a percentage of construction cost was dedicated to mount art in the new facility. Surely a small fraction of new construction cost would fund a public art collection that could include the historic Zakheim murals and many other new art works. Why is this precedent not being followed when UCSF builds a new multi-billion dollar facility on Parnassus Heights?

This is all particularly disturbing because the multicultural content of the murals portrays the long history of the diverse people who have participated in the healing arts within our state. Why would UCSF suppress this history at a time when California is seen as a state that has made some successful strides in tackling the issue of diversity within the health professions?

2 cont.

Although our major issue is with the murals, we are also concerned about the "Carved Frame" oak carving (Carved Frame) by Michael Von Meyer and James Warrender that was also commissioned as part of the WPA Federal Art Project and is located in Toland Hall. Likewise it should be conserved, removed, stored, and reinstalled by UCSF in its new facilities.

3

Both the murals and the wood carving are part of an amazing array of public art in San Francisco created by the New Deal. This heritage is recognized worldwide and brings viewers to the City to see it. Many of them go to Coit Tower where Bernard Zakheim's work is also represented. Stripping part of this legacy from public view is unacceptable; conversely ways of making it more accessible should be sought.

The murals are removable with appropriate care, and this can be done at fraction of the cost estimated in the DEIR. Alternatives to accomplish this should be presented.

4

The DEIR states UCSF is not bound by local landmark status, stating it is above any local regulations or resolutions. In its arrogance, does it also feel it is above local sentiment and local pride in the City's artistic and historical legacy?

We urge the Board of Regents to address the general issue of public art. The purpose of Dr. J. Michael Bishop, Nobel Laureate and Emeritus UCSF Chancellor, in establishing the Mission Bay art collection was "to create an

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environment that will be a credit and benefit to the entire community, a stimulating and pleasant place to work and visit, and a permanent legacy to the city." This purpose should apply equally to UCSF Parnassus Heights. Why is Chancellor Hawgood not advocating for public art in general and in particular defending the Zakheim murals?

San Francisco and many other California cities have percent for art programs, as do 23 states. California and its public university system do not, and this allows UC at whim to have a percent for art policy or not. Now is the time for the UC Regents to correct this and develop a UC statewide percent for art program, as well as developing an alternative to destroying the art in Toland Hall.

5 cont.

We demand the CPHP EIR include project alternatives that protect all of the art work in Toland Hall and develop a plan for its display in preferably a new location on the UCSF Parnassus Heights campus with increased public accessibility and interpretation.

6

On a personal note as a graduate of UC with a bachelor's and master's degree and a son with a UC doctorate degree, I am frankly embarrassed by the thought of a UC campus proposing the destruction of a work of historic public art. A world-class institution does not behave in this manner.

7

Sincerely,

Harvey Smith, President <!--[if !vml]-->

National New Deal Preservation Association

cc: Kathy Flynn, Executive Director

National New Deal Preservation Association

Here is a link to my book - http://www.arcadiapublishing.com/9781467132398/Berkeley-and-the-New-Deal. Follow the National New Deal Preservation Association and the Living New Deal by signing up to receive occasional updates. Join LND's Emailing List. The latest or previous newsletters are at each website - www.newdeallegacy.org and www.livingnewdeal.org. Join us in pushing for a *New* New Deal!

Responses to Comments from National New Deal Preservation Association

O-NNDPA-1 This introductory remark is noted, however, it requires no response.

O-NNDPA-2 The commenter states that the alternatives in the Draft EIR are inadequate and new alternatives to preserve the murals should be developed. The commenter also asserts that the murals ownership status is under review by the General Services Administration and thus, UCSF does not have the right to destroy artwork it does not own. Please refer to Master Response 11: Toland Hall Murals.

O-NNDPA-3 The commenter notes a carved frame oak carving in Toland Hall. The comment is noted; please refer to Master Response 11: Toland Hall Murals. The podium designed by Michael von Meyer has been relocated and will be reused in an educational setting on campus. The chalkboard surround by the same designer will be removed and stored on campus until an appropriate location is determined.

O-NNDPA-4 The commenter asserts that the Zakheim murals can be removed with appropriate care and done at a fraction of the cost estimated in the Draft EIR. Please refer to Master Response 11: Toland Hall Murals.

O-NNDPA-5 The commenter urges the Board of Regents to address the general issue of public art and states that the purpose of establishing the Mission Bay art collection should apply equally to the UCSF Parnassus Heights campus site. Please refer to Master Response 11: Toland Hall Murals.

O-NNDPA-6 The commenter requests the Draft EIR should include alternatives that would protect all of the art work in Toland Hall and develop a plan to display it in a new location at the UCSF Parnassus Heights campus site. Please refer to Master Response 11: Toland Hall Murals.

O-NNDPA-7 The commenter expresses opinions on the merits of the CPHP, but which do not address the adequacy of the Draft EIR. No response is required.

From: cynthia.servetnick@gmail.com
To: Campus Planning - EIR; Wong, Diane C.
Cc: Consortium; Stewart Morton; wlabounty@sfheritage.org
Subject: Preservation of Zakheim Frescoes in Toland Hall Re: Comprehensive Parnassus Heights Plan Draft EIR (SCN 2020010175)
Date: Friday, September 11, 2020 3:47:15 PM

Dear Ms. Wong:

On behalf of the San Francisco Preservation Consortium (Consortium), I am writing regarding Bernard Zakheim's 1936 ten-panel fresco in Toland Hall depicting the "History of Medicine in California." The frescoes are significant for their association with the history of the Works Project Administration's (WPA) Federal Art Project (FPA); and as an excellent example of the work of master artist and muralist, Bernard Zakheim, that display distinctive characteristics of New Deal-era progressive mural artwork. The Consortium urges UCSF to preserve these federally-funded frescoes and to ensure they remain accessible to the public for viewing--digital preservation is not an acceptable alternative. 1

On July 28, 2020, the San Francisco Board of Supervisors voted unanimously to approve a Resolution to initiate Landmark Designation of the "History of Medicine in California" frescoes per: https://sfbos.org/sites/default/files/r0355-20.pdf

On August 19, 2020, the San Francisco Historic Preservation Commission voted unanimously to recommend to the Board of Supervisors Landmark Designation of the "History of Medicine in California" frescoes in UCSF's Toland Hall as an individual Article 10 Landmark pursuant to Section 1004.2 of the Planning Code per: https://commissions.sfplanning.org/hpcpackets/2020-006641DES.pdf 2

Nathan Zakheim, art conservator, suggested that UCSF should "design a square room in the new campus" specifically for the artwork or put it in the library." per: https://commissions.sfplanning.org/hpcpackets/2020-006641DES.pdf

Further, "The General Services Administration (GSA), responsible for managing the surviving pieces of WPA-era art, has reportedly told the school that it considers the murals on loan from the federal government. UCSF and the GSA are now reportedly in talks to preserve the mural, but if funding fails to come through, the school will reach out to other institutions and museums to gauge their interests. . . ."
per: https://www.archpaper.com/2020/07/federal-government-reaches-out-to-ucsf-over-endangered-wpa-murals 3

Established in 2001, the Consortium works in partnership with individuals, neighborhood groups and other associations to advocate for effective land use legislation and responsible historic, architectural and cultural preservation practices in accordance with accepted professional standards and best practices. The Consortium's advocacy ensures that the city and its neighborhoods sustain their living history and character as they evolve. Towards that end, we urge UCSF to ensure Bernard Zakheim's "History of Medicine in California" frescoes remain accessible to the public. 4

Sincerely,

Cynthia Servetnick, eGroup Moderator
San Francisco Preservation Consortium

Responses to Comments from San Francisco Preservation Consortium

O-SFPC-1 The commenter urges UCSF to preserve the Zakheim murals and keep them accessible for public viewing. The commenter states that digital preservation is not an acceptable alternative. Please refer to Master Response 11: Toland Hall Murals.

O-SFPC-2 The commenter describes the San Francisco Board of Supervisors and San Francisco Historic Preservation Commissions votes to initiate landmark designation of the "History of Medicine in California" frescoes in July and August, 2020. The comment is noted. In fact, on November 25, 2020, the Mayor of San Francisco approved Ordinance 241-20 amending the Planning Code to designate the Zakheim Murals as a City Landmark consistent with the standards set forth in Article 10 of the Planning Code. This has been noted in a revision to the Draft EIR. Please refer to Section 8.5 of this Comments and Responses document for the proposed revision. Please also refer to Master Response 11: Toland Hall Murals.

O-SFPC-3 The commenter summarizes Nathan Zakheim suggestion that UCSF design a room specifically for the artwork or put it in the library and the ongoing discussions between the General Services Administration and UCSF. Please refer to Master Response 11: Toland Hall Murals.

O-SFPC-4 The commenter urges UCSF to ensure the Zakheim frescoes remain accessible to the public. Please refer to Master Response 11: Toland Hall Murals.

SAN FRANCISCO BRANCH *NAACP*

September 3, 2020

The End of History?

Our country is facing a reckoning. In the coming weeks, irreplaceable murals will meet an accounting of their own.

Ten frescoes, created in the mid-1930s by renowned artist Bernard Zakheim, depicting the history of medicine in California, are in a building slated for destruction - which has been deemed seismically unsafe. The murals are located in Toland Hall, a lecture room in UC Hall at the University of California San Francisco.

The university is taking proposals for its removal and storage, but there are currently no plans for their reinstallation. Much of the concern is centered on the haste with which these fresco panels are being removed. Without proper plans for preservation or reinstallation, there is a high risk of damage. Furthermore, if they are removed and allowed to languish in storage, it would be as though they had fallen to the wrecking ball in the first place.

Someday, we will look back at this global pandemic and remember both the actions that saved lives, as well as the inaction that cost us so much. UCSF has a legacy of medical research and breakthroughs, and we appreciate how it has responded to this current health crisis. Likewise, actions are needed to preserve the record of its medical leadership in the Zakheim "History of Medicine in California" murals on the UCSF campus and ensure that this visual legacy is not destroyed.

For our part, one significant historical figure is the renowned African American nurse, midwife, and healer Biddy Mason, one of the founders of the FAME church in Los Angeles.

There is no denying that now, as it has in the past, UCSF is doing great things. However, if our plans for the future destroy our history, even great things are not necessarily good things.

It's ironic in the same year we have a female African-Asian American running as a vice-presidential candidate, UCSF is considering removing New Deal/WPA murals, one of which is of a renowned historical African American female. Then place these murals into an uncontrolled storage environment without a long-term plan of where and when to reinstall these murals for public access. Bernard Zakheim's priceless murals deserve better respect and treatment.

1

Let This Not Be The End.

Amos C. Brown

Rev. Dr. Amos C. Brown
San Francisco President NAACP

1290 Fillmore Street ● San Francisco, CA 94115 ● Suite 109 ● (415) 922-0650 ● Fax: (415) 922-0856

Responses to Comments from NAACP San Francisco Branch

O-NAACP-1 The commenter expresses concern that UCSF is accepting proposals for the removal and storage of the murals, but no plans for preservation or reinstallation. The commenter notes that one of the murals depicts Biddy Mason, a significant historical African American figure, and that the Zakheim murals should not be destroyed. Please refer to Master Response 11: Toland Hall Murals.

From:	Mike Buhler
To:	Campus Planning - EIR
Cc:	Woody LaBounty; jennifer.gibson@gsa.gov; Polanco, Julianne@Parks; Wong, Diane C. SF
Subject:	Heritage comments re DEIR for UCSF Comprehensive Parnassus Heights Plan
Date:	Friday, September 11, 2020 6:31:46 PM
Attachments:	image001.jpg SF Heritage comments re UCSF Comprehensive Parnassus Heights Plan DEIR (9.11.20).pdf

Good evening, Ms. Wong. Attached please find San Francisco Heritage's comments on the Draft EIR for the UCSF Comprehensive Parnassus Heights Plan. Please don't hesitate to contact me or Woody LaBounty, Vice President of Advocacy and Programs (copied here), should you have any questions.

Thank you for your consideration.

Mike

Mike Buhler
President & CEO

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September 11, 2020

Submitted by email
Diane Wong
UCSF Real Estate
Campus Planning
654 Minnesota St.
San Francisco, CA 94143-0286
EIR@ucsf.edu

Re: Draft EIR for UCSF Comprehensive Parnassus Heights Plan

Dear Ms. Wong:

On behalf of San Francisco Heritage (Heritage), thank you for the opportunity to comment on the Draft Environmental Impact Report (EIR) for the $3.8 billion UCSF Comprehensive Parnassus Heights Plan.[1] With support from the San Francisco Historic Preservation Fund Committee, Heritage recently completed a citywide historic context statement documenting San Francisco's rich New Deal-era legacy. Authored by Christopher VerPlanck and Donna Graves, the four-year study represents the most comprehensive history of publicly-commissioned art, architecture, and infrastructure in San Francisco in the 1930s and 1940s, including a section on the Bernard Zakheim *History of Medicine in California* frescos. 1

Although the UCSF Comprehensive Parnassus Heights Plan would adversely impact numerous historic resources, Heritage's EIR comments focus on the proposed destruction of the Zakheim frescos in Toland Hall (which is attached to UC Hall). The EIR fails to evaluate the individual significance of the frescos or consider potentially feasible alternatives to their destruction. UCSF has rejected options for their safe removal and reinstallation due to the "prohibitive" cost, despite providing widely varying cost estimates.[2] 2

In addition to its responsibilities under CEQA, UCSF has a heightened legal and moral responsibility as steward of this federally-owned historic artwork, commissioned by and for the enjoyment of the public. Because the Zakheim frescos are on loan from the federal government, any decision regarding their removal and/or disposition requires federal approval and is an "undertaking" requiring prior federal consultation under Section 106 of the National Historic Preservation Act. As a state agency, UCSF must also consult with the 3

[1] UCSF Capital Financial Plan – 2019-2025, pp.94, 97.
[2] The $7.6 million estimate to relocate the frescos in the EIR is more than four times greater than the $1.8 million budget in UCSF's Request for Proposals for the same or similar scope of work.

State Office of Historic Preservation "early in the planning processes" regarding the proposed demolition or alteration of historic resources under the Comprehensive Parnassus Heights Plan.[3] Neither consultation process has been formally initiated by UCSF to date.

3 cont.

A. The site-specific *History of Medicine in California* fresco cycle is an individual historic resource under CEQA

The EIR fails to evaluate the eligibility of the *History of Medicine* fresco cycle as a standalone historic resource under CEQA. Instead, the EIR identifies UC Hall as eligible for the California Register while noting that the Toland Hall murals contribute to the building's significance. It is important for the EIR to recognize the individual eligibility of the frescos—which are arguably more significant than any single building slated for demolition—in order to accurately gauge the project's impacts on historic resources and to focus the development of less-harmful preservation alternatives.

The pending San Francisco City Landmark designation is clear evidence that the frescos are individually eligible for historic designation as a collection of objects. On August 19, 2020, the San Francisco Historic Preservation Commission (HPC) unanimously recommended designation of the frescos "as they are individually eligible for Article 10 Landmark designation for association with the history of the Works Project Administration's Federal Art Project, as an excellent example of New Deal-era progressive mural artwork, and as an important example of the work of master artist and muralist, Bernard Zakheim."[4]

4

In contrast to other New Deal-era artworks, *History of Medicine* is also notable for its positive depictions of Native Americans and African-Americans, especially Bridget "Biddy" Mason (1818–1891), shown working beside U.S. Army Surgeon John S. Griffin. Mason was a formerly enslaved African-American nurse, midwife, and herbal medicine practitioner employed in Dr. Griffin's civil medical practice. In Zakheim's mural the figure now assumed to be Mason is composed in the center of a scene administering treatment, a position of authority: a rare positive and powerful depiction of an African-American in public art for the time.

History of Medicine is a site-specific fresco cycle, with its subject matter and depictions inspired by the mission and history of UCSF's medical school. As noted in the San Francisco New Deal-era historic context statement, the frescos were commissioned by UCSF to educate medical students about the history of their field. They portray an abundance of specific events and details drawn from extensive research by Zakheim and his assistant, Phyllis Wrightson. The University provided them access to medical faculty for interviews and the University's collection on the history of medicine.

Given its ambitious scope, artistic values, and progressive depictions, *History of Medicine* is likely eligible for inclusion in the National Register of Historic Places. There are

[3] PRC Sections 5024, 5024.5; EIR, pp. 4.4-12-4.4-13.
[4] Planning Department Staff Report to HPC, August 19, 2020.

numerous precedents of murals listed in the National Register, including two contemporaneous WPA mural series that are National Historic Landmarks: *Detroit Industry Murals* by Diego Rivera (1932-1933, Detroit Institute of Arts) and *Epic of American Civilization Murals* by José Clemente Orozco (1932-1934, Dartmouth College). Similar to *History of Medicine*, the location of the *Epic of American Civilization Murals* in a New England college founded to educate Native Americans, was intentional for Orozco's depictions of Native peoples and is a character-defining feature of the murals.

4 cont.

B. The EIR fails to establish the infeasibility of preservation, removal, and relocation of the Zakheim frescos

A key policy under CEQA is the lead agency's duty to "take all action necessary to provide the people with…historic environmental qualities…and preserve for future generations… examples of major periods of California history."[5] To this end, CEQA "requires public agencies to deny approval of a project with significant adverse effects when feasible alternatives or feasible mitigation measures can substantially lessen such effects."[6] No public agency may approve a project that will result in one or more significant effects unless "specific economic, legal, social, technological, or other considerations…make infeasible the…alternatives identified in the environmental impact report."[7] The EIR must contain "evidence that additional costs…are sufficiently severe as to render it impractical to proceed with the project."[8]

As applied to the proposed project, UCSF has failed to establish the infeasibility of preservation, removal, and relocation of the Zakheim frescos. In rejecting this option, the EIR states that "the estimated $7.6 million cost…is prohibitive in light of UCSF's primary responsibility to support its academic health care mission."[9] This alleged cost in the EIR is four times the estimate in UCSF's current Request for Proposals (RFP), which sets the maximum budget at $1.8 million for the same scope of work. Even if one were to accept the $7.6 million cost at face value, it represents only a tiny fraction of the $3.8 billion total project budget, undermining UCSF's claim that saving the murals is prohibitive or economically infeasible under CEQA.

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C. The EIR should consider alternatives to preserve the *History of Medicine* frescos and publicly display them on campus

The EIR for the UCSF Comprehensive Parnassus Heights Plan fails to consider any project alternatives that would avoid destruction of the frescos, with the exception of the "No Project" alternative. In order to fulfill CEQA's informational mandate, Heritage requests consideration of the following preservation alternatives in the EIR:

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[5] PRC Section 21001 (b), (c).
[6] *Id.*
[7] PRC Section 21081(c).
[8] *Citizens of Goleta Valley v. Board of Supervisors*, 197 Cal.App.3d 1167, 1181 (1988).

1. Removal, conservation, and reinstallation of the frescos on campus

One potential alternative is to remove and reinstall *History of Medicine* elsewhere on the Parnassus Heights campus. Although UCSF has issued an RFP to remove and place the frescos in storage, it has not committed to reinstalling them on campus. Because of Zakheim's site-specific conception, it is essential that any plan to relocate the murals be expressly contingent on their reinstallation within a specific time frame. The HPC emphasized that the complete fresco cycle should be displayed together on campus—albeit not necessarily in Toland Hall—with Commissioner Jonathan Pearlman noting that "one of…the new spaces, especially around Millbury Union, could be designed specifically for the installation around space that would accept them in a very public location."[10]

2. Retain and incorporate Toland Hall into future campus building

A second alternative would retain Toland Hall in place and build around it. Toland Hall is a structure that stands between the two west-most extensions of UC Hall, its north wall adjacent to the south wall of UC Hall. The cost of removal and reinstallation of the frescos could be applied towards stabilization of Toland Hall in place during construction. A similar approach was successfully used to preserve and reincorporate the historic Emporium Dome (1902) into the San Francisco Centre project, completed in 2006.

6 cont.

D. Any disposition of the *History of Medicine* frescos requires federal consultation and approval under Section 106 of the National Historic Preservation Act

The General Services Administration (GSA) has confirmed that the University of California Hospital, San Francisco received a loan of the Zakheim frescos under the WPA, Federal Art Project (1935-1943) in 1937. The original loan documentation preserved the federal government's ownership interest, which was recently reasserted by GSA. If a WPA work of art is on loan to a state agency for display in a public building, as here, the state agency cannot sell or otherwise dispose of the artwork without federal approval.

Section 106 of the NHPA applies to federal "undertakings," broadly defined to include (among other things) any "project, activity or program…requiring a Federal permit, license, or approval."[11] Because GSA must authorize any disposition of the Zakheim frescos, its "approval" qualifies as a federal "undertaking" sufficient to trigger Section 106 review. For the reasons discussed above, permanently relocating the murals to a warehouse would result in an adverse effect under Section 106.[12] However, relocation conditioned on appropriate reinstallation in a new building could qualify for a finding of no adverse effect.[13]

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[10] HPC hearing transcript, August 19, 2020.
[11] 54 USC Section 300320(3).
[12] 36 CFR 800.5(a)(2)(iii).
[13] 36 CFR 800.5(b).

E. As a state agency, UCSF must consult with the State Office of Historic Preservation under Public Resources Code Section 5024 and Section 5024.5

The California State Legislature enacted Public Resources Code Sections 5024 and 5024.5 as part of a larger effort to establish a state program to preserve historical resources.[14] These code sections require state agencies to take specific actions to ensure preservation of historical resources under their jurisdiction, including evaluating their eligibility for national and state historic designation; maintaining an inventory of eligible and listed resources; and managing historical resources so that they retain their character-defining features.

Section 5024 requires UCSF to submit "for comment documentation for any project having the potential to affect historical resources listed in or potentially eligible for inclusion in the National Register or registered as or eligible for registration as a state historical landmark," and Section 5024.5 requires "the head of the state agency having jurisdiction over the historical resource" and the State Historic Preservation Officer to "adopt prudent and feasible measures that will eliminate or mitigate the adverse effects." UCSF must consult with the State Office of Historic Preservation "early in the planning processes" regarding the proposed demolition or alteration of historic resources under the UCSF Comprehensive Parnassus Heights Plan, including at least twelve historic buildings and structures listed in the EIR at pages 4.4-12 and 4.4-13. 8

Thank you for the opportunity to comment on the EIR for the UCSF Comprehensive Parnassus Heights Plan. Please don't hesitate to contact me at 510/282-1290 (mobile) or mbuhler@sfheritage.org should you have any questions.

Sincerely,

Mike Buhler
President & CEO

cc: Jennifer Gibson, Ph.D., GSA
Julianne Polanco, SHPO

[14] Text of PRC Sections 5024 and 5024.5 can be found at http://ohp.parks.ca.gov/pages/1071/files/Public%20Resources%20Code%205024.pdf.

Responses to Comments from San Francisco Heritage

O-SFH-1 The commenter indicates it completed a citywide historic context statement, which included the Zakheim murals in Toland Hall. The comment is noted; no response is required.

O-SFH-2 The commenter asserts that the Draft EIR fails to evaluate the individual significance of the frescoes or consider feasible alternatives. Please refer to Master Response 11: Toland Hall Murals.

O-SFH-3 The commenter asserts that because the Zakheim frescoes are on loan from the federal government, any decision regarding their removal and/or disposition would require Section 106 consultation under the National Historic Preservation Act as well as consultation with the State Office of Historic Preservation. The commenter alleges that neither consultation process has been initiated to date. Please refer to Master Response 11: Toland Hall Murals.

O-SFH-4 The commenter states that the Draft EIR fails to evaluate the individual eligibility of the "History of Medicine" frescos as a standalone historic resource under CEQA, which would help gauge the project's impacts on historic resources and focus the development of less-harmful preservation alternatives. Please refer to Master Response 11: Toland Hall Murals.

O-SFH-5 The commenter states that the Draft EIR fails to establish the infeasibility of preservation, removal, and relocation of the Zakheim frescoes. The commenter also questions UCSF's statements regarding the economic infeasibility of preserving the murals. Please refer to Master Response 11: Toland Hall Murals.

O-SFH-6 The commenter states the Draft EIR fails to consider alternatives that would preserve and publicly display the Zakheim frescoes and requests two preservation alternatives be analyzed: (1) removal, conservation, and reinstallation of the frescoes elsewhere on the Parnassus Heights campus, and (2) retain Toland Hall and incorporate it into the future campus building. Please refer to Master Response 11: Toland Hall Murals.

O-SFH-7 The commenter asserts that because the Zakheim frescoes are on loan from the federal government and the General Services Administration must authorize its disposition, the project would require section 106 consultation under the National Historic Preservation Act. Please refer to Master Response 11: Toland Hall Murals.

O-SFH-8 The commenter asserts that UCSF is required by Public Resources Code Sections 5024 and 5024.5 to consult with the State Office of Historic Preservation regarding the proposed demolition or alteration of historic resources under the proposed project.

UCSF provided notification to the California State Historic Preservation Officer (SHPO) regarding the proposed CPHP and its potential impact on historical resources by sending the agency the Notice of Preparation/Initial Study and Notice of Completion/Notice of Availability of the Draft EIR. Both notices were sent to SHPO early in the planning process. No response from SHPO was received and no further consultation is required.

September 11, 2020

Diane Wong
Principal Planner/Environmental Coordinator
UCSF Real Estate - Campus Planning
EIR@planning.ucsf.edu

Dear Ms. Wong:

Sutro Stewards has helped UCSF protect and enhance the Mount Sutro Open Space Reserve since our formation in 2006. Our mission is to build community, connect people with nature, and to protect and enhance Mount Sutro, one of the City's wildest and most beautiful green spaces. We are deeply dedicated to keeping Mount Sutro healthy and accessible. Over the past 14 years, we have increased public access through a network of trails and worked to restore and conserve native plant habitat throughout the open space. All of our work has been supported by tens of thousands of volunteers. We have a growing digital outreach base of well over 2,000 people. 1

Because of our commitment to this special place, some aspects of UCSF's proposed Comprehensive Parnassus Heights Plan are of concern, particularly the dramatic increase in the density of Aldea housing from 171 units to 504 units, and up to 762 units by 2050. This increase in population would greatly alter the transportation needs of the Aldea residents. Most impactful to open space visitors and wildlife are the proposed sites where this development would occur. We encourage you to thoroughly study and provide alternatives to the increased density at Aldea. We strongly feel that the primary site for initial housing development should be located within the Inner Sunset community near Parnassus, where residents and families have access to a large number of services and amenities, including public transit, from their front doors. UCSF has informed the community of its commitment to carbon reduction, and alternative housing studies need to clearly prove which potential housing site will meet this goal. Further, provide proof that by constructing housing in the remote Aldea location that there will not be a resulting increase in transportation needs, but rather a reduction, similar to what would result from the housing being located in the Dental School parking lot site at 5th Avenue and Kirkham Streets. We request a full quantitative analysis of both sites with emphasis on carbon footprint over a 50 year period with emphasis on the transportation needs and those impacts on both the residents occupying UCSF housing units and on the surrounding community. 2 3 4

Another concern is about the increased building heights which will potentially alter local climate, wind, and sunlight patterns. We believe all potential impacts related to aesthetics, biological resources, geology, soils, and transportation should be thoroughly evaluated and compared to the current existing conditions in Aldea. We need evaluation of direct comparison for more buildings closer together in between existing structures at lower elevation sites in Aldea so that no development extends higher than current existing rooftops, and the alternate housing site at 5th and Kirkham. We strongly encourage no increase in parking on the mountain at any new housing site, but instead an investment in public transportation as a more efficient use of space. All of these issues need to be compared to impacts of developing housing located in the Dental School parking lot area at 5th Avenue and Kirkham Streets vs Aldea. 5 6 7

Please reflect on the expected, long term impacts to work culture from the Coronavirus, Shelter in Place restrictions like those we have been living under for the last six months. It is likely that virtual work will be preferred well into the future, limiting the need for such a dramatic increase in housing. However the development of additional housing in Aldea will mean the displacement of those already residing there. Please provide details on the timing and period of removal for Aldea residents during construction and the relocation and substitute housing for these students. Why would it not be a better alternative to leave the Aldea housing in place and occupied while new housing is constructed on or close to Parnassus? Can you please provide alternatives to the displacement and loss of housing at Aldea during construction? 8 9 10

Currently, Sutro Stewards relies heavily on the Aldea Center and Aldea parking to run our community volunteer events. Increasing residential density closest to the forest and our nursery will impact our ability to use these spaces and, therefore, our 11

ability to attract volunteers who support our beneficial programs. Incorporating an expanded community space from which to run our programs at, in

a location closer to Parnassus with public transit access, would be a vast improvement to these plans (see our Health in Nature Center proposal submitted to the Office of Real Estate and Planning and the Office of Community and Government Relations, on August 14, 2020) and help reduce the need for parking at Aldea. We are also concerned that densification and increased building heights will undermine the unique aesthetics, views, wildness, and visitor experience that make Mount Sutro such a valuable place for connecting to nature. In addition, we believe that wildlife, including sensitive bird species, butterflies, mammals, and native plant populations could be adversely affected by the proposed building locations, increased light pollution, noise pollution, traffic, and human interaction. As we have learned from the bird surveys conducted in response to the Vegetative Management Plan, Mount Sutro is an important habitat for both breeding and overwintering bird species. Please study and include the impacts of proposed Aldea construction on the wildlife listed in the example above and compared to the no construction in Aldea alternative. This habitat should be prioritized and protected.

Additionally, we'd like to express our support for the 'Park to Peak' route that would be created during the reorganization of the campus. This visionary route would improve non-vehicular access to the Mount Sutro Trail system, and provide increased public nature space for the community. We strongly urge that all landscaping associated with this project and the expansion, generally, be done with San Francisco Native Plants. Furthermore, choosing plants grown by Sutro Stewards would ensure the plants local genetic integrity. Locally native plants are best adapted to our climate and support the highest numbers of local wildlife. Recent U.N. reports attest to the fact that the world is losing species and biodiversity at an alarming rate, which has been accelerated by the climate crisis. Prioritizing the creation of a wildlife corridor or habitat highway will go a long way toward staunching the damages caused by this development.

Sutro Stewards wishes to support UCSF in ensuring that Mount Sutro remains a healthy ecological oasis that provides rare urban habitat to local wildlife while providing UCSF students, faculty, staff, and San Francisco residents a natural refuge for walking, running, biking, and connecting with nature. As our city reels from the increasing impacts of climate change, as well as the Coronavirus, the sanctity of our public nature spaces is more important than ever. Please support our concerns and work to minimize impacts to the Mount Sutro Open Space by incorporating our suggestions and providing answers to our questions regarding your construction plans.

Sincerely,

Ildiko Polony
Executive Director, Sutro Stewards
ildiko@sutrostewards.org

11 cont.

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Responses to Comments from Sutro Stewards

O-SUT-1 The commenter summarizes Sutro Stewards' history and role. These comments are noted.

O-SUT-2 The comment states concern about the increase in housing units at the Parnassus Heights campus site included as part of the project; specifically, 332 net new housing units as part of Aldea Housing complex reconstruction and 430 new housing units as part of the West Side Housing project. It then asserts that the increase in population would alter the transportation needs of residents of the Aldea Housing complex. The effect of the additional on-campus housing and related residential population is fully assessed in the transportation impact analysis of the CPHP in Section 4.15 on pages 4.15-37 to 4.15-53. The vehicle trips generated by the new on-campus residents, including those that would reside in the redeveloped Aldea Housing complex, are included in the analysis of the CPHP's impact on VMT. With the exception of Impact TRANS-5 related to construction under the CPHP which was found to be significant but reduced to less than significant with mitigation, all transportation impacts were found to be less than significant.

O-SUT-3 The commenter requests alternatives to the increased density at the Aldea Housing complex, such as locations within the Inner Sunset near Parnassus. Please see Master Response 5: EIR Alternatives.

O-SUT-4 The comment requests additional greenhouse gas emissions and transportation analysis of the effect of building additional housing units in the Aldea Housing complex compared to building housing on other more central locations at the Parnassus Heights campus site, such as the west side. Due to the need for more on-campus housing, the CPHP includes new housing in both the Aldea Housing complex and on the west side of the campus site. Although some of the residents of the 332 new units in the Aldea Housing complex may travel via campus shuttle between their residences and work places in the campus core, as compared to new residents of the West Side housing who would be able to more easily walk or bike to their work places, the distance that the Aldea residents would travel via shuttle is accounted for in the DEIR VMT and greenhouse gas emissions projections. As noted above, the trips and VMT generated by all the new housing, including by spouses that may travel to workplaces outside the campus site are accounted for in the VMT impact analysis.

O-SUT-5 and O-SUT-6: The comment expresses concern that increased building heights would potentially alter local climate, wind, and sunlight patterns. The commenter further indicates all impacts to aesthetics, biological resources, geology, soils, and transportation should be thoroughly evaluated and compared to existing conditions in Aldea. Lastly, the commenter indicates the Draft EIR needs an evaluation of more buildings closer together in between existing structures at

lower elevations in Aldea so that no development extends higher than existing rooftops, and the alternate housing site at Fifth and Kirkham.

All potential effects associated with the proposed height, density, and location of the proposed housing in the Aldea Housing complex under the CPHP, such as aesthetics, wind, shadows, biological resources, geology and soils, and consistency with land use plans and regulations, are adequately addressed and mitigated to the extent feasible in the Draft EIR Sections 4.1, 4.3, 4.6, and 4.10. As discussed on Draft EIR, page 4.0-6, the baseline condition used in the EIR (against which aesthetic, biological resource, geology, soils and transportation impacts are compared) is January 2020, consistent with when the Notice of Preparation was published. For additional information on these topics, please also see Master Response 8: Wind Impacts; Master Response 9: Shadow Impacts; Master Response 13: Land Use Impacts.

O-SUT-7 The commenter encourages no increase in parking on the mountain at any new housing site, but rather, to invest in public transportation. This is a general comment on the project itself, rather than on the adequacy of the Draft EIR. However, please note that the CPHP includes a net decrease in parking spaces at the Parnassus Heights campus site. The proposed CPHP proposes one new parking structure (on the West End of the campus site), which would replace existing parking spaces that would be removed under the CPHP. Consequently, the proposed CPHP would not build parking in excess of demand. Furthermore, as discussed in the Draft EIR Section 4.15, Transportation, UCSF would continue to implementing its comprehensive TDM program, as well as coordinating with applicable local and regional agencies to implement San Francisco's Transit First Policy, and provide viable alternatives to single-occupancy vehicles.

The commenter also indicates the issues raised need to be compared to impacts of developing housing in the Dental School parking lot at 5th Avenue and Kirkham Streets, versus at Aldea. Please see Master Response 5: EIR Alternatives.

O-SUT-8 The commenter requests the EIR consider the long-term impacts to work culture from COVID-19. Please see Master Response 3: COVID-19.

O-SUT-9 The commenter asks that UCSF provide details about the timing of the Aldea Housing Densification project and where substitute housing would be provided for those displaced by the project.

Displacement impacts of the Initial Aldea Housing Densification project, as well as the future phase(s) of Aldea Housing Densification, are discussed under Impact POP-2 on Draft EIR page 4.12-11. As discussed in the Draft EIR, only the residents of the first three buildings demolished under the initial Aldea Housing Densification project would be temporarily displaced. In total, approximately 42 households, or about 100 residents, would be temporarily

displaced. UCSF recently opened the Tidelands residential complex (595 units) south of the Mission Bay campus site in the City's Dogpatch Neighborhood. In addition, UCSF may lease housing units owned by UC Hastings College of the Law. Residents temporarily displaced during the initial phase of the Aldea Housing Densification project could be housed in these units or other available campus housing. Prior to implementing the project, UCSF would develop a plan to ensure that displaced residents receive housing accommodations. The four structures constructed during the initial Aldea Housing Densification project would provide enough units to accommodate the residents who would be displaced due to the demolition of the remaining nine structures within the Aldea Housing complex that would occur under the Future Phase of the Aldea Housing Densification project. The construction timeframe for the Initial Aldea Housing Densification project is from 2028 through 2030. The schedule for the future phase(s) of Aldea Housing Densification is not known at this time.

O-SUT-10 The commenter requests alternatives addressing the displacement and loss of housing at Aldea during construction. Please see Master Response 5: EIR Alternatives.

O-SUT-11 The commenter asserts that increasing residential density closest to the forest and nursery will impact the ability to use Aldea parking and ability to attract volunteers who support its programs; and requests an expanded community space from which to run its programs in a location closer to public transit access and help reduce the need for parking at Aldea.

This comment does not address the adequacy of the Draft EIR. The comment has been noted and will be forwarded to decision-makers.

O-SUT-12 The commenter expresses concern that location, densification and increased heights of buildings in the Aldea will undermine the aesthetics, views, biological resources (including sensitive bird species, butterflies, mammals, and native plant populations), noise, traffic, visitor experience and human interaction.

All potential effects associated with the proposed height, density, and location of the proposed housing in the Aldea Housing complex under the CPHP, including aesthetics and lighting effects, biological resources (both plant and wildlife species), noise and transportation, are adequately addressed and mitigated to the extent feasible in the Draft EIR Sections 4.1, 4.3, 4.6, 4.11, and 4.15. For additional information on CPHP effects on biological resources, please see Response O-SUT-13, below.

The commenter's concerns about visitor experience and human interaction are not considered environmental issues to be addressed in EIRs, but rather quality of life issues. Please see Master Response 1: Non-CEQA Issues.

O-SUT-13 The commenter requests analysis of the impact of construction of Aldea Housing on breeding and overwintering birds, native plants, butterflies and mammals within the Reserve. Impacts on special-status plant species are analyzed in the Draft EIR. If any rare plants are found prior to construction, these will be protected as described in CPHP Mitigation Measure BIO-1a. Monarch butterflies are not known to overwinter in the Reserve, but if suitable monarch butterfly wintering habitat would be impacted, CPHP Mitigation Measure BIO-1b calls for a survey prior to construction, and avoidance of any wintering monarch aggregations. As described in the Draft EIR, nesting birds are protected under the Migratory Bird Treaty Act; overwintering bird species are protected if they have special status in California. The Draft EIR BIO Appendix lists the special-status birds with potential to occur in the project area. Impacts of CPHP construction, including those from the construction at the Aldea Housing site, on birds are described in Section 4.3.3. Impacts to nesting birds from construction at Aldea include temporary loss of nesting habitat and disturbance to nearby nests from construction noise and human activity associated with construction and maintenance. Noise and disturbance impacts would be mitigated to a less-than-significant level under CPHP Mitigation Measure BIO-1c, Protection of Nesting Birds. See also Draft EIR CPHP Mitigation Measures BIO-2a and -2b for prevention of harm to migrating birds during construction, and incorporation of bird-safe building treatments. The only special-status mammals potentially impacted in the Reserve are bat species. Under CPHP Mitigation Measure BIO-1d, pre-construction bat surveys will be conducted in areas of suitable habitat, and bat-safe removal procedures followed if there is evidence of bat habitation,

O-SUT-14 The commenter expresses support for the Park to Peak route. The commenter also urges that all landscaping associated with the CPHP use San Francisco native plants. The comments are acknowledged, however, please note that the Park to Peak route is not specifically an element of the CPHP. Nevertheless, the CPHP would be compatible with the proposed Park to Peak improvements, and furthermore, the CPHP would coordinate with planned trailheads to Mount Sutro.

O-SUT-15 The commenter expresses support to UCSF Sutro Stewards wishes to support UCSF in ensuring that Mount Sutro remains a healthy ecological oasis that provides rare urban habitat to local wildlife while providing UCSF students, faculty, staff, and San Francisco residents a natural refuge for walking, running, biking, and connecting with nature. The comments are noted; no response is required.

From: beneficialbug@sonic.net
To: Campus Planning - EIR
Subject: Comments re: Mt. Sutro deforeston
Date: Friday, September 11, 2020 11:40:08 PM
Attachments: David Maloney 2016 paper.pdf
UC Mt Sutro dEIR 91120.pdf

Comments also attached

9/11/20
From Maxina Ventura ,Chronic Effects Researcher,
East Bay Pesticide Alert

Formal Comments in Response to dEIR re: Deforestation and Pesticiding of Mt. Sutro Eucalyptus Forest

You are receiving many detailed analyses and what EBPA adds as we've hit four weeks of intense fire and smoke particulates from California's Climate Fires is that, every tree is considered a fire mitigation factor according to the experts who produce the "Fire Bible," the National Fire Protection Association Handbook, found in every fire station.
David Maloney, Retired Oakland Fire Department; Chief, Fire Prevention, Oakland Army Base, appointed to 1991 Oakland-Berkeley Mayors' Task Force on Emergency Preparedness and Community Restoration to report on causes of the '91 East Bay Hills conflagration, and to make recommendations so that we do not face this again, referred to the from the National Fire Protection Association Handbook at an event five years ago:

"Dried grass provides the most flammable ground fuel," and, "There's no if's, and's, or but's.... every single tree is a wildfire mitigation factor.... trees block wind, drip fog onto grasses, and block sun so grasses stay moist."

And speaking about the immense danger created by the deforestation of Angel Island a few years ago:
<<
The worst fire in the history of Angel Island in the San Francisco Bay occurred in 2008. Several years before, dozens of highly fire resistant Blue Gum Eucalyptus trees that were almost directly in the path of the fog and cool air that regularly comes through the Golden Gate were cut down. These trees collected and dripped onto the ground 59" of moisture each year – almost six feet of water — which kept the island's grasses moist. When they were removed, the grasses dried out by midday. The ground where the trees were logged for the first time in decades resembled dry ground in Lake County. The people responsible for the removal of these trees proved how little they know about fire science and the role of trees in preventing wildland fires, twice. Once by removing the trees, and again by saying, after the fire, that it would have been worse if the "flammable" trees weren't removed. These are the same people and institutions that are advocating the removal of trees from the East Bay Hills, which will make the East Bay Hills become like the dry, flammable, grassy terrain in Lake County where large, destructive grass fires destroyed Middletown (summer, 2015). >>
That was a Climate Fire which was a human-made environmental mess. The Eucs were keeping the soil moist, fire mitigation, and once the trees were gone, everything heated up and became grasslands, vulnerable to the next lighting strike or other spark.

David Maloney's 2016 paper updating us all on the dangers of continued removal of tall trees in the East Bay Hills is attached here and can be accessed, too, from our website on this page:
http://www.eastbaypesticidealert.org/wildfire.html in the video description on that page, just below the Measure FF information.
UC's plans to keep destroying the healthy Eucs and other trees on Mt. Sutro which are adapted to our modern climate, what has kept residents of SF and UCSF safer from fire danger, is a complete mistake. It is reckless. It is irresponsible.
Please abandon these plans and replant eucalyptus to make up for every tree you've removed over the past years on Mt. Sutro.
Additionally, reference to 'Native Plant Restoration' projects on Mt. Sutro over the past many years never look at

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acclimation of species and healthy habitats which can survive the climate changes humans have created which trees help mitigate, especially tall trees which can transpire many feet of water per year, and sequester carbon while giving off oxygen especially needed in a crowded urban landscape, such as San Francisco. 2 cont.

You must not use any pesticides, whether herbicides or others such as fungicides which have been weakening oaks, making them vulnerable to Sudden Oak Death. The fungicide use was UCB's Garbaletto's dangerous response to Sudden Oak Death which also was a manufactured climate catastrophe borne of drought conditions, particularly Wine Country over-use of water in conventional grape growing that was coming to a head in the mid-90's in Sonoma and around that time Marin was hit, too, after which SOD followed wine grape growing regions and even moved into citrus-growing regions across the state, and beyond. Native, as people like to refer to Oaks, they are not able to survive our climate-changed environment and habitats. They are expected to be all gone by about 20 years from now in the East Bay Hills and would not be expected to fare much better in SF in these times. But Eucs thrive, as can Monterey Pines. 3

Stop the needless destruction of life-giving trees and toxic pesticide use (how ironic by a hospital).

UC is a leader of Climate change, endangering everyone. We respectfully request that UC stop the destruction on Mt. Sutro and replant at least 5 Eucalyptus trees for every tree you've destroyed on Mt. Sutro, or on any UC land. SF needs the cooling water-saturated air it has enjoyed due to drift of water spray riding the ocean breezes. 4

Sincerely,
Maxina Ventura for East Bay Pesticide Alert / Don't Spray California 5

** Please confirm receipt

--
Maxina Ventura
Classical Homeopathy, Non-toxic Medicine
All Ages, All Genders
WiseWomanHealth.com

Responses to Comments from East Bay Pesticide Alert

O-EBPA-1 The commenter references different sources discussing fire dangers associated with dried grass, and as a result of tree removal. These comments do not specifically address the adequacy of the Draft EIR. However, please see Response O-EBPA-2, below.

O-EBPA-2 The commenter expresses opinions regarding the past and future removal of eucalyptus trees on Mount Sutro, and potential resultant effects on climate change.

To the extent the commenter is referring to ongoing eucalyptus removal within the Reserve, those activities are being implemented under the UCSF's Mount Sutro Vegetation Management Plan (approved in March 2018, along with certification of its associated Final EIR). The Draft EIR briefly discussed UCSF's Mount Sutro Vegetation Management Plan (see Section 4.3 Biological Resources, pages 4.3-1 to 4.3-11, and Section 4.8, Hazards and Hazardous Materials, page 4.8-7), including the purpose of 20-year phased plan to protect, enhance and restore vegetation in the Reserve; improve ecosystem health; maintain and ensure public access within the Reserve: and minimize fire risk. Please note, however, that the activities occurring under the UCSF's Vegetation Management Plan are separate from, and outside of the purview of, the CPHP and this Draft EIR.

To the extent the CPHP would result in the additional removal of trees at the campus site, the associated impacts are disclosed in the CPHP Draft EIR and mitigated to the extent feasible. For specific effects of the CPHP on climate change, please refer to Section 4.7, Greenhouse Gas Emissions in the Draft EIR.

O-EBPA-3 and O-EBPA-4: The commenter discourages against the use of pesticides, including herbicides and fungicides, which can make oaks vulnerable to Sudden Oak Death. The CPHP does not discuss potential use of pesticides; the Draft EIR discusses pesticides only in the following context: 1) pesticides and herbicides are considered hazardous materials, and any potential use would be required to be carried out in accordance with manufacturers recommendations, and 2) urban stormwater runoff can potentially contain pollutants, including pesticides and herbicides (among other pollutants).

This comment is part of the public record on the CPHP, and will be considered by the UC decision-makers prior to considering CPHP approval.

O-EBPA-5 The comment expresses some personal opinions regarding UC that do not address the adequacy of the Draft EIR; please see Master Response 1: Non-CEQA Comments.

The comment also suggests UC replant at least 5 eucalyptus trees for every tree removed. This suggestion from the commenter is part of the public record on the

project, and will be considered by the UC decision-makers prior to considering CPHP approval.

Please note Comment Letter O-EBPA contained an attachment which did not comment directly on the Draft EIR. This attachment is included in Appendix O-EBPA in this Comments and Responses document.

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8.4.2.3 Draft EIR Comment Letters – Individuals

From: Elissa Calvin
To: Campus Planning - EIR
Subject: Zakheim murals
Date: Wednesday, August 5, 2020 1:47:15 PM

To whom it may concern,

I have heard through SF Heritage recently as well as through local news outlets that UCSF has for some reason made a complete about face on their decision to keep the Bernard Zakheim murals and now intend to destroy them along with the building they are in. This is absolutely despicable behavior that is not becoming of a globally known institution that claims to be on the forefront of new discoveries. I am very curious as to why you reversed your decision when before you said it was a priority to keep them. And giving the Zakheim family just 90 days to come up with $8 million dollars or another solution is a joke. You clearly are just looking for a reason to destroy the murals and not have to deal with them. Your "solution" of preserving the murals in a digital format is an ever greater joke. Art of that caliber with that much historical significance will not be dealt any justice by making it digital. 1

The panels can be moved- the artist knew there could be a possibility of it happening one day. While moving them to a museum or other cultural institution is better than them being destroyed, they really should remain where they are, because they are intended to be at a medical and educational facility. The ideal situation would be to keep that room and make it a community space so the public can have access to them. 2

Perhaps UCSF should be stripped of all of its art, because you have shown that you are not worthy caretakers or curators if you really do go through with this. 3

Please come to your senses and do the right thing.

Elissa Calvin

Responses to Comments from Elissa Calvin

I-Calvin-1 The commenter expresses opinions regarding UCSF and does not agree with the proposed digital preservation of the Toland Hall Murals. Please refer to Master Response 11: Toland Hall Murals.

I-Calvin-2 The commenter asserts that the mural panels can be moved, but states their preference is to leave them where they are. Please refer to Master Response 11: Toland Hall Murals.

I-Calvin-3 The commenter expresses an opinion that does not address the adequacy of the Draft EIR. Consequently, no response is required.

ROBERT W. CHERNY
PROFESSOR *EMERITUS* OF HISTORY
San Francisco State University
Home: 1462 9th Avenue
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August 21, 2020

Diane Wong
UCSF Real Estate
Campus Planning
654 Minnesota St.
San Francisco, CA 94143-0286

Dear Ms. Wong:

I hope to take part in your EIR hearing. I am providing this written material in case I am not able to do so.

I encourage you to reconsider the decision to demolish Bernard Zakheim's murals at Toland Hall, UCSF. As you undoubtedly know, the San Francisco Historic Preservation Commission has recently voted unanimously to landmark those murals. I am attaching the Planning Department's analysis of the murals and of Toland Hall. 1

I strongly supported that decision because I am confident that those murals meet the standards for landmarking set by the Secretary of the Interior: they are associated with events that have made a significant contribution to the broad patterns of our history (the New Deal arts programs), they are associated with the lives of persons significant in our past (Bernard Zakheim, Chauncey Leake, who participating in commissioning the murals and appears in one of them, and other the historical figures depicted in the murals), they represent the work of a master (Zakheim), and they possess high artistic values. 2

During the 1930s, Zakheim was one of the leading artists in this area who were creating major public art under the auspices of the New Deal arts programs. During the 1930s, Zakheim created the following public art, all still extant: 3

- *Jewish Wedding* also called *Jewish Festival,* private commission, Jewish Community Center, San Francisco, 1933, relocated in the new JCC building in 2004.
- *Library,* Coit Tower, San Francisco, 1934. National Register of Historic Places, 07001468; San Francisco Landmark 165.
- *Community Spirit* and *Growth,* two murals, Alemany Emergency Hospital and Health Center, San Francisco, 1934. San Francisco Landmark 272.
- *Ancient Medicine* and *Modern Medicine,* two murals, Cole Hall, UCSF, San Francisco, 1935, relocated to Health Sciences West, 1966.
- *The Story of California Medicine,* ten murals, Toland Hall, UCSF, San Francisco, 1938.
- *The Horse and Buggy Era Gives Way to Modern Transportation,* Post Office, Mineola, Texas, 1938.

- *Agriculture and Industry,* Post Office, Rusk, Texas, 1939.

After completing his last New Deal commissions, Zakheim did a series of paintings of figures from the American Revolution. The Holocaust was enormously influential for Zakheim, and he began creating works depicting Jewish life and the Holocaust, including two major works of public art: *Songs of the Polish Jews* also called *The History of the Jews Through Song* (mural, 1961, near Warsaw, Poland), and *Memorial to the Six Million* also called *Warsaw Ghetto Memorial* (six sculptures, Mount Sinai Memorial Park, Los Angeles, 1966). Throughout his career, he continued to create oil paintings and watercolors.

Zakheim's murals are also excellent examples of the public art produced by New Deal programs. He included social commentary in several places, something typical of much New Deal art. Bruce Bustard, in his 1997 study of New Deal art programs, specified five themes typical of New Deal art, of which three can be found in the Toland Hall murals: a celebration of ordinary, often working-class, people (including Biddie Mason, a Black woman and former enslaved person); promotion of social change (including a celebration of the first woman to graduate from what became UCSF); and a rediscovery of American history (Zakheim's extensive research is reflected in the murals by scrolls or documents identifying the individuals and events he was depicting). 3 cont.

The proposed alternative, high-resolution photographs of the murals, is unacceptable because a mural that takes up an entire wall has a presence and a power that cannot be captured in a photograph. Public murals were meant to be seen by many people; photographs that record such art are preserved in libraries, where they are consulted by specialists. The New Deal art projects were intended to create art for the people, art that would inspire, inform, and, yes, sometimes even irritate the public at large. Dr. Leake and others wanted generations of students to experience this art. The proposed alternative denies that goal. 4

During the Historic Preservation Commission meeting, Mr. Brian Newman stated that Toland Hall is "in" UC Hall and therefore not separable from other parts of that building. That statement is highly misleading. Toland Hall is a structure that stands between the two west-most extensions of UC Hall. Toland Hall's north wall is adjacent to the south wall of UC Hall. Please review the diagram on page 26 of the Planning Department's description of the murals and of Toland Hall, and you'll see that Toland Hall is not "in" UC Hall but adjacent to it. 5

I hope that I can be present virtually during your meeting to answer any question you may have. 6

Thank you for your consideration.

Sincerely,

Robert W. Cherny

Responses to Comments from Robert W. Cherny

I-Cherny-1 The commenter request UCSF reconsider its decision to demolish the Zakheim murals, and notes the San Francisco Historic Preservation Commission's vote to landmark these murals. The comments are noted. In fact, on November 25, 2020, the Mayor of San Francisco approved Ordinance 241-20 amending the Planning Code to designate the Zakheim Murals as a City Landmark consistent with the standards set forth in Article 10 of the Planning Code. This has been noted in a revision to the Draft EIR. Please refer to Section 8.5 of this Comments and Responses document for the proposed revision. Please also refer to Master Response 11: Toland Hall Murals.

I-Cherny-2 The commenter expresses support for the San Francisco Historic Preservation Commission's decision to landmark the Zakheim murals and believes the murals meet the standards for landmarking set by the Secretary of the Interior. Please refer to Response I-Cherny-1, above, and Master Response 11: Toland Hall Murals.

I-Cherny-3 The commenter provides a list of public art created by Zakheim, a description of his work following the New Deal commissions, and states that the murals are "excellent examples of public art produced by the New Deal programs." Please refer to Master Response 11: Toland Hall Murals.

I-Cherny-4 The commenter states that the proposed alternative of high-resolution photography of the murals is not acceptable. Please refer to Master Response 11: Toland Hall Murals.

I-Cherny-5 The commenter asserts that Toland Hall is adjacent to UC Hall, and not "in" UC Hall as represented during the Historic Preservation Commission meeting. Please refer to Master Response 11: Toland Hall Murals.

I-Cherny-6 The commenter expresses an opinion that does not address the adequacy of the Draft EIR. The comment is noted.

Please note Comment Letter I-Cherny contained attachments which did not comment directly on the Draft EIR. These attachments are included in Appendix I-Cherny in this Comments and Responses document.

From:	Ariane Eroy
To:	Campus Planning - EIR
Cc:	Shamann Walton; Gordon Mar; Hillary Ronen; Preston Dean (BOS); contact@avalos2020.com; Wright Edward (BOS); Li-D9 Jennifer (BOS); Evans Abe (BOS); Matt Haney; Yee Norman (BOS); Assemblymember Ting; assemblymember.chiu@assembly.ca.gov; Representative Nancy Pelosi; Kpfa News; Rose Aguilar
Subject:	Protest against development in Mount Sutro/Comments to be included in UCSF"s EIR
Date:	Sunday, August 23, 2020 2:04:40 PM

Please see my comment below, and send me a receipt that you received it, as well as proof that it was included in the EIR, as a protest against UCSF's aim of razing 70% of Mount Sutro Forest, within its expansion of its Parnassus Heights Campus.

Thank you,
Ariane Eroy, Ph. D.
PO Box 460002
San Francisco, CA 94146

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In this most recent rendition of its longterm development plans, UCSF reveals that it will be laying waste to approximately 2.97 - 4.5 acres of Mount Sutro Forest, to initiate its first stage for expanding Aldea dormitory space by another 184 units, with eventual plans to augment them to over 500 units. 1

In November 2019, the Board of Regents relinquished its Laurel Village Campus to developers, leasing the 10.27 acres of land to the Prado Group, a developer that intends to raze every one of the site's 192 stately trees. Everyone recognizes that developers' main concern is to save time and maximize profits. But what about UCSF's concerns? Or even a belief in conservation? Certainly, there could have been a provision for dorms being built there instead of clearing Mount Sutro. Moreover, the projects' focus is not surprising, with the majority of the space afforded for luxury apartments, offices and retail space. This is occurring at a time when many corporations are downsizing their office space as employees increasingly work from home--perhaps permanently--and when 40% of small businesses have closed their doors permanently. 2

All around the City, residents witness unkempt streets and parking lots as well as boarded-up buildings. Yet while the US economy is spinning towards a deep depression, there are even more important and urgent problems... Humanity is barreling towards extinction--should it not take a 180 degree turn and address the Climate Emergency that imperils all ecosystems, and all species.

Mount Sutro is San Francisco's largest urban forest, composed of approximately 80% Eucalyptus trees. The dense Forest lives off the fog year-long, with its soil remaining damp throughout the hot summer months, and acting as a protective against fire, insects and disease. Long ago, the Forest should have been identified as a national heritage site, as it is part of the

historic legacy of San Francisco. It is a spiritually uplifting and healing space,

As San Francisco has one of the smallest urban canopies of all cities nationwide, Mount Sutro serves a very important role in providing residents with oxygen, and cooling escalating temperatures. The forest provides habitat not only to animals and stressed-out city dwellers, but mitigates the whipping winds that characterize the Sunset District. The towering trees clean the airs of particulates, and sequester carbon dioxide. Eucalyptus are uniquely drought-resistant, and adapted to an increasingly dry and hot environment.

The Forest is located on public land, and as such, must be considered part of the Commons.
Yet over the years, UCSF has promulgated Nativist philosophy, a form of reactionary populism that furthers its development plans. Nativists employ bigoted tropes, claiming that certain trees are invasive, inflammatory, dangerous, dirty, and "just don't belong here." These kind of language should be familiar to us all, as it was used by the European settlers against Native Americans for hundreds of years to justify genocide. At present, developers, speculators and corporate-controlled media relentlessly attempt to condition the Public to hate, if not fear, trees and forests. Nativists deny that deforestation accelerates catastrophic climate change. Eschewing statistics and science itself, the contribute thousands of anecdotal reports to slant the media. By demonizing the Eucalyptus trees, UCSF can more readily pass through radical projects that favor crony-capitalism, that counter the Public good, and that even defy common sense. By transforming the dense, extant Forest into some kind of suburban park with open spaces decorated with native shrubs and grasses , the land can be denigrated and thus laid waste, such that it can be more easily developed over the years ahead.

2 cont.

UCSF already owns plenty of property so there was never any necessity to install native gardens in Mount Sutro--unless it wanted to kill a forest. All around the city, native gardens could have been installed--within the structure of Milberry garage, by opening up its miles of sidewalks, and by landscaping its new Mission Bay Campus accordingly. Yet by radically thinning the forest and installing native gardens and encroach on the forest with its eight-storey high dormitories, it will not only kill vibrant trees, but decimate the underground root structures, desiccate the forest floor, and invite in disease, insects, and fires. Moreover, by weakening the underground root network of the forest, they could trigger landslides onto the homes below, especially in light of increasingly intense, sudden storms.

In its 2013 DEIR, a crushingly-long, 4000+ page document released to the Community within a 6-week window for public comment, UCSF wrote "Under full-implementation or worst-case implementation of management activities under the proposed project, approximately 60% of all existing trees, including large and small trees, could be removed." But the eco-scientist Mary McAllister, of *Million Trees*, remarks that this is even an underestimate:

Should UCSF enforce a 30-foot radius around each tree, they would actually be razing 31,904 trees, or 70.9% of the forest.

Today, carbon dioxide levels hover at 410 ppm--higher than any time in the last 800,000 years. At a time of escalating, human-caused climate change, humanity needs to take a 180-degree turn away from years of reckless development that not only accelerates the planet with massive ecocide, but threatens humanity, itself, with extinction. Humanity cannot continue to destroy all life around us, and expect to live!

Mount Sutro's awe-inspiring Eucalyptus trees give to us, every day of their lives. Visiting the Forest, is like entering a sacred cathedral, with its fragrant, mineralized air, its cool breezes, its magnificent views, its exquisite trees with their silver leaves and muscular, white trunks. Silently, these trees bestow on us all of us the gift of life. When they breathe out, we breathe in. Humbly, they invisibly partner with those of us who are working to fight human-caused, climate change. They are our neighbors, and they are our community. They teach us about love.

How can UCSF pose as the steward of Mount Sutro, a forest which it decimates? UCSF claims to be an internationally-renowned health provider--yet it ignores the fact that pollution is one of the chief causes of mortality, and that the climate catastrophe threatens humanity with extinction. UCSF ignores that it has a duty to protect the Public, and in this case, it eschews its duty by clear-cutting a beneficent forest: By doing so, UCSF vandalizes both our environment and our Future.

2 cont.

Ariane Eroy, Ph. D.
San Francisco

Responses to Comments from Ariane Eroy

I-Eroy-1 The comment asserts that UCSF would "lay to waste" approximately 2.97 to 4.5 acres of Mount Sutro Forest to accommodate proposed development at the Aldea Housing complex. However, the Draft EIR does not report such an area would be affected by proposed development at the Aldea Housing complex. Rather, UCSF's preference is to construct the new student housing buildings in the Aldea Housing complex in the approximate location of existing building foundations, thereby minimizing overall land disturbance within the Aldea Housing area. Accordingly, none of proposed Aldea Housing development would encroach into the surrounding Reserve.

I-Eroy-2 The commenter opines on several topics, including past vegetative management proposals activities within the Reserve, and references to a 2013 Draft EIR on the UCSF Mount Sutro Management. These comments are not directly related to either the CPHP or the adequacy of the CPHP Draft EIR. For these comments, no response is required; please refer to Master Response 1: Non-CEQA Comments. It should be noted the 2013 UCSF Mount Sutro Management document and associated Draft EIR referenced by the commenter were superseded by the 2018 Vegetation Management Plan for the Mount Sutro Open Space Reserve, and its associated Final EIR.

The commenter makes a number of general comments concerning the Reserve's trees, and asserts that the proposed housing will create impacts within the Reserve, including killing trees, decimating underground root structure, desiccating the forest floor, and inviting disease, insects and fire. To the extent the CPHP may potentially affect resources within the Reserve, including trees, it is adequately addressed in the CPHP Draft EIR, including the description of potential encroachment into a portion of the Reserve adjacent to the proposed New Hospital and associated designation of new Reserve area (see Chapter 3, Project Description); and potential direct or indirect impacts on biological resources, geology and soils, hydrology and water quality, and recreation within the Reserve (see Draft EIR Sections 4.3, 4.6, 4.7, 4.8 and 4.14). The commenter also makes certain non-specific comments regarding effects on climate change. Please Draft EIR Section 4.7, for how the Draft EIR addresses effects on greenhouse gas emissions.

From: Dennis Kelly
To: Campus Planning - EIR
Subject: Murals
Date: Tuesday, August 25, 2020 10:12:26 AM

Murals are painted to be seen. Some are decorative and some are educational. But their purpose is to be viewed.

Miguel Covarrubias painted six panels for display on Treasure Island in 1939. There they were seen. When the exhibition on Treasure Island had run its course, Covarrubias''s panels were taken down and put in storage.They were taken out and sent to the east coast so the other side of the country could see them. The six panels told the story of the people and progress of the Pacific, from the Americas to Asia. Only five of the panels came home. And a remarkable decision was made.

Those five panels got a new life within the Ferry Building. They could be seen, and except for the one that was mounted behind the handrail on the steps, they were well preserved. Then the Ferry Building itself needed to be spruced up, and Covarrubias's panels went into storage.

Occasionally they now peep out for a few weeks as part of a show in one place or another, but except for a copy of one panel that graces a Haight Street restaurant, they are no longer seen. They are as lost as the panel that went to the east coast and never returned.

1

This is no way to treat a mural.

UCSF has a chance to learn from this mistake. UCSF has a chance to find a place where their murals can be displayed, their story told, and their legacy continued. I hope that then UCSF murals are not put through the trials of the Covarrubias murals and that UCSF can continue its teaching mission by locating the paintings in a place where they can continue to breathe the life that they display.

2

Dennis Kelly
Former president of
The United Educators of San Francisc

Responses to Comments from Dennis Kelly

I-Kelly-1 The commenter disagrees with the disposition of the Covarrubias painted panels. This comment does not address the adequacy of the Draft EIR, however, the comment is noted.

I-Kelly-2 The commenter opines that the Toland Hall Murals should not be treated the same way the Covarrubias painted panels have been handled. The comment is noted. Please also refer to Master Response 11: Toland Hall Murals.

From: Wong, Diane C.
To: Campus Planning - EIR
Subject: FW: Here is a copy of the Comment that I submitted with my Registration
Date: Tuesday, August 25, 2020 4:05:15 PM

-----Original Message-----
From: Cynthia Travis <ctravis@sonic.net>
Sent: Monday, August 24, 2020 12:59 PM
To: Wong, Lily (University Relations) <lily.wong3@ucsf.edu>
Subject: Here is a copy of the Comment that I submitted with my Registration

Please scale back your plan for a monstrous new hospital on the Parnassus site. It is cruel and insensitive to propose adding almost 3 million square feet of new building space, and many thousands of people, to the already-overcrowded campus. The plan violates your pledge in the CPHP to "Create building massing to have respectful relationships with neighboring structures and natural features...(and) maintain a similar scale to surrounding structures...(and) create neighborly relations with existing structures at the campus boundaries." It also fails to mitigate what will become a dramatic exacerbation of the current parking and public transportation problems all around the Parnassus campus. Finally, it ignores and disrespects neighbors' concerns by deciding without consultation to blow through the limit of 3.55 million square feet for the Parnassus campus to which UCSF agreed in response to the Parnassus neighbors' objections to UCSF's aggressive expansion, at the expense of the neighborhood, in the 1970's. That agreement does not anticipate an ending date, and the neighbors' concerns have not changed.

1
2
3
4

Responses to Comments from Cynthia Travis

I-Travis-1 The commenter expresses an opinion about the merits of the proposed CPHP. This comment does not address the adequacy of the Draft EIR; consequently, no response is required. However, the comment has been noted and will be forwarded to decision-makers. Please also refer to the other responses provided herein.

I-Travis-2 The commenter asserts that the CPHP violates certain pledges in the CPHP. The specific text quoted by the commenter are not 2014 LRDP or proposed CPHP project objectives. The Draft EIR does, however, identify those relevant UCSF 2014 LRDP objectives that guide UCSF's physical development at the Parnassus Height campus site. This includes the campus–wide overarching objective: "Objective 1: Respond to the City and Community Context," and the following sub-objectives:

1B. Acknowledge and respond to local zoning and height and bulk limitations to the extent possible; and

1C. Design new buildings to be sensitive to the surrounding neighborhood and landscape, taking into account use, scale, potential noise generation, and density.

As discussed in the Draft EIR, UCSF's proposed LRDP Amendment would clarify that sub-objectives 1B and 1C would not apply to the New Hospital project, in recognition of the substantial amount of space required for the New Hospital, although UCSF would make efforts during the design process to come as close as possible to meeting these objectives, if feasible. Please refer to Master Response X: Aesthetic Impacts, and Master Response 13: Land Use Impacts for additional detail.

I-Travis-3 The commenter indicates the CPHP fails to mitigate what will become a dramatic exacerbation of the current parking and public transportation problems all around the Parnassus campus. Regarding parking, as discussed in the Draft EIR Section 4.0.2, pages 4.0-3 to 4.0-4, pursuant to CEQA Statute Section 21099(d), this EIR does not consider the adequacy of parking in determining the significance of project impacts under CEQA.

Regarding public transportation impacts, the Draft EIR Section 4.15 Transportation assesses the potential for the implementation of the proposed CPHP to conflict with program, plans, ordinances and policies addressing transit facilities, and determines those impacts to be less than significant. Changes to transit operations are outside the scope of the CEQA analysis and are not discussed in Draft EIR Section 4.15. However, Draft EIR Appendix TRANS presents an analysis of the changes to transit operations for informational purposes.

I-Travis-4 The commenter indicates the CPHP departs from the 3.55 million square foot limit which UCSF agreed to in the 1970's. Please refer to Master Response 4: Space Ceiling and Population.

An open letter to the UC San Francisco Chancellor from University of California Faculty
(Sponsored by the Program in Public Historical Studies, UCSB History Department)

August 31, 2020

Sam Hawgood, Chancellor
Office of the Chancellor
513 Parnassus Avenue
MSB
San Francisco, CA 94117

Dear Chancellor Hawgood,

We, the undersigned, are deeply alarmed by the University's expansion plan for its Parnassus Heights campus and destruction of the historically and culturally significant murals as part of the campus redevelopment. We urge UCSF to make an immediate commitment to: 1

- Preserve the mural cycle, *History of Medicine in California* by Bernard Zakheim that is currently threatened with planned demolition of Toland Hall in UC Hall.
- Secure a permanent home for the murals where they can be regularly accessed by the public, preferably by leaving them *in situ*. 2

Produced between 1935 and 1939 with the support of public funds from the Works Progress Administration, the mural cycle of ten panels was described by UCSF's own archivist as "the jewel of the university's art collection," which has served as an enduring backdrop for the teaching of medicine at UCSF over many generations. This mural cycle is both artistically significant and a critical example of this art form. As a student of the famed Mexican muralist Diego Rivera, Zakheim is regarded as a major New Deal artist with deep ties to the Bay Area. The UCSF murals represent his largest and best single work. (1)

Equally important, the murals seek to represent the totality of medical history, and in so doing, they offer a rare memorial to the diversity of these origins. Perhaps most striking is their memorialization of Biddy Mason, an enslaved healer who had to sue for her freedom; she went on to amass wealth and notoriety as a philanthropist in late nineteenth-century Los Angeles (2). As you know, a rare portrait of Mason appears in one of the murals, representing one of the "vanishingly few monuments to women of color" (3). This work—the first known artistic representation of Mason—tells a vital and overlooked story of Black empowerment. Such tributes to women of color from this era are 3

extraordinarily rare and deserve not only preservation but also celebration. The University's plan to demolish these murals is embarrassingly out of step with the national movement over race and representation, particularly for an institution that seeks to create a culturally and socially diverse medical community. Leaders from across the country are demanding an honest reckoning with our past in an effort to forge a more just future. We urge you to join this effort by preserving the murals.

3 cont.

4

On the strength of both its artistic and historic significance, the San Francisco Historic Preservation Commission recently voted unanimously to recommend historic landmark designation for the mural cycle. Many of the commissioners noted in their public comments that the UCSF had the chance to stand on the right side of history by finding a creative architectural solution that would allow the murals to be preserved *in situ*.

5

We hereby endorse the importance of these murals both as irreplaceable works of art representing the best of New Deal Era artistic production and as historical memorials important to the history of UCSF and the history of California. At a moment when we have all been reminded of the power of society's monuments to reflect social values, the "History of Medicine in California" mural cycle represents an earlier era's attempt to represent the history most relevant to UCSF. These murals have become, over time, a central piece of the University's history and of the history of all Californians as well.

6

As students of Public History, Art History, and Black History in the United States, as well as concerned scholars from a variety of allied fields, we urge you to seize this moment and to preserve and make accessible this important artistic legacy. What you do here—or fail to do here—has implications for both the type of University community we build and the society which our graduates go on to serve. We urge you to do the right thing and keep the murals on the Parnassus Heights Campus at a location that makes this mural cycle accessible and available to the diverse communities that are UCSF's future.

7

Signatories to the Open Letter:

University of California, Santa Barbara

Ann Jensen Adams, Professor	Hist. of Art & Architecture
Ralph Armbruster Sandoval, Professor and Chair	Chicana/o Studies
Ingrid Banks, Assoc. Professor and Chair	Black Studies
Randolph Bergstrom, Associate Professor	History
José Cabezon, Dalai Lama Professor of Tibetan Buddhism and Cultural Studies	Religious Studies

University of California, Santa Barbara *(cont.)*

Allison Caplan, Assistant Professor	Chicana/o Studies
Sarah H. Case, Academic Coordinator	Public History
Miroslava Chavez-Garcia, Professor	History
Elizabeth Digeser, Professor	History
William Elison, Associate Professor	Religious Studies
Claudio Fogu, Associate Professor	Italian
Diane Fujino, Professor	Asian American Studies
Kip Fulbeck, Distinguished Professor	Art
Mary Hancock, Acting Dean, Humanities/Fine Arts	College of Letters & Sciences
Richard D. Hecht, Professor	Religious Studies
Lisa Jacobson, Associate Professor	History
Laura Kalman, Research Professor	History
Carol Lansing, Professor	History
John W. I. Lee, Associate Professor	History
ann-elise lewallen, Associate Professor	East Asian Studies
Harold Marcuse, Professor	History
Kate McDonald, Associate Professor	History
Stephan Miescher, Professor	History
Laurie Monahan, Associate Professor	Hist of Art & Architecture
Katie Moore, Assistant Professor	History
Sylvester Okuwunodo Ogbechie, Professor	Hist of Art & Architecture
John S. W. Park, Professor	Asian American Studies
Lisa S. Park, Professor	Asian American Studies
Silvia Perea, Acting Director	Art, Design & Architecture Museum
Elizabeth Pérez, Associate Professor	Religious Studies
Giuliana Perrone, Assistant Professor	History
Ann Marie Plane, Professor	History
Fabio Rambelli, Professor and Chair	East Asian Studies
Erika Rappaport, Professor and Chair	History
Katherine Saltzman-Li, Associate Professor	East Asian Studies
Daina Sanchez, Assistant Professor	Chicana/o Studies
Sherene Seikaly, Associate Professor	History
Jenni Sorkin, Associate Professor	Hist of Art & Architecture
Paul Spickard, Distinguished Professor	History
Jeffrey C. Stewart, Professor	Black Studies
Sharon Tettegah, Professor	Black Studies

Faculty across the University of California system:

Amir Alexander	Assoc. Adj. Professor of History	*UCLA*
Andrew Apter	Professor of History	*UCLA*
Rosie Bermudez	UC President's Postdoc Scholar	*UCLA*
Catherine Ceniza Choy	Professor of Ethnic Studies	*UC Berkeley*
Ellen Dubois	Distinguished Research Prof. of History	*UCLA*
Leo Gonzalez	UCLA Library Preservation	*UCLA*
Talinn Grigor	Prof. and Chair, Art History	*UC Davis*

Faculty across the University of California system *(cont.)**:***

Catherine Gudis	Assoc. Professor of History	*UC Riverside*
Jessica Graham	Assoc. Professor of History	*UC San Diego*
Brian J. Griffith	Postdoctoral Scholar, Mod. European History	*UCLA*
Kevin Kim	Asst. Prof. of History	*UCLA*
Peter Loewenberg	Professor of History, Emeritus	*UCLA*
Carla Pestana	Professor of History	*UCLA*
Tony Platt	Distinguished Scholar, Law School	*UC Berkeley*
Theodore M. Porter	Distinguished Prof. of History	*UCLA*
Michelle Smith	Kress Asst. Conservator, Library	*UCLA*
Ula Taylor	Professor, African American Studies and African Diaspora Studies	*UC Berkeley*
Eric Van Young	Distinguished Prof. of Hist., Emeritus	*UC San Diego*
Robert S. Westman	Professor Emeritus of History	*UC San Diego*

Other Allies and Supporters:

Michele Bogart, Prof. Emerita Art History and Criticism *Stony Brook University*

Marne L. Campbell, Assoc. Prof. and Chair, African American Studies *Loyola Marymount University*

Robert Cherny, Professor Emeritus of History *San Francisco State University*

Dewey Crumpler, Associate Prof. of Painting *San Francisco Art Institute*

Leon Fine, MD, Prof. of Medicine, Cedars Sinai Medical Center *Los Angeles, California*

Peyton Hall, FAIA, Adj. Prof. of Heritage Conservation School of Architecture *Univ. of Southern California*

Kerri A. Inglis, Professor of History *Univ. of Hawaii, Hilo*

Steve Kovacs, Professor of Cinema *San Francisco State University*

Cecilia O'Leary, Professor Emerita of History *CSU Monterey Bay*

Eduardo Pineda, Sr. Adjunct Professor, Critical Ethnic Studies *California College of the Arts*

David A. Plane, Professor Emeritus of Geography *University of Arizona*

Thomas Raffin, MD, Professor Emeritus of Medicine *Stanford University*

Joanne Rondille, Asst. Professor of Sociology *San Jose State University*

Rebecca de Schweinitz, Assoc. Prof. of History *Brigham Young University*

Travis Seifman, Postdoctoral Scholar, Historiographical Inst. *University of Tokyo*

Michael Sernier, Professor Emeritus of Political Science *Sacramento State University*

Carol Sicherman, Professor Emerita of English *Lehman College, CUNY*

Peter D. L. Stansky, Professor Emeritus of History *Stanford University*

Tamara Venit-Shelton, Assoc. Professor of History *Claremont-McKenna*

Arisa White, Author of Biddy Mason Speaks Up

Richard Guy Wilson, Emeritus Professor of Architectural History *University of Virginia*

Walter W. Woodward, Assoc. Professor of History *University of Connecticut*

****

References and additional information:

(1) https://www.jweekly.com/2020/06/18/jewish-muralists-historic-work-faces-demolition-at-ucsf/
(2) https://www.nytimes.com/2020/08/11/arts/design/biddy-mason-zakheim-murals.html
(3) https://www.latimes.com/opinion/story/2020-07-10/op-ed-a-monument-to-californias-black-history-and-a-great-work-of-art-may-soon-be-destroyed

Responses to Comments from Ann Marie Plane, et al.

I-Plane-1 The commenter expresses a general concern regarding the University's expansion plan and proposed destruction of Zakheim murals. These comments do not address the adequacy of the Draft EIR. However, please refer to Master Response 11: Toland Hall Murals.

I-Plane-2 The commenter urges UCSF to preserve the Zakheim murals and place them in a publicly accessible area, but preferably left in situ. Please refer to Master Response 11: Toland Hall Murals.

I-Plane-3 The commenter states that the murals should be preserved, and provides background on the murals and why they are important. Please refer to Master Response 11: Toland Hall Murals.

I-Plane-4 The commenter urges UCSF to preserve the murals and provides opinions that do not address the adequacy of the Draft EIR. Please refer to Master Response 11: Toland Hall Murals.

I-Plane-5 The commenter notes that many of the Historic Preservation Commissioners made public comments supporting the in situ preservation of the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Plane-6 The commenter expresses their opinion regarding the importance of the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Plane-7 The commenter urges UCSF to preserve the murals and make it accessible to the public. Please refer to Master Response 11: Toland Hall Murals.

From: voicegal@aol.com
To: Campus Planning - EIR
Subject: Save The Zackhiem Muruals
Date: Wednesday, September 2, 2020 10:34:26 PM

Dear Chancellor Hawgood and U.C. Regents,

I am writing in opposition to the Draft Environmental Impact Report (DEIR) dated July 13, 2020 for the
proposed Comprehensive Parnassus Heights Plan (CPHP).

I vehemently oppose the removal and/or destruction of these historic and extraordinary works of art.

1

These murals not only represent the history of medicine in California, but further dignify and edify the University of San Fransisco by having them housed at Toland hall.

Below are just a few of the reasons these murals should not be moved but be protected by the University.

• They are an outstanding example of San Francisco's New Deal-era mural tradition of public art.

• The murals are the work of a significant artist, Bernard Zakheim. Zakheim is an important
historical figure in American history, Jewish history, and art history, and the destruction of his
work should not be permitted.

• They were created specifically for Toland Hall, and portray UCSF's role in medical development
and research breakthroughs in California. This visual legacy stands in continuity with UCSF's
plans for continued research and innovation, and should not be sacrificed as a convenience for
redeveloping the site.

• Their depictions of diverse peoples of California questioned the conventional narratives of their
day about the treatment of Native Americans, Mexicans, and people of color. Specifically, one
of the fresco panels portrays Biddy Mason, and celebrates the accomplishments of this
formerly-enslaved nurse and midwife, serving as an equal in a patient's care.

2

I also oppose UCSF's subsequent issuing of a Request for Proposal (RFP) to have

3

the murals removed
and stored in a UCSF storage facility at Oyster Point in South San Francisco with no defined plan for their
reinstallation in a publicly-accessible facility. The DEIR itself states that “removal of the Zakheim murals
may potentially cause serious damage to at least some of the panels such that the integrity of the entire
series is destroyed.” UCSF’s plan to remove and store the murals will likely destroy them. I call on UCSF
to rescind the RFP.

3 cont.

The destruction of the Zakheim “History of Medicine in California” murals in Toland Hall is not
unavoidable, as stated in the DEIR. I demand the CPHP EIR include new project alternatives that more
appropriately protect, conserve and restore all of the murals, and provide for a specific public display of
them – either by retaining the Toland Hall auditorium and incorporating it into the new Research and
Academics Building planned on the same building footprint as UC Hall – or by identifying the specific
location on the UCSF Parnassus Heights campus at which the murals will be reinstalled, and how they
will be made accessible and interpreted to the public.

4

Sincerely,

Julie Louise Rothstein
4239 Tujunga Ave., #9
Studio City, CA 91604
Email: voicegal@aol.com
Phone: (818) 623-8960

Responses to Comments from Julie Louise Rothstein

I-Rothstein-1 The commenter opposes the removal of the Zakheim murals. This comment does not address the adequacy of the Draft EIR. However, please refer to Master Response 11: Toland Hall Murals.

I-Rothstein-2 The commenter opposes the removal of the murals and states they should be protected because the murals: are examples of San Francisco's New Deal-era murals; the work of Bernard Zakheim; were created specifically for Toland Hall and portray UCSF's role in medical development and research; and depict diverse people of California. Please refer to Master Response 11: Toland Hall Murals.

I-Rothstein-3 The commenter opposes UCSF's issuance of a Request for Proposal. The commenter asserts that because there is no defined plan for reinstallation of the murals in a publicly-accessible facility, the removal and storage will likely destroy the murals. Please refer to Master Response 1: Toland Hall Murals.

I-Rothstein-4 The commenter requests a new project alterative that would protect, conserve and restore the murals. The two alternatives requested include retaining Toland Hall and incorporating it into the new building or by identifying a specific location on the Parnassus Heights campus where the murals would be reinstalled and made accessible to the public. Please refer to Master Response 11: Toland Hall Murals.

From: Henry G Anderson
To: Campus Planning - EIR
Subject: Comments
Date: Thursday, September 3, 2020 10:59:14 AM

4.1-73 shows shadow study for Grattan School at Stanyan and Rivoli Sts. These streets are each one block away from Grattan School. Are the streets misnamed or is the wrong shadow shown ? 1

4.5-21 shows MWh/year more than double presumably with the old co-generation facility adding more carbon to the atmosphere. Yet, page4.5-30 makes the jaw dropping statement that no mitigation is required. SB 288 is currently proposing to exempt ....from stricter review under CEQA to lessen carbon emissions. The statement on 4.5-16 that " cost effective renewables" will be considered is hardly reassuring. The State commitment to a lower carbon footprint is not reflected in this sloppy draft. 2

Sent from my iPad

Responses to Comments from Henry G. Anderson

I-Anderson-1 The comment points out a map labeling error on one of the Draft EIR shadow figures. Please refer to Master Response 9: Shadow Impacts.

I-Anderson-2 The referenced impact conclusion on page 4.5-30 in the Draft EIR is relative to whether the CPHP, combined with cumulative development in the campus site vicinity and citywide, would result in significant cumulative energy impacts (i.e., result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or conflict with or obstruct a state or local plan for renewable energy or energy efficiency). Based on the Impact C-ENE-1 analysis in the Draft EIR, it was determined that the proposed CPHP would not result in a cumulatively considerable energy impact; therefore, mitigation to address that cumulative impact was not required. For analysis of impacts that would be associated with greenhouse gas (GHG) emissions generated by the proposed CPHP, including the GHG emissions from the Campus Utility Plant, and associated CPHP Mitigation Measures GHG-1a, GHG-1b, and GHG-1c, please refer to GHG Impact GHG-1, see Draft EIR pages 4.7-34 and 4.7-43.

From:	Susan Mcmorris
To:	Campus Planning - EIR
Subject:	Protesting Draft Environmental Impact Report (DEIR)
Date:	Thursday, September 3, 2020 2:22:09 PM

Dear Chancellor Hawgood and UC Regents,

RE: USCF Comprehensive Plan and its Draft EIR State Clearinghouse number 2020010075

I am writing in opposition to the demolition (removal and storage) of the BernardZakheim "The History of Medicine in California" fresco in the Tolland Hall auditorium in UC Hall. The project alternatives provided in this DEIR are inadequate and inappropriate. New alternatives to this plan need to be developed for the final CPHP EIR to preserve these murals and display them for public view on the Campus. 1

These Murals were commissioned by our Government and are an outstanding example of San Francisco's "New Deal Era" tradition of Public Art. Bernard Zakheim is a very important historical figure in American history, Jewish history and art history and the destruction of his work would be a travesty.

The mural's depiction of the diverse peoples of California questioned the conventional narratives of that day about the treatment of Native Americans, Mexicans and people of color. In particular, one of the panels portrays Biddy Mason, and celebrates the accomplishments of this previously-enslaved nurse and midwife, serving as an equal in patient care. 2

The removal and "storage " of these murals could potentially cause serious damage to them. I am pressing for new alternatives that continue the Public display of these murals somewhere on the UCSF Campus where the public has access to viewing them. 3

Thank you for this consideration

Susan McMorris
2049 Hwy 26
West Point, Ca 95255
susanmmcmorris@gmail.com

Responses to Comments from Susan McMorris

I-McMorris-1 The commenter opposes the removal and storage of the Zakheim murals. The commenter asserts that the Draft EIR alternatives are inadequate and states that new alternatives to preserve and publicly display the murals should be developed. Please refer to Master Response 11: Toland Hall Murals.

I-McMorris-2 The commenter states the murals are examples of San Francisco's New Deal-era public art, the work of Bernard Zakheim, and depict diverse people of California. Please refer to Master Response 11: Toland Hall Murals.

I-McMorris-3 The commenter reiterates the request for a new alternative that continues the public display of the murals on the UCSF campus. Please refer to Master Response 11: Toland Hall Murals.

From:	LORRI UNGARETTI
To:	Campus Planning - EIR
Subject:	Public Comment: Comprehensive Parnassus Heights Plan and Draft EIR
Date:	Saturday, September 5, 2020 2:46:27 PM

Chancellor Hawgood and U.C. Regents:

This letter is a protest against the UCSF Comprehensive Parnassus Heights Plan and its Draft EIR—State Clearinghouse Number 2020010175. 1

Specifically, I am writing about the plan to demolish "The History of Medicine in California," the historical ten murals created by Bernard Zakheim in the 1930s. I am a San Francisco native, a local historian, and a member of San Francisco City Guides. As a City Guide, I lead a walking tour of the Inner Sunset. The tour used to include visiting and examining these historical New Deal murals. I had a manuscript written by Mr. Zakheim's daughter with details I that helped me explain what many of the images represented. Universally, walkers remembered viewing the murals as one of the best parts of the walking tour. I grew to appreciate the detail of the murals and how invaluable they are to the history of San Francisco and California.

Here are some other reasons I support saving these murals: 2

1. They depict individuals and events in San Francisco and all of California's medical history and include UCSF's role in that history.
2. They represent an earlier era of frescoes, an art form that is now rarely, if ever, used to create murals.
3. Although commissioned by UCSF scientists, they were paid for by the Federal Works of Art Federal Art Project. It is not UCSF's decision to destroy them; that decision should be made by the Federal Government.
4. They depict various sympathetically diverse peoples in California's history.

I am arguing against both the destruction of these ten murals and/or the refusal of UCSF to display them elsewhere. The destruction of the murals is not "unavoidable" (as the EIR states), and they should be on display indefinitely. 3

5. At one time, UCSF was committed to preserving and exhibiting the murals. In 2004, the UCSF website said:

"The murals will enter yet another phase when the UC Hospital—which houses Toland Hall—is demolished. The murals, which were painted on removable panels, are assured preservation—the Long-Range Development Plan specifically addresses this issue. The University, according to the Environmental Impact Report, plans to remove and preserve the Zakheim murals in Toland Hall." 4

However, that statement is no longer on the UCSF website. A 2015 article on the website called UCSF's group of murals by Zakheim "the jewel of the University's Art

Collection." Now, the university plans to destroy the murals—or take them down and put them into storage. 4 cont.

6. Removing the murals, preserving them, and displaying them to the public is a dangerous, tedious task. UCSF has said doing so would cost $8 million; however, Nathan Zakheim (son of the artist) says his plan to preserve and display the murals would cost about $1 million. Why is UCSF not considering this offer? Nathan Zakheim knows what he is talking about; he has preserved several murals of this kind (frescoes) with no damage to the artwork. He also knows these murals well, since he is the artist who restored them in the 1970s, after UCSF had painted and hung portraits over them, damaging about 50 percent of the murals. 5

7. I also oppose UCSF's Request for Proposal (RFP) to start immediate removal of the murals and storing them. Removing and storing them could cause irreparable damage. Instead, they should be cautiously removed to preserve them. They should not be put in storage but should be on permanent display in the new, yet-to-be-designed UCSF buildings. 6

"The History of Medicine in California" is a striking gift to a California medical institution and should be preserved carefully and displayed permanently for current and future generations. 7

Sincerely,
Lorri Ungaretti
2730 Clement Street
San Francisco, CA 94121

Responses to Comments from Lorri Ungaretti

I-Ungaretti-1 The commenter makes a general comment protesting the proposed CPHP and the CPHP Draft EIR. Due to lack of specificity in the comment, no direct response is possible; please see Master Response 2: General Comments on EIR and Environmental Topics.

I-Ungaretti-2 The commenter states the murals should be saved because they: depict individuals and events in San Francisco and California medical history, including UCSF's role; represent an earlier era of frescoes; were paid for by the Federal Works of Art Federal Art Project and therefore the decision should be made by the federal government; they depict diverse people in California's history. Please refer to Master Response 11: Toland Hall Murals.

I-Ungaretti-3 The commenter opposes the removal of the murals and states that they should be on display indefinitely. Please refer to Master Response 11: Toland Hall Murals.

I-Ungaretti-4 The commenter states that UCSF was committed to preserving and exhibiting the murals in 2004. Please refer to Master Response 11: Toland Hall Murals.

I-Ungaretti-5 The commenter questions UCSF's cost estimate for removing, preserving, and displaying the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Ungaretti-6 The commenter opposes UCSF's Request for Proposal for the removal and storage of the murals. The commenter states that removal and storage of the murals would "cause irreparable damage" and instead, the murals should be on permanent display. Please refer to Master Response 11: Toland Hall Murals.

I-Ungaretti-7 The commenter reiterates that the murals should be preserved and permanently displayed. Please refer to Master Response 11: Toland Hall Murals.

From:	Roger Hofmann
To:	Campus Planning - EIR
Subject:	CPHP EIR comment submission Saturday,
Date:	September 5, 2020 6:34:15 PM
Attachments:	Hofmann_Roger_EIR_Comment1.pdf

Dear Ms. Wong,

Please accept my EIR comments found in the attached PDF document.

Best regards,
Roger Hofmann

1550 Fifth Ave., Apt. 102
San Francisco, CA 94122

Ms. Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286
Email: EIR@ucsf.edu

September 5, 2020

Dear Ms. Wong,

Please accept these comments to the CPHP Draft EIR. I have excerpted, highlighted and italicized EIR text and commented following the text.

Sincerely yours,

Roger Hofmann

Introduction - From Section 1.5

"Similarly, when details on CPHP Future Phase projects are known, each Future Phase project would be reviewed in light of the CPHP Final EIR to determine the appropriate level of additional environmental review, if any, needed before approval and implementation of the particular project. If no new significant effects would occur, all significant effects have been adequately addressed, and no new mitigation measures would be required, the later activities within the scope of the approved CPHP could rely on the environmental analysis provided in the program EIR, and no additional environmental analysis would be required; otherwise, additional environmental analysis must be prepared."

1

This is a "Fox guarding the henhouse" plan. Per this description, the determination of whether additional environmental reviews are required is solely at the discretion of UCSF. Normal EIR review processes are subverted.

Please analyze whether a self-review of CPHP Future Phase projects provides the same level of scrutiny and protections to the public as would be provided by a full EIR review process.

Section 4.11 – From Ambulance Related Noise

"Emergency vehicles currently access the Moffitt Hospital emergency room at the driveway at 505 Parnassus Avenue. Emergency vehicle sirens (associated with ambulances) are characteristic in the general vicinity of hospitals and can produce short-term noise up to 106 dB (CPMC, 2010), but normal practice is for ambulance drivers to turn off their sirens within a few blocks of the hospital emergency access. The proposed New Hospital would also contain emergency room facilities and accommodate emergency ambulance vehicles. The specific ambulance drop-off location and parking lot configuration is not yet known, however, it could be located along Medical Center Way. Similar to existing ambulance drop-off at Moffitt Hospital, it is expected that ambulances dropping off patients at the New Hospital would turn off the sirens within the vicinity of the hospital which would minimize noise effects on surrounding land uses.

With the exception of siren use, patient drop-off events associated with ambulances are assumed to generate noise levels similar to those that would occur from typical parking lot activities. Like typical parking lot activities, patient drop-off events are expected to generate noise from vehicle arrival, idling, occupants exiting the vehicle, door closures, conversations among passengers, occupants entering the vehicle, startup, and departure of the vehicle. Given that existing campus operations already involve ambulance drop-offs, and that the New Hospital would be assumed to only marginally increase the potential frequency of emergency vehicle visits, the operational impact of additional ambulance activities at the campus site associated with the New Hospital would be less than significant."

Please analyze whether the potential frequency of emergency vehicle visits would increase marginally as stated above, or whether these visits would increase in proportion to the increased size of the New Hospital, or whether these visits would increase in proportion to some other metric.

Please analyze whether increased traffic in the vicinity of UCSF due to the increased campus population size and/or reconfiguration of streets adjacent to UCSF and/or reconfiguration of the campus itself would create delays in ambulance delivery, and at what rate traffic delays could impact patient outcomes.

If this analysis of ambulance delivery delays is conducted prior to determination of the location and number of ambulance parking spots, and/or prior to an analysis of the number of emergency vehicle visits, please describe why the public should have confidence in the conclusions of the analysis.

Ambulance access to a hospital is critical. It is literally a matter of life and death. The "To be determined" approach to ambulance access taken by this EIR appears malfeasant.

2

Responses to Comments from Roger Hofmann

I-HofmannR-1 The commenter references the Introduction section of the Draft EIR, and indicates its takes issue with UCSF determining the additional level of environmental review that may be needed for Future Phase projects.

First, as discussed on page 1-2 in the Introduction, the University of California (University) is the lead agency for the environmental review of the CPHP and for the LRDP amendment. The University is governed by the UC Regents, which under Article IX, Section 9, of the California Constitution, has "full powers of organization and government" subject only to very specific areas of legislative control. The UC Regents has the responsibility for certifying this EIR, and approving the LRDP amendment.

As indicated in the Introduction on page 1-3, the Regents or its designee pursuant to its delegation authority is required to consider the information in the EIR, along with any other relevant information, in making its decision to approve the LRDP amendment to incorporate the CPHP and each specific proposed project that may be brought forth for approval in the future to implement the CPHP.

As allowed under CEQA, the CPHP EIR is a program EIR that establishes a framework for tiered or project level environmental documents that would be prepared in the future in accordance with the overall program. As cited on page 1-8 in the Draft EIR by the commenter, when details on CPHP Future Phase projects are known, each Future Phase project would be reviewed in light of the CPHP Final EIR to determine the appropriate level of additional environmental review, if any, needed before approval and implementation of the particular project. If no new significant effects would occur, all significant effects have been adequately addressed in the program EIR, and no new mitigation measures would be required, the later activities within the scope of the approved CPHP could rely on the environmental analysis provided in the program EIR, and no additional environmental analysis would be required; otherwise, additional environmental analysis must be prepared.

Furthermore, as described on page 1-8 of the Introduction, the additional analysis may rely on the program EIR, as appropriate, but would be tiered to allow the analysis to focus on more project- and site-specific impacts of the later project. Appropriate environmental documentation associated with later activities not examined in the program EIR would be prepared pursuant to CEQA and CEQA Guidelines.

I-HofmannR-2 The comment requests additional analysis and discussion of the CPHP's potential impacts on ambulance access to the hospital as well as impacts resulting from ambulance operations. See pages 4.15-48 through 4.15-49 of the Draft EIR and Master Response 21 for a discussion of emergency access.

From: Harold Marcuse
To: Campus Planning - EIR
Subject: Murals on history of medicine
Date: Tuesday, September 8, 2020 11:41:18 AM
Attachments: image.png
image.png

I am writing to urge you to preserve your 1930s murals depicting the history of medicine at UCSF that is slated for destruction. Years ago (in 2000) I tried to prevent the destruction of murals in the former Dachau concentration camp in Germany, which had been painted shortly after the war (probably around 1948) when the main concentration camp building served as a mess hall for the US Eastman barracks installed there after the camp was liberated. Such artifacts help to give us born-afters a sense of how we got to where we are--what came before, what was valued, what was not, how it was treated by the intervening generations.

This is important to anchor our collective identity and move us forward as a society: we can decide whether what happened once should be condemned to the dustbin of history, or resurrected as a model for today.

Please preserve the murals on the history of medicine at UCSF--don't make the same mistake as they did in Dachau!

The identification of the African-American nurse Biddy Mason (see this article in the UCSB Current) contributes to our knowledge and documents the ground in striving for equality that we lost since the 1930s and need to regain.

Harold Marcuse
Professor of History, UC Santa Barbara

Here are two of the lost Dachau murals, fyi:
http://marcuse.faculty.history.ucsb.edu/dachau.htm#murals

1
2
3
4

Responses to Comments from Harold Marcuse

I-Marcuse-1 The commenter expresses support for the preservation of the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Marcuse-2 The commenter discusses other murals not related to the proposed campus site. The comment is noted, however, no response is required.

I-Marcuse-3 The commenter urges UCSF to preserve the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Marcuse-4 The commenter states that the identification of Biddy Mason contributes to the knowledge and documents the ground "in striving for equality." Please refer to Master Response 11: Toland Hall Murals.

Armand James Robertson II

178 Edgewood Avenue

San Francisco, CA 94117

(415) 404-0569

ajamesrobertsonii@gmail.com

September 8, 2020

Diane Wong

UCSF Real Estate Campus Planning

654 Minnesota Street

San Francisco, CA 94143-0286

copy by email sent to: EIR@UCSF.edu

Dear Ms. Wong:

This letter contains my comments on the contents and adequacy of the EIR analysis contained in the approximately 360-page UCSF Comprehensive Parnassus Heights Plan (CPHP). In compliance with your instructions in your letter of July 13th, 2020, which was the first page of the EIR CPHP.

My full name is Armand James Robertson II. My address is 178 Edgewood Avenue, San Francisco, CA 94117. I have lived at this address with my family since 1969, a period of 51 years. Edgewood Avenue is a one-block brick covered street located to the East and abutting the UCSF Parnassus Campus. Because of the proximity of my home to the campus for these many years, I am familiar with the environmental effects of the campus on Edgewood Avenue. 1

I am also familiar with the Regents of the University of California Resolution of 1976, reducing space at the Parnassus Campus, minimizing population growth at that campus, and improving transportation related programs. This Resolution contained space limits and population estimates regarding the Parnassus Heights Campus. This Resolution is referred to at page 3-13 of the draft EIR. However, I was unable to find a copy of this extremely relevant Resolution anywhere within the 360-page draft EIR. I did locate a copy of the Regents of the University of California 1976 Resolution in the Appendix to the Long-Range Development Plan adopted in November of 2014. A copy of that Resolution is attached to this letter (as **Exhibit A**, Appendix F 1976 Regents' Resolution). 2

The Resolution states in relevant part "that the boundaries of the San Francisco Campus be altered to exclude properties on the West side of Third Avenue from 1309-11 Third Avenue to and including 1379 Third Avenue and that the new boundaries be made permanent. The total structures within the Campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on 3rd, 4th, 5th, and Parnassus Avenues and Kirkham and Irving Streets and this limit shall be permanent. These restrictions prohibit expansion by UCSF by purchase or condemnation or gift of any property or lease of private residential property, not only contiguous with the new campus boundaries,

but anywhere within the surrounding areas bounded by Golden Gate Park, Oak Street, Clayton and Clarendon…"(emphasis added).

That 1976 Regents' Resolution at item 7 stated "that the Regents recognize the principal that the San Francisco Campus will be administered so that the annual average of the daily population at the Parnassus site will remain substantially in accordance with the projections set forth in the environmental impact report related to the Long-Range Development Plan for the Campus approved by the Regents in October 1975." (a population of 13,400)

The 1976 Regents' Resolution was entered by the Regents in connection with the settlement of a lawsuit commenced by the Mt. Sutro defense committee against the UC Regents and UCSF's then current Chancellor, Francis A Sooy.

The City and County of San Francisco Superior Court "Heard the case in 1975. This body ruled that all further construction be stopped until the University made further changes to their EIR." The agreement by UCSF in the 1976 Resolution was a "legally binding moratorium on UCSF expansion at the Parnassus Campus… (see pages 4 and 5 of the article, "Bringing DNA into the Neighborhood in San Francisco, a Personal Recollection" by Guenter B. Risse, M.D., PhD. Professor Reiss was employed by UCSF from 1985 to 2001, as Chairperson of the Department of the History of Health Services. This article is attached (as **Exhibit B**). This 19-page article explains not only the Resolution of the Regents in 1976, limiting expansion to 3.55 million gross square feet and a population of 13,400, but also discusses UCSF starting a new campus location at Laurel Heights and later at Mission Bay. 2 cont.

These permanent restrictions of 3.55 million gross square feet are clear and definite. These restrictions were carefully followed by UCSF Parnassus from 1976 to at least November 2014 when the final Long-Range Development Plan for UCSF was adopted. Attached (as **Exhibit C**) are pages 51 to 53 of the UCSF 2014 Final Long-Range Development Plan. The 1976 Regent's Resolution, its relevant elements and status were updated. This update included a specific reference to the Campus boundaries and that buildings within these boundaries are not to exceed 3.55 million gross square feet. The 2014 Long Range Development Plan (LRDP) admitted that the gross square feet in 2014 was 3.65 million gross square feet "about 3.4% over the limit".

The Long-Range Development Plan also noted at item 7 that "the annual average daily population of the Campus site including employees, students, patients and visitors was to remain substantially in accordance to the amount (13,400) projected in the 1976 LRDP environmental impact report."

The Long-Range Development Plan in discussing site specific objectives made clear that UCSF Parnassus was fully aware of the 1976 Regents' Resolution and was striving to follow it. At item E, it is stated as an objective "strive to better achieve the remaining unfulfilled components of the 1976 Regents' Resolution by reducing space, minimizing population growth and improving transportation related programs."

The draft EIR for CPHP is completely deficient and inadequate because it blatantly ignores the requirements of the 1976 Resolution of the Regents of the University of California by stating at page 2 of the draft EIR that the square feet of buildings within the Campus would increase to 5.79 million square feet upon full implementation of the draft EIR. This is an increase of over 2.41 million gross square feet over the permanent limitation of 3.55 million gross square feet contained in the 1976 Resolution of the 3

Regents of the University of California. This is an increase of over 67%. In addition, the draft EIR states the population of the UCSF Parnassus Campus as of 2018 was 17,437 and the projected population as of 2030 would be 23,225. This is an increase of 4,037 as of 2018 above the 13,400 limit and increase of 9,825 over the 13,400 limits. Such a drastic increase in population will have very adverse environmental consequences for residents of Edgewood Avenue, such as myself. In 1969 and for several years thereafter, residents of Edgewood Avenue were acutely aware of the enormous impact the UCSF Parnassus Campus had on their lives based on the parking situation before the preferential parking policy was instituted by the City of San Francisco in the late 1970s. Before preferential parking, because of parking by UCSF employees, it was impossible to park on Edgewood Avenue from about 8:00 AM to 5:30 PM. The increase in population of the UCSF Parnassus Campus by 9,000 by 2030 will cause serious parking problems because the existing garage is inadequate to accommodate that many additional people. There are no plans in the draft EIR to increase the size of the parking garage by 4 or 5 floors to accommodate the additional 9,000 people who will be populating the UCSF Parnassus campus. Preferential Parking will ameliorate the effects but not eliminate them, because even with preferential parking, people can park for two hours during working hours. Enforcing this two-hour limit is difficult because there are not enough parking control officers to enforce this two-hour limit. The result will be a serious impairment of the Edgewood Avenue residents' ability to park on their own street on weekdays.

3 cont.

4

The draft EIR which fails to discuss this Resolution with its limit of 3.55 million gross square feet of buildings and population limit of 13,400 is totally inadequate. These limits which are permanent were put on in 1976 for good reasons, to protect the environment of individuals such as residents of Edgewood Avenue who live near the UCSF Parnassus Campus. The draft EIR does not discuss how this Resolution is not binding on the UCSF Parnassus Campus, at this time. The Resolution states the 3.55 million gross square feet space limitation was to be "permanent". The draft EIR does not discuss the development of additional campus sites at Laurel Heights and Mission Bay. Specifically, there should be some statement as to what the population of Mission Bay is and to what extent that the expansion proposed in the draft EIR for the Parnassus Campus could instead be implemented at Mission Bay.

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For these reasons, the draft EIR is completely deficient. There should be a further supplement to the draft EIR submitted discussing the 1976 Resolution and the other issues pointed out in this letter. After such an amendment of the draft EIR, there should be a further opportunity for public comment.

7

Sincerely,

Armand James Robertson II

Responses to Comments from Armand James Robertson II

I-Robertson-1 The commenter makes a general comment about knowledge of environmental effects of the campus on Edgewood Drive. Please refer to Master Response 2: General Comments on EIR and Environmental Topics. See also responses to individual comments below.

I-Robertson-2 The commenter references different aspects of the 1976 Regents' Resolution. Please refer to Master Response 4: Space Ceiling and Population.

I-Robertson-3 The commenter asserts that the CPHP Draft EIR is deficient and inadequate because it ignores the requirements of the 1976 Regents' Resolution. Please refer to Master Response 4: Space Ceiling and Population.

I-Robertson-4 The comment asserts that the CPHP provides inadequate parking, which would lead to increased difficulty in locating parking on the commenter's residential street and others in the vicinity of the campus site. As stated on page 4.15-33 and in Master Comment TR-3, parking is not a CEQA topic, and additional discussion of parking supply and demand in the campus site vicinity is not required. The CPHP's proposed parking supply was, however, assessed and incorporated into estimates of project travel demand, as explained in Master Comment 19.

I-Robertson-5 The commenter asserts that CPHP Draft EIR fails to discuss the 1976 Regents' Resolution limits on space and population. Please refer to Master Response 4: Space Ceiling and Population.

I-Robertson-6 The commenter requests discussion of alternatives involving development of additional campus sites at Laurel Heights and Mission Bay and whether the proposed CPHP development could be implemented at the Mission Bay campus site rather than Parnassus Heights. Please see Master Response 5: EIR Alternatives.

I-Robertson-7 The commenter provides a concluding statement that the Draft EIR is deficient for the reasons discussed in its comments above; and that a further supplement to the Draft EIR should be submitted discussing the 1976 Regents' Resolution. As demonstrated in the individual responses provided to the comments raised, and further in Section 8.1.4 in this Comments and Responses document, none of the specific issues identified in the comments, or response to these comments, result in any of the conditions of Section 15088.5(a) being met. Thus, UCSF has determined that recirculation of the Draft EIR on the issues raised by the comments is not warranted.

Please note Comment Letter I-Robertson contained several attachments which did not comment directly on the Draft EIR. These attachments are included in Appendix I-Robertson in this Comments and Responses document.

Dear Chancellor Hawgood and the U.C. Board of Regents,

We, the undersigned, are deeply alarmed by the University's expansion plan for its Parnassus Heights campus, a plan that threatens ten historic murals by the artist Bernard Zakheim. The murals, as you know, are showpieces of the New Deal era, rightly regarded as the "jewel of the University's art collection." They portray a rich tapestry of people at pivotal moments in California's history. Of particular significance is the fresco featuring Biddy Mason, a former slave turned nurse, philanthropist, and real estate entrepreneur. This work-the first known artistic representation of Mason-tells a vital and sadly overlooked story of Black empowerment. Such tributes to women of color from this era are extraordinarily rare, and deserve not only preservation, but celebration. 1 2

As such, we find the University's plan embarrassingly out of step with the national movement over race and representation. Leaders from across the country are demanding an honest reckoning with our past in an effort to forge a more just future. We urge you to be one of those leaders. Through these murals, you have the opportunity to honor historically marginalized people and to foster deeper understanding of America's long, fraught relationship with race. 2

We therefore implore you to preserve these irreplaceable works of art. Furthermore, we ask that you engage with specialists to ensure the murals are publicly accessible, so that future generations can draw inspiration from the empowering history they depict. As New Deal public works, they belong to us all. What you do here-or fail to do here-will be seen far beyond the halls of the University. 3

Honor your roles as stewards and educators. Preserve and display these emblems of our shared cultural heritage. 3

Respectfully,

James L. Hutchinson, M.D.

Responses to Comments from James L. Hutchinson

I-Hutchinson-1 The commenter expresses concern regarding the proposed removal of the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Hutchinson-2 The commenter notes the significance of the painting featuring Biddy Mason, a former slave turned nurse, philanthropist, and real estate entrepreneur. The commenter states that the University should preserve and celebrate this mural given the current context of the national movement over race and representation. Please refer to Master Response 11: Toland Hall Murals.

I-Hutchinson-3 The commenter asks that UCSF engage specialists to ensure the murals are preserved and publicly accessible. Please refer to Master Response 11: Toland Hall Murals.

From: Klein, Joel
To: Campus Planning - EIR
Subject: Zakheim Murals
Date: Tuesday, September 8, 2020 3:08:46 PM

Dear Chancellor Hawgood and U.C. Regents,

I am writing in opposition to the Draft Environmental Impact Report (DEIR) dated July 13, 2020 for the proposed Comprehensive Parnassus Heights Plan (CPHP). In particular, In the DEIR's Chapter 4, Cultural Resources and Tribal Resources Section 4.4.4 "Impacts and Mitigation Measures," I oppose the plan to demolish "The History of Medicine in California" frescoes created by Bernard Zakheim in the Toland Hall auditorium in UC Hall. The project alternatives provided in this DEIR are inadequate and inappropriate, and new alternatives need to be developed for the final CPHP EIR to preserve these murals and display them for the public on the UCSF Parnassus Heights campus. 1 2

I am a historian of medicine and the curator responsible for history of medicine collections at The Huntington Library in San Marino, CA, including many items from the Los Angeles County Medical Association (LACMA). The Zakheim murals portray much of the history that is in The Huntington's LACMA collections, including a panel that shows Drs. John S. Griffin and Joseph Pomeroy Widney, two founders of LACMA. We have archival materials by both Griffin and Widney, as well as the original minute books from the first meetings of LACMA. Works of art that feature California medical history are very rare, but what makes these murals especially interesting is subject matter that was ahead of its time when Zakheim was working. In particular, the inclusion of Native Americans, Mexicans, persons of color (e.g., Biddy Mason, a nurse and entrepreneur who was once in the employ of Griffin), and women in the history of medicine was far from common. The murals provoke important questions about the history of medicine and public health that – especially considered in the midst of a global pandemic – must be considered and discussed, especially by health professionals, if our society is to flourish. 3

Beyond this, I agree with the following regarding the murals:

- They are an outstanding example of San Francisco's New Deal-era mural tradition of public art.
- The murals are the work of a significant artist, Bernard Zakheim. Zakheim is an important historical figure in American history, Jewish history, and art history, and the destruction of his work should not be permitted.
- They were created specifically for Toland Hall, and portray UCSF's role in medical development and research breakthroughs in California. This visual legacy stands in continuity with UCSF's plans for continued research and innovation, and should not be sacrificed as a convenience for redeveloping the site.
- Their depictions of diverse peoples of California questioned the conventional narratives of their day about the treatment of Native Americans, Mexicans, and people of color. Specifically, one of the fresco panels portrays Biddy Mason, and celebrates the accomplishments of this formerly-enslaved nurse and midwife, serving as an equal in a patient's care.

I hope very much that a solution can be found for a permanent means of displaying these works of art that tell and important but neglected history of medicine in California. 4

Sincerely,

Dr. Joel A. Klein
Molina Curator for the History of Medicine and Allied Sciences
The Huntington Library, San Marino, CA

Responses to Comments from Joel Klein

I-Klein-1 The commenter expresses opposition to the Draft EIR and the CPHP's proposal to demolish the Zakheim murals in Toland Hall; and indicates that alternatives need to be developed for the EIR that preserve the murals and displays them on the campus site. Please refer to Master Response 11: Toland Hall Murals.

I-Klein-2 The commenter asserts that the project alternatives are inadequate and inappropriate, and that new alternatives should be developed. Please refer to Master Response 11: Toland Hall Murals.

I-Klein-3 The commenter describes the importance of the Toland Hall murals to the Huntington Library in San Marino, California because the murals depict the two founders of the Los Angeles County Medical Association. The commenter notes that art featuring people of color from this time period are rare, and the removal of these murals should not be permitted. Please refer to Master Response 11: Toland Hall Murals.

I-Klein-4 The commenter desires a solution that permanently displays the murals because they represent the history of medicine in California. Please refer to Master Response 11: Toland Hall Murals.

From:	Gregory Vernitsky
To:	Campus Planning - EIR
Subject:	Save Zakheim"s Murals!
Date:	Thursday, September 10, 2020 10:40:17 AM

Dear Chancellor Hawgood and U.C. Regents,

I am writing in opposition to the Draft Environmental Impact Report (DEIR) dated July 13, 2020 for the proposed Comprehensive Parnassus Heights Plan (CPHP), State Clearinghouse Number 2020010175. 1

In the DEIR's Chapter 4, Cultural Resources and Tribal Resources Section 4.4.4 "Impacts and Mitigation Measures," I oppose the plan to demolish "The History of Medicine in California" frescoes created by Bernard Zakheim in the Toland Hall auditorium in UC Hall. The project alternatives provided in this DEIR are inadequate and inappropriate, and new alternatives need to be developed for the final CPHP EIR to preserve these murals and display them for the public on the UCSF Parnassus Heights campus. 2

· They are an outstanding example of San Francisco's New Deal-era mural tradition of public art.

· The murals are the work of a significant artist, Bernard Zakheim. Zakheim is an important historical figure in American history, Jewish history, and art history, and the destruction of his work should not be permitted.

· They were created specifically for Toland Hall, and portray UCSF's role in medical development and research breakthroughs in California. This visual legacy stands in continuity with UCSF's plans for continued research and innovation, and should not be sacrificed as a convenience for redeveloping the site.

· Their depictions of diverse peoples of California questioned the conventional narratives of their day about the treatment of Native Americans, Mexicans, and people of color. Specifically, one of the fresco panels portrays Biddy Mason, and celebrates the accomplishments of this formerly-enslaved nurse and midwife, serving as an equal in a patient's care. 3

I also oppose UCSF's subsequent issuing of a Request for Proposal (RFP) to have the murals removed and stored in a UCSF storage facility at Oyster Point in South San Francisco with no defined plan for their reinstallation in a publicly-accessible facility. The DEIR itself states that "removal of the Zakheim murals may potentially cause serious damage to at least some of the panels such that the integrity of the entire series is destroyed." UCSF's plan to remove and store the murals will likely destroy them. I call on UCSF to rescind the RFP. 4

The destruction of the Zakheim "History of Medicine in California" murals in Toland Hall is not unavoidable, as stated in the DEIR. I demand the CPHP EIR include new project alternatives that more appropriately protect, conserve and restore all of the murals, and provide for a specific public display of them – either by retaining the Toland Hall auditorium and incorporating it into the new Research and Academics Building planned on the same building footprint as UC Hall – or by identifying the specific location on the UCSF Parnassus Heights campus at which the murals will be reinstalled, and how they will be made accessible and interpreted to the public. 5

Sincerely,

Gregory Vernitsky

2447 23rd Ave San Francisco, CA 94116

Responses to Comments from Gregory Vernitsky

I-Vernitsky-1 The commenter makes a general comment expressing opposition to the Draft EIR. Please see Master Response 2: General Comments on EIR and Environmental Topics; and individual responses that follow.

I-Vernitsky-2 The commenter asserts that the project alternatives are inadequate and inappropriate, and that new alternatives should be developed that publicly display the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Vernitsky-3 The commenter notes that the murals are outstanding examples of San Francisco's New Deal-era art, that the artist, Bernard Zakheim is an important historical figure, that they portray UCSF's role in the history of medicine, and that the murals depict people of color, in particular Biddy Mason, which defied conventional narratives of the time. Please refer to Master Response 11: Toland Hall Murals.

I-Vernitsky-4 The commenter opposes UCSF's plan to remove and store the murals in a UCSF storage facility in South San Francisco, and calls on UCSF to rescind the Request for Proposal to undertake the restoration process. Please refer to Master Response 11: Toland Hall Murals.

I-Vernitsky-5 The commenter states that the alternatives in the Draft EIR are inadequate and new alternatives to preserve the murals should be developed. The commenter requests that alternatives should be developed that incorporate the murals into the new Research and Academic Building or by relocating the murals to a publicly accessible location on the campus site. Please refer to Master Response 11: Toland Hall Murals.

From: Carol Denney
To: Campus Planning - EIR
Cc: Lope Yap Jr; Voisin George Laura
Subject: Draft EIR for the UCSF Comprehensive Parnassus Heights Plan SCN 2020010175
Date: Thursday, September 10, 2020 10:43:36 AM

To Chancellor Hawgood and UC Regents,

I oppose the draft EIR for the UCSF Comprehensive Parnassus Heights Plan, SCN 2020010175, specifically the proposed destruction of the Zakheim murals.

First I wish to object to moving forward with this proposal during the pandemic, the free-fall of California's economy, and the current firestorm wreaking heartbreak and havoc statewide. People are scrambling to keep their families alive and safe right now, and my power has been on and off for days because of the firestorms. Please consider that the public has a right to thoughtful consideration of this proposal which is utterly impossible given that access to the materials and the process is partial at best; a pandemic alone should clarify that this is no time to move forward with a project which requires public input. 1

The Zakheim murals, the History of Medicine in California, is a set of New Deal murals that belong to all the nation, and was intended to be enjoyed and examined over time by the students, lecturers, professors and visitor to the campus. This set of murals is part of a public trust and is considered priceless by art historians. The most important proposal required of this plan should be ***a no-build option*** which would keep the original auditorium intact and build around the murals so that the intended setting can be preserved. An educational institution such as UCSF should be especially enthusiastic about this proposal since at the height of the Depression this was a publicly funded project intended to honor the native cultures' healing arts as well as local luminaries such as Biddy Mason, whose inclusion in the murals was only recently clarified thanks to the dedicated research of Laura Voisin George. These works were not intended for a museum; they were intended to be, and should remain, a working element in an educational institution dedicated to honoring all the healing arts and those who contributed to advances in healing in California history. This illustrated set of murals is not replaceable and could never be as powerful in any on-line form, or in any other setting. 2

UCSF leadership actually wallpapered over the murals at one time, which public funding managed to restore afterward, but the wallpapering makes it clear that UCSF's sense of stewardship is seriously wanting. The proposal to move or destroy these priceless works at this moment in time is especially absurd considering that architects and contractors, if so instructed, could easily absorb this part of the current structure into the proposed expansion. After the NO-BUILD option, the SETTING PRESERVATION option should be thoroughly explored. Most architects and contractors would be honored to be part of a project that included, rather than destroyed, these priceless examples of New Deal art which illustrate a part of Black history heretofore unknown. Even to minimize the importance of this part of Black history at this historical moment in time demeans all of us as a nation. But to destroy it, or destroy the congruence of its integration into an educational setting, is an outrage. 3

A further outrage is to suddenly burden the Zakheim family, which has had to step into an impossible situation to try to help rescue the public treasure these murals represent. These murals are part of a public trust, and deserve to be respected as such.

My name is Carol Denney, I am a UC alumna, and I am no stranger to the well known stories 4

of UC's expansion-driven minimization of the crucial role of culture in our efforts to appraise our present and our past. Please consider that we have an opportunity here as a nation, and especially as Californians, to do the right thing. And that history will judge the steps we take to honor our sacred trust. 4 cont.

Sincerely,
Carol Denney
1970 San Pablo Avenue #4
Berkeley, CA 94702
510-548-1512

Responses to Comments from Carol Denney

I-Denney-1 The commenter expresses opposition to the Draft EIR and the CPHP's proposal to demolish the Zakheim murals in Toland Hall; and indicates that alternatives need to be developed for the EIR that preserve the murals and displays them on the campus site. Please refer to Master Response 11: Toland Hall Murals.

The commenter also objects to moving forward with the proposal during the COVID-19 pandemic; indicates the public has a right to thoughtful consideration of the proposal; and that access to the materials and the process is partial at best. The Draft EIR has been prepared pursuant to all applicable requirements under CEQA, including those related to public review and the availability of related project materials. Please refer to Section 8.1.2 in this Comments and Responses document, which provides detail on the extensive public review provided for the EIR. It should be noted that an extended public review period (60 days) was provided for public review of the Draft EIR, exceeding the 45-day minimum requirement. See also Draft EIR Section 1.4 which discusses the campus, public and agency outreach that has occurred for the CPHP.

I-Denney-2 This comment states that the murals are part of a public trust and should be preserved as part of a no-build option that leaves the murals in situ. Please refer to Master Response 11: Toland Hall Murals.

I-Denney-3 This comment prefers the no-build option to preserve the murals, but states that the setting preservation option should be thoroughly explored as well. Please refer to Master Response 11: Toland Hall Murals.

I-Denney-4 The commenter provides a concluding statement that does not address the adequacy of the Draft EIR; consequently, no response is required. However, the comment has been noted and will be forwarded to decision-makers.

From: Anastasia Glikshtern
To: Campus Planning - EIR
Subject: Comment on DEIR for UCSF Comprehensive Parnassus Heights Plan
Date: Thursday, September 10, 2020 2:53:05 PM

Dear Sir/Madam,

The amended LRDP will have detrimental effect on Sutro Forest:

- Hundreds of trees will be removed.
- The construction space required for building up to 96 feet high buildings for Aldea Student Housing (where the space ceiling is to be eliminated) will likely necessitate the destruction of more trees.
- The revised plan removes an area of Sutro Forest (near Parnassus and Edgewood). In "compensation" an area that is already a de facto part of the forest would be technically included in the forest.
- The redwood grove on Parnassus is to be eliminated (in addition to the tree loss in the Sutro Forest itself).

1

As of 2013 the San Francisco tree canopy cover was 13.7% - the lowest of any major city. It is probably lower now with continuing destruction of trees in Sutro Forest and everywhere else in San Francisco.

In the time of climate change, removing trees is an environmental hazard. It also sacrifices all the ecosystem services provided by the trees.
The plan will make Sutro Forest drier and less self-sustaining, and therefore, riskier - as climate change hits California harder each year.

2

Please revise the project to protect the trees.

Sincerely

Anastasia Glikshtern

Responses to Comments from Anastasia Glikshtern

I-Glikshtern-1 The commenter states that hundreds of trees would be removed under the CPHP, including in the Aldea Housing area, and in the redwood grove on Parnassus Avenue. The Draft EIR Chapter 3, Project Description, page 3-38; and Section 4.3, Biological Resources, page 4.3-22 acknowledge that certain vegetation removal would be required at the campus site as a result of clearing, excavation and regrading activities conducted in support of the CPHP. UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP when detailed designs become available.

The commenter also objects to the replacement of lost acreage in the Reserve, and indicates an area that is already defacto part of the forest would be technically included in the forest. The area that the commenter characterizes as already defacto part of the forest is currently designated as a "Support" zone in UCSF's existing functional zone map, and under the CPHP would be designated as an "Open Space Reserve" zone. Accordingly, the CPHP would provide permanent open space reserve protection that is not currently provided for this area.

I-Glikshtern-2 The commenter states that the removal of trees would make the Sutro Forest drier and less self-sustaining, and would exacerbate impacts of climate change. The tree removal that would occur under the CPHP would be limited to the margins of the Reserve and would not alter the canopy cover of the great majority of Sutro Forest, nor adversely affect moisture levels of the surrounding area, which are largely driven by its presence in the coastal fog belt.

From: S.Sackheim Cohen
To: Campus Planning - EIR
Subject: Zakheim murals
Date: Thursday, September 10, 2020 5:53:05 PM

The murals are art which belong to us all. These WPA treasures must not be destroyed.
To put the burden of saving them upon the family is absurd.
A reasonable solution to preserve this history must be found.
Sincerely,
Susan Sackheim Cohen

1

Sent from my iPad

Responses to Comments from Susan Sackheim Cohen

I-Cohen-1 This commenter states the murals belong to the public and requests that they not be destroyed. Please refer to Master Response 11: Toland Hall Murals.

From: INGE HORTON
To: Campus Planning - EIR
Subject: CPHP EIR
Date: Thursday, September 10, 2020 7:22:18 PM

When I saw the Zakheim murals at USSF for the first time I was amazed at their strong expression and beauty. Thus I would like to urge you to prevent that they are destroyed or stored away from public view. The murals are a unique piece of art which should be retained and made available for public viewing. We do not have many similar examples in San Francisco and thus UCSF should take great care of them. 1

Please retain the Zakheim murals at UCSF and find an appropriate location on campus!
Sincerely,
Inge Horton
2363 44th Avenue
San Francisco, CA 94116

Responses to Comments from Inge Horton

I-Horton-1 This commenter notes that the murals are unique in San Francisco and requests that the murals are not destroyed or stored away from public view. Please refer to Master Response 11: Toland Hall Murals.

From:	Hans Baldauf
To:	Campus Planning - EIR
Cc:	Marian Baldauf
Subject:	Comments on EIR
Date:	Thursday, September 10, 2020 9:25:45 PM

It is unacceptable that all of the issues in the EIR are not re-evaluated in light of the Covid experiences and reasonable assumptions of a post Covid world. To say that it would be pure speculation at this point is to admit that the entire process should pause until they can be properly addressed. These include the inherent danger of a centralized hospital system and the practical challenges that are now clear that we will confront in a post Covid world. Among these challenges is the massive decrease in ridership of public transportation that has occurred and the dramatic increase in the numbers of cars that are being used and are anticipated being used in the future. The transportation element off the EIR needs to be reanalyzed completely as a result and given the limited site access and lack of parking these problems may not be able to be mitigated on this site. 1

The lack of an a thorough analysis of health care delivery throughout San Francisco and how this campus is part of an integrated health care system is a fundamental flaw. This campus is part of a system not a stand alone parcel. 2

The University pledged for years to live by a space cap that it worked out with the neighbors and the city and was as a result of this self limitation was awarded many parcels of land in Mission Bay. This was a positive way to expand and build a city. 3

The Parnassus plan does not provide the appropriate amount of housing for the new population of users because it can not. The long term impacts on housing costs for renters in the city as a result of the massive work force population increase that this plan envisions needs to both be completely studied and mitigated. If it can not be fully mitigated the project should be adjusted to a scale in which it can - it was for this reason that the neighborhood supported the prior long range plan of 2014. 4

Returning to the issue of Covid 19 - the public process for the project has been half baked at best - a project of this magnitude should be explained and vetted in public meetings that are in person - not on zoom calls at a time when people are preoccupied with their health and loss of jobs. Has the process met all the legal hearing requirements? 5

I look forward to a revised EIR that addresses these topics fully. There are many other topics which need to be addressed that others will detail. 6

As many of us have said in the past and will continue to say, we appreciate the work that UCSF does and support the mission of the institution. The architect that has been chosen for the projects has designed beautiful low scale hospitals. The challenge is one of a program that is just too large. 7

Sincerely
Hans Baldauf

HANS BALDAUF
FAIA / LEED AP
Principal

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Responses to Comments from Hans Baldauf

I-BaldaufH-1 The commenter requests the EIR be reevaluated in light of COVID-19. Please see Master Response 3: COVID-19.

I-BaldaufH-2 The commenter indicates the lack of a thorough analysis of health care delivery throughout San Francisco and how this campus is part of an integrated health care system is a fundamental flaw. The subject of the Draft EIR is the proposed CPHP at the Parnassus Heights campus site. The assessment of health care delivery throughout the City is not part of the proposed project, and accordingly, is outside of the scope of this Draft EIR. However, the Draft EIR does capture any CPHP contribution to cumulative effects, as appropriate.

I-BaldaufH-3 The commenter references the space cap the University has been subject to. Please refer to Master Response 4: Space Ceiling and Population.

I-BaldaufH-4 The commenter asserts that the CPHP does not provide enough appropriate housing for the new population. The commenter also indicates the long-term impacts on renters in the City as a result of the CPHP work force increase under the CPHP needs to be fully studied and mitigated. Please see Master Response 14: Population and Housing Impacts.

I-BaldaufH-5 The commenter expresses dissatisfaction with the public process for the proposed CPHP, and inquires if the process has met all of the legal hearing requirements. The impact of COVID-19 has required that meetings be held virtually, rather than in-person, due to shelter-in-place orders and social-distancing requirements, in the interest of public health safety. All requirements for the environmental review process under the California Environmental Quality Act have been met.

I-BaldaufH-6 The commenter indicates that he is looking forward to a revised EIR that addresses the topics raised in the comment letter, and issues raised by others. As demonstrated in the individual responses provided to the comments raised, and further in Section 8.1.4 in this Comments and Responses document, none of the specific issues identified in the comments, or response to these comments, result in any of the conditions of Section 15088.5(a) being met. Thus, UCSF has determined that recirculation of the Draft EIR on the issues raised by the comments is not warranted.

I-BaldaufH-7 The commenter expresses an opinion that the CPHP program is too large. This comment does not address the adequacy of the Draft EIR; consequently, no response is required. However, the comment has been noted and will be forwarded to decision-makers.

From:	GRETCHEN SANDLER
To:	Campus Planning - EIR
Cc:	James Sandler
Subject:	CPHP EIR
Date:	Thursday, September 10, 2020 9:28:55 PM

Hello,

We would like to comment as a community member and neighbor on the EIR for the proposed new hospital on the UCSF Parnassus Campus.

We are completely against this project. As homeowners on Edgewood Avenue whose property abuts the Surge Lot, we would be impacted tremendously by the proposed hospital's construction. 1

As far as we can tell, there will not be any buffer between our home and the Surge Lot which will be used as the staging area for the project. Our children's bedrooms are on the west side of our home facing the Surge Lot, so they will be highly impacted. In addition, the health and environmental impacts of the project have not been addressed adequately. You say you will use electric vehicles if available. We are quite sure there are not enough of these heavy equipment vehicles controlled electrically to mitigate the problem. And we know that idling gas/diesel vehicles contribute to bad air quality. Even if the vehicles are electric, there will be a large amount of dust particles in the air from the work being done. Will watering it twice daily really reduce the particulate matter? PM2.5 particles are known to cause adverse health effects and premature death and we don't see where in the EIR is the mitigation to address this. With the stress of the current wildfires, air quality is a very important issue for us all and we do not want to be forced to stay in our homes for a prolonged period of time because the air quality is deemed unhealthy due to a construction project. 2

Additionally, the EIR has provided inadequate solutions to the traffic, parking, and public transport needed to bring 8000 extra people onto campus. Now that we are in a pandemic, how is a shuttle from BART feasible if people want to drive their cars to work so that they are safe? There will not be enough parking. Currently, our street is highly impacted as it is by those who are looking for parking. The population increase on campus would put stress on the infrastructure of the neighborhood. 3

As frequent hikers in the Sutro Forest, we feel that the project will adversely affect the forest/green space. There is not much green space left in San Francisco and with climate change it is important to keep the forest and its species intact for the future of our planet. Additionally, as Edgewood residents whose home sits on the west side of the street next to the Surge Lot, we have not seen an adequate study of potential erosion of the back of Edgewood if UCSF digs into the hillside, as planned. What will you do to protect our homes? 4

Additionally, the EIR doesn't address any of the changes in healthcare that have resulted from Covid-19. It is now patently clear that gathering patients together in one big hospital is not a good idea. 5

And lastly, we think that size of the hospital is much too big for the foot print of this residential neighborhood. We feel that UCSF has not thoroughly examined alternatives to a gigantic hospital complex at the Parnassus campus. You need to explore developing alternative locations, such as Mt. Zion. 6

Sincerely,
Gretchen and James Sandler
Edgewood Avenue Residents

Responses to Comments from Gretchen Sandler

I-Sandler-1 The commenter expresses opposition to the project. This comment is noted, however, it does not address the adequacy of the Draft EIR; consequently, no response is required.

The commenter also makes a general statement that the commenter would be tremendously impacted by the proposed hospital's construction. Please see specific responses provided to the comments made on specific construction-related issues, below.

I-Sandler-2 This comment expresses concern regarding the potential air quality impacts from construction activities, and the location of the Surge parking lot staging area adjacent to residences, with specific concern regarding emissions of fugitive dust and fine particulate matter ($PM_{2.5}$).

Construction-related air quality impacts are assessed on pages 4.2-28 through 4.2-33 of Section 4.2, Air Quality, in the Draft EIR. The impact analysis addresses all criteria pollutants, including $PM_{2.5}$ and fugitive dust emissions. CPHP Mitigation Measure AIR-1b: Best Management Practices for Controlling Particulate Emissions during Construction is identified to address construction-phase emissions, including fugitive dust and $PM_{2.5}$ emissions. The Bay Area Air Quality Management District (BAAQMD) is the regional agency with jurisdiction for regulating air quality within the nine-county San Francisco Bay Area Air Basin. As stated on page 4.2-30 of the Draft EIR, implementation of CPHP Mitigation Measure AIR-1b would ensure that dust control measures implemented during construction of CPHP projects, including the frequency of watering, would be consistent with the guidance of BAAQMD to reduce fugitive dust-related impacts to a level that would be less than significant with mitigation. Studies have shown that the application of best management practices (BMPs) at construction sites significantly controls fugitive dust, and individual measures have been shown to reduce fugitive dust by anywhere from 30 to 90 percent.

With regard to $PM_{2.5}$, as indicated in Table 4.2-8 on page 4.2-33 of the Draft EIR, mitigated exhaust emissions of $PM_{2.5}$from construction activities (0.16 pounds per day) would be less than 0.3 percent of the applicable $PM_{2.5}$significance threshold established by BAAQMD (54 pounds per day). Consequently, impacts from both construction-related fugitive dust emissions and exhaust emissions of $PM_{2.5}$were correctly identified in the Draft EIR as less than significant impacts.

With respect to health risk impacts from construction activities, these impacts are assessed on Draft EIR pages 4.2-45 through 4.2-58. Mitigated health risks from construction activities associated with the CPHP Initial Phase projects are presented in Tables 4.2-15, 4.2-16, 4.2-17, and 4.2-18 on pages 4.2-53 through 4.2-56 of the Draft EIR. In all cases, mitigated health risk is below the thresholds established by the BAAQMD. Similar mitigations are identified for CPHP Future

Phase projects. Therefore, the Draft EIR adequately demonstrated that construction-related air quality and health risk impacts would be less than significant.

As stated in Section 4.11, Noise and Vibration on page 4.11-24 of the Draft EIR, the Surge parking lot is located as close as 20 feet from the nearest off-site receptors (on Edgewood Avenue), and would likely be used for staging during the construction of the Aldea Housing Densification project and the New Hospital. The staging area would be used for construction material and off-road equipment storage. Emissions generated from the staging area during construction would be limited to starting of off-road equipment prior to deployment to the work sites, or trucks delivering materials, and would be reasonably expected to be of brief duration and not a substantial source of $PM_{2.5}$emissions. Idling of equipment and vehicles at the staging area is not anticipated. Nonetheless, consistent with CPHP Mitigation Measure AIR-1b, idling of vehicles will be avoided or minimized. CPHP Mitigation Measure NOI-1a would require shielding of the staging area where adjacent sensitive receptors have direct line-of-sight with loading and delivery activities which would reduce both construction-generated noise and off-site transport of fugitive dust emissions. In addition, CPHP Mitigation Measure AIR-1b would require all exposed surfaces to be watered twice a day which would also reduce fugitive dust created at staging areas.

I-Sandler-3 The comment asserts that the Draft EIR does not adequately assess the transportation effects of the increase in campus population that would result from CPHP implementation. For information on the analysis of the transportation impacts of the population increase, please see Master Response19: Project Effects (i.e., Population Increase) on Transportation System. The comment also asserts that the public transit analysis is inadequate due to the effects of the COVID-19 pandemic on travel behavior; this is addressed in Master Response 3: COVID-19. The comment also asserts that the project's parking supply is inadequate; this comment is addressed in Master Response 18.

I-Sandler-4 The commenter makes a general comment that there would be less green space, and the importance of keeping forests intact to avoid climate change. Please refer to Draft EIR Section 4.7 for how the Draft EIR addresses potential impacts of the CPHP on greenhouse gas emissions.

The commenter also indicates that there has been inadequate study of potential erosion on the hillside adjacent to Edgewood Avenue associated with excavation for development of the New Hospital. Impact GEO-4 in the Draft EIR addresses the potential for construction associated with the CPHP, including the New Hospital, to result in erosion. The Draft EIR discusses that the proposed project would be required to file a Notice of Intent with the State Water Resources Control Board (SWRCB) to be covered under the National Pollution Discharge Elimination System (NPDES) Construction General Permit for discharges of

stormwater associated with construction activity (also discussed further in Section 4.9, Hydrology and Water Quality). The Construction General Permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) which would include erosion control measures in the form of best management practices (BMPs) that would be effective in reducing the potential for erosion during construction. BMPs would include, but would not be limited to, filtering runoff during construction, avoiding heavy grading and earthwork operations during the rainy season, and incorporating landscaping as early as possible. Once construction is completed for each element of the CPHP, the area of disturbance would be either covered by a structure, road or pathway, or landscaped such that the potential for erosion is minimized. Therefore, with adherence to existing regulatory requirements that would require implementation of erosion control BMPs during construction, the potential for erosion or loss of topsoil would be reduced to less than significant levels.

I-Sandler-5 The commenter requests the EIR address changes in healthcare that have resulted as a result of COVID-19. Please see Master Response 3: COVID-19.

I-Sandler-6 The commenter requests discussion of additional alternatives, including alternative locations, such as Mount Zion. Please see Master Response 5: EIR Alternatives.

From:	Marian Baldauf
To:	Campus Planning - EIR
Subject:	opposition to EIR
Date:	Thursday, September 10, 2020 9:33:09 PM

Dear UCSF/Regents:

I am writing to express my strong opposition to the UCSF expansion project. We (my husband and two children) live at 165 Edgewood Avenue, and our house is immediately adjacent to the Surge parking lot. 1

My concerns are:

- The multi-year construction project will be hugely deleterious to us and our neighbors on Edgewood, Willard, Belmont, Farnsworth and Woodland, but especially those of us on Edgewood. 2
- Air quality and increased cancer risk during the multiyear construction project. I am not convinced by the data in the EIR that this risk is meaningfully and significantly mitigated. The watering mitigation strategy does not seem reasonable, effective or environmentally sound for a project of this scale.
- Impact AIR-2 and Impact C-AIR-1 are both Air Quality impacts that are identified as "Significant and Unavoidable" even with mitigation strategies. The operation of the proposed facilities will create significant, ongoing, un-mitigatable, unhealthy air quality in a dense residential neighborhood, which includes families, children, childcare facilities, elder care facilities, and schools - not only for the duration of construction, but essentially, forever. This is unacceptable. 3
- Our house backs up to the Surge parking lot, which has been identified as a construction staging site. What happens to all those cars that park there? What happens to the quality our life and our neighbors' lives when this becomes filled with trucks going in and out, unloading and unloading all through the day, for many years? 4
- Hazardous materials that will be stored onsite adjacent to our house and neighborhood is not sufficiently disclosed and if of significant concern. 5
- The New Hospital is omitted from the section on Land Use and Planning. It is the most significant project of the four phase 1 projects, has a huge impact on the issue of land use and planning of the CPHP, and it must be included in the CPHP program level EIR even if some issues will be revisited/clarified in a future project level EIR. 6
- Transportation: an additional 8,000 people per day will visit this new campus; the parking and traffic analyses provided in this EIR are insufficient to address this massive increase. 7

Sincerely, Marian
Baldauf 165
Edgewood Ave

Responses to Comments from Maria Baldauf

I-BaldaufM-1 The commenter expresses opposition to the project, and notes the commenter's house is located immediately adjacent to the Surge parking lot. These comments are noted, however, they do not address the adequacy of the Draft EIR; consequently, no response is required. Please see, however, responses to specific issues raised by the commenter below.

I-BaldaufM-2 The commenter expresses a general concern that CPHP construction would be deleterious to residents on Edgewood Avenue, Willard Street, Belmont Avenue, Farnsworth Lane, and Woodland Avenue. Please see specific responses provided to the comments made on specific construction-related issues, below.

I-BaldaufM-3 This comment expresses concern that air quality impacts and increased cancer risk are not adequately mitigated, and that watering of the project site is not a reasonable, effective or environmentally sound method of controlling dust for a project of this scale.

Construction-related air quality impacts are assessed on pages 4.2-28 through 4.2-33 of the Draft EIR. CPHP Mitigation Measure AIR-1b: Best Management Practices for Controlling Particulate Emissions during Construction is identified to address fugitive dust emissions. The Bay Area Air Quality Management District (BAAQMD) is the regional agency with jurisdiction for regulating air quality within the nine -county San Francisco Bay Area Air Basin. As stated on page 4.2-30 of the Draft EIR, implementation of CPHP Mitigation Measure AIR-1b would ensure that dust control measures implemented during construction of CPHP projects would be consistent with the guidance of BAAQMD to reduce fugitive dust-related impacts to a level that would be less than significant with mitigation. Studies have shown that the application of best management practices (BMPs) at construction sites significantly controls fugitive dust,[1] and individual measures have been shown to reduce fugitive dust by anywhere from 30 to 90 percent.[2]

With respect to construction-related exhaust emissions of criteria air pollutants, as indicated in Table 4.2-8 on page 4.2-33 of the Draft EIR, mitigated exhaust emissions from construction activities would be below the applicable significance threshold established by BAAQMD for all pollutants during construction of the CPHP Initial Phase projects, and similar mitigation is identified for the CPHP Future Phase projects.

With respect to health risk impacts from construction activities, these impacts are assessed on Draft EIR pages 4.2-45 through 4.2-58. Mitigated health risks from

1 Western Regional Air Partnership, *WRAP Fugitive Dust Handbook*, September 7, 2006, *wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf*, accessed April 23, 2018.

2 Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, p. 27.

construction activities associated with the CPHP Initial phase Projects are presented in Tables 4.2-15, 4.2-16, 4.2-17, and 4.2-18 on pages 4.2-53 through 4.2-56 of the Draft EIR. In all cases, mitigated health risk is below the thresholds established by the BAAQMD. Similar mitigations are identified for CPHP Future Phase projects. Therefore, the Draft EIR adequately demonstrated that construction-related air quality and health risk impacts would be less than significant.

This comment also opines that significant and unavoidable operational air quality impacts identified in Impact AIR-2 and Impact C-AIR-1 are unacceptable.

The Draft EIR identified certain significant and unavoidable impacts, as summarized in Tables 5-1 and 5-2 of the Draft EIR. The Regents must certify the Final EIR before making a decision to approve the CPHP. Prior to approval of a project for which the EIR identifies significant environmental effects, CEQA requires the adoption of Findings (CEQA Guidelines, Sections 15091 and 15092). If the Final EIR identifies significant adverse impacts that cannot be mitigated to less-than-significant levels, the findings must include a statement of overriding considerations for those impacts (CEQA Guidelines, Section 15093(b)).

I-BaldaufM-4 This comment expresses concern that houses that are adjacent to the proposed staging area in the Surge parking lot will be exposed to quality of life impacts from trucks and loading and unloading over the duration of the construction period.

As stated in Section 4.11, Noise and Vibration on page 4.11-24 of the Draft EIR, the Surge parking lot is located as close as 20 feet from the nearest off-site receptors (on Edgewood Avenue), and would likely be used for staging during the construction of the Aldea Housing Densification and the New Hospital projects. The staging area would be used for construction material and off-road equipment storage. Emissions from the staging area would be limited to starting of off-road equipment prior to deployment to the work sites or trucks delivering materials and would be reasonably expected to be of brief duration and not a substantial source of $PM_{2.5}$emissions. CPHP Mitigation Measure NOI- 1a: Construction Noise Control Measures would require shielding of the staging area where adjacent sensitive receptors have direct line-of-sight with loading and delivery activities which would reduce off-site transport fugitive dust emissions as would the watering requirement of CPHP Mitigation Measure AIR-1b.

As such, the Draft EIR identifies feasible mitigation to reduce construction-related air quality and noise impacts to the extent feasible. Please note, however, that as discussed in Master Response 1: Non-CEQA Comments, potential effects of a proposed project on the “quality of life” and related conditions, in and of themselves, are not considered environmental impacts under CEQA.

I-BaldaufM-5 The commenter asserts that hazardous materials would be stored on-site adjacent to the commenter's house and is not sufficiently disclosed in the Draft EIR. The commenter is referred to Section 4.8, Hazards and Hazardous Materials in the Draft EIR. This section acknowledges that a variety of hazardous materials are stored and used at the Parnassus Heights campus site, and these activities would continue under the CPHP. This includes storage and use of small quantities of common cleaning, maintenance and landscaping products at the campus site. The Draft EIR also describes that diesel fuel is currently stored in tanks beneath Medical Center Way, and which would be replaced in new code compliant underground tanks by 2025. In addition, the Draft EIR explains that storage and use or larger quantities of hazardous materials for clinical and research purposes at the campus site, including a variety of chemicals, low-level radioactive waste, and medical/biological waste, that are highly regulated. Compliance with hazardous storage and transportation regulations, and continuation of programs and controls currently in place to manage hazardous materials, as mandated by State and federal laws, would minimize potential hazards to the public and environmental to a less than significant level.

I-BaldaufM-6 The commenter incorrectly asserts that the New Hospital is omitted from the Draft EIR Land Use and Planning section. The Draft EIR appropriately addresses the New Hospital programmatically in Impact LU-1 on pages 4.10-10 to 4.10-11, and page 4.10-14; and in Impact LU-2, on pages 4.10-16 to 4.10-17. The New Hospital will also be addressed in the forthcoming project-level EIR for the New Hospital.

I-BaldaufM-7 The comment asserts that the Draft EIR does not adequately assess the transportation and parking effects of the increase in campus population from the implementation of the CPHP. For information regarding the analysis of transportation impacts of the population increase, please see Master Response 19. For concerns related to parking, please see Master Response 18.

From:	Logan Craig
To:	Campus Planning - EIR
Subject:	Comment, Environmental Impact Review, CPHP
Date:	Thursday, September 10, 2020 10:10:32 PM

Ms. Diane Wong,

I live at 191 Edgewood. UCSF is my immediate neighbor to the West. I have reviewed the draft EIR for the CPHP and appreciate the opportunity to provide comments. I believe UCSF is an important part of our neighborhood and a flagship institution for our City and our State. I recognize and support the need to upgrade and modernize the Parnassus Heights campus. Furthermore, I applaud UCSF's selection of Herzog & de Meuron as the lead designer for the New Hospital. However, I am **not supportive of the CPHP** as presented in this draft EIR. Some of my concerns are outlined below. 1

1. **Cumulative Impact on Air Quality**: The cumulative impact on air quality, particularly in regards to electricity generation, was inadequately reviewed in the draft EIR. The decades-old, onsite cogen power plant has a nameplate capacity of 13.75MW. With a summertime peak demand of 22MW, the New Hospital and the entire campus will at times be reliant on PG&E capacity. Extended PG&E blackouts in the Bay Area due to wildfire risk are becoming a frequent and seasonal occurrence. In the event of an unplanned PG&E outage, Emergency Diesel Generators may be required to augment CUP capacity. The combination of smoke from surrounding wildfires augmented by harmful emissions from the onsite cogen plant and EDGs would pose a significant health risk to the neighboring community. With a project of the magnitude of the CPHP, the cumulative impact must be properly reviewed. The impact on air quality will be significantly greater than just occasional EDG testing. Additionally, we live in an era and a region where renewable energy is available and affordable. A utility-scale fossil fuel power plant, whether primary or emergency backup, has no place within such close proximity to a residential neighborhood. A modern hospital should not be reliant on dirty and dangerous fossil fuel burning technologies form the 1990s; alternatives should be explored within the EIR that consider the complete replacement of the CUP and EDGs with renewable energy and grid solutions. 2
2. **City Height and Bulk Districts:** I am aware that UCSF is exempt from local zoning regulations. I applaud UCSF for its commitment to "strive to adhere" to local zoning and planning codes. The current plan falls far short of that commitment to the City and the neighborhood. At 16-stories and 294 feet in height, the New Hospital out of scale with the surrounding residential neighborhoods and the other structures on the campus. It is in blatant violation of prescribed height and bulk restrictions and in direct conflict with the Planning Code. A 294-foot structure in a 220-F district could ostensibly be considered an attempt to adhere to local codes. But a 294-foot structure in a 64-D or Open Space district as a clear disregard for the local codes and neighbors. The New Hosptial will block views and dominate what is now a cohesive and diverse landscape. I would potentially be supportive of Alternative 2: Reduced Project as outlined in the draft EIR, provided my other concerns were appropriately addressed 3
3. **Proposed Open Space Swap:** UCSF's protection and stewardship of the Mt Sutro Open Space Reserve is commendable. It is a wonderful and unique resource for the neighborhood and the City. Which makes encroachment into the Reserve a concerning prospect. Any contemplated land swap should be at a significantly higher ratio than 1:1 and have a meaningful environmental or recreational impact. The proposed land swap 4

acreage between the Woods and Surge parking lots does not meet this threshold. Conversion of the Woods and Surge parking lots to Reserve would better connect the Campus and neighborhood to the Greater Reserve via an extension of the access trail off the Surge lot staircase and from Farnworth.

4 cont.

4. **Surge Parking Lot Construction Staging Area:** I am very concerned by the identification of the Surge parking lot as a construction materials/construction worker staging area. Such a staging area for a multi-year construction project located adjacent to my house and my neighbors would have a significant impact due to noise, dust, lighting, viewshed, and pollution. Mitigation shielding could be inadequate at such a close distance (as close as 20 feet as outlined in the EIR). Additionally, due to Covid-19, many Edgewood residents, myself included, are forced to work from home making such an impact all the more unacceptable. The full impact of siting the staging area at the Surge parking lot was not adequately reviewed in the EIR. Alternative staging sites at a greater distance from sensitive receptors and residential neighborhoods should be identified and studied.

5

5. **Traffic and Covid-19.** The EIR does not adequately contemplate the effects of an extended pandemic on construction and operational traffic mitigation measures. Carpooling and transit options may not be allowed or desirable for the foreseeable future. Similarly, Covid-19 has created a financial crisis for SF Muni, the lasting impacts of which were not contemplated. This could have significant impacts on congestion, vehicle miles traveled, parking, and emissions that were not adequately studied in the EIR.

6

Thank you,
Logan Craig
191 Edgewood

--
Logan Craig
805.708.4893

Responses to Comments from Logan Craig

I-Craig-1 The commenter expresses support for the need to upgrade and modernize the campus site, but opposes the CPHP as presented in the Draft EIR. The comment is noted; please see specific responses to issue raised by the commenter below.

I-Craig-2 This comment raises concerns that energy demands of the CPHP may require the use of backup diesel generators as a supplement to electricity provided by the existing Central Utility Plant (CUP) when the supplemental supply from PG&E is interrupted; that the cumulative impact of emissions from the CUP and backup diesel generators was not assessed in the air quality analysis of the Draft EIR. The comment recommends that the CUP be replaced with renewable energy and grid solutions to accommodating electrical demand.

The assessment of impacts associated with operational criteria air pollutant emissions and operational health risk both assumed that the CUP would operate at full capacity, and that the capacity of the CUP would be increased by 61 percent. The basis of this increase is provided in the Appendix AIR on page 1,418 of the Draft EIR. Practically, it is likely that the increase in CUP operations would be less than this, with the remaining electricity purchased from the grid through a renewable energy provider. Emergency backup generators exist on the campus site to provide power for essential services in the event of a power blackout. Historic PG&E data for the campus site for the most recent five years shows a total of 311 minutes of service interruption, or 62 minutes per year on average[3]. This contribution would be equivalent to one 50th of the maintenance emissions assumed in the analysis of the Draft EIR. Because of the rarity and unpredictability of such events, and because BAAQMD does not require the quantification of emergency use of backup diesel generators as part of its permit process, consistent with BAAQMD protocol the air quality impact analysis appropriately includes only the emissions associated with the maintenance testing of the additional emergency generators that would be added to the campus site under the CPHP.

Under no scenario would backup diesel generators provide on-site electricity under anything other than a power outage, as such operations would be outside of UCSF's permitted operational authority granted by BAAQMD. Consequently, the Draft EIR's analysis of criteria air pollutant emissions and operational health risk both applied conservative assumptions in estimating the operational emissions from the changes in on-site electricity generation under the CPHP.

I-Craig-3 The commenter indicates the New Hospital would be out of scale with the surrounding residential neighborhoods and the other structures on campus, and is a violation of prescribed height and bulk restrictions and in direct conflict with

[3] UCSF, email correspondence from Paul Franke, UCSF Principal Planner to ESA, November 19, 2020.

the Planning Code. The commenter is referred to Master Response 13: Land Use Impacts.

The commenter indicates potential support for Alternative 2: Reduced Project, provided the other commenter's concerns are appropriately addressed. The comment has been noted and will be forwarded to decision-makers. Please also refer to the other responses provided herein.

I-Craig-4 The commenter recommends that any proposed open space swap affecting the Reserve should be at a substantially higher ratio that 1:1 and have a meaningful environmental or recreational impact. As discussed in Chapter 3, Project Description, pages 3-19 to 3-20, UCSF proposes to replace any area of the Reserve that is lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site in an amount equal to *or greater* than the area lost. As it relates to the open space swap associated with the CPHP, as noted on page 3-39, it is preliminarily estimated that approximately 0.15 acres[4] of the Reserve would be changed from Open Space Reserve to a Clinical functional zone to accommodate the proposed New Hospital. In addition, an approximate 0.40-acre of undeveloped land within the Surge/Woods parking area would be redesignated from Support to Open Space Reserve.

The commenter also indicates that conversion of the Woods and Surge parking lots to Reserve would better connect the campus site and neighborhood to the Greater Reserve via an extension of the access trail of the Surge lot staircase and from Farnworth. The comment is noted, however, this suggestion is not proposed or required under the CPHP. The comment has been noted and will be forwarded to decision-makers.

I-Craig-5 This comment asserts that potential significant impacts of the Surge parking lot staging area on noise, dust, viewshed, lighting, and air quality are not adequately addressed in the Draft EIR. The commenter also states that noise from the staging area could interfere with residents' ability to work at home as a result of COVID-19.

As stated in Section 4.11 Noise and Vibration on page 4.11-24 of the Draft EIR, the Surge parking lot is located as close as 20 feet from the nearest off-site receptors (on Edgewood Avenue) and would likely be used for staging for the Aldea Housing Densification project and the New Hospital. The staging area would be used for construction material and off-road equipment storage. Emissions from the staging area would be limited to starting of off-road equipment prior to deployment to the work sites or trucks delivering materials and would be reasonably expected to be of brief duration and not a substantial source of air pollutant exhaust or fugitive dust emissions. CPHP Mitigation

[4] Excluding the widening of Medical Center Way adjacent to the proposed New Hospital, which would be necessary for fire safety purposes. The amount of acreage for the widening of Medical Center Way is to be determined.

Measure NOI-1a: Construction Noise Control Measures would require shielding of the staging area where adjacent sensitive receptors have direct line-of-sight with loading and delivery activities which would reduce both noise and off-site transport of fugitive dust emissions. In addition, CPHP Mitigation Measure AIR-1b would require all exposed surfaces to be watered twice a day which would also reduce fugitive dust created at staging areas. The use of shielding of the staging areas identified in CPHP Mitigation Measure NOI-1a would also serve to reduce visibility of construction staging materials and activities. With respect to lighting, the majority of construction at UCSF would occur during regular daytime hours, not extending past 5:00 p.m. As such, while lighting may be used in the Surge parking lot for security purposes, there would generally not be any lighting associated with potential evening staging operations.

The commenter requests alternative staging sites at greater distances from sensitive receptors and residential neighborhoods be identified and studied. As discussed in the Draft EIR Chapter 3, Project Description on page 3-36, there are several potential on-site CPHP construction materials/construction worker staging areas, including the 1) the existing parking lot area located south of UC Hall (i.e., site of the former Laboratory of Radiobiology building); 2) the Surge parking lot, and/or 3) the top level of the Medical Building 1 parking lot. Feasible areas for staging on the campus site are limited, when taking into account factors such as staging space requirements, proximity to construction areas (to minimize travel distances for movement of trucks, heavy equipment and materials), avoiding undeveloped areas of the campus site for staging, and considering proposed CPHP construction phasing. It should be noted that the greatest construction-related impacts under the CPHP, including construction air emissions and noise, would occur at the construction zones, rather than at construction staging areas. In any case, as described above, the Draft EIR identifies feasible mitigation to reduce construction staging impacts at the staging areas to the extent feasible.

With respect to COVID-19, please refer to Master Response 3: COVID-19.

I-Craig-6 The commenter requests the EIR consider the effects of COVID-19 on construction and operational traffic mitigation measures. Please see Master Response 3: COVID-19.

From:	Emma Hanley
To:	Campus Planning - EIR
Subject:	CPHP EIR
Date:	Thursday, September 10, 2020 10:29:14 PM

Dear Ms. Wong,

I live at 191 Edgewood Avenue, SF and I share a property line with the UCSF campus. Beyond noticeable noise from the power plant and light pollution from the Surge parking lot, UCSF has been a good neighbor. My family has been supportive of the hospital for years (under the name Bowes), but I am very concerned about the scale of the planned new hospital. I am not supportive of the development plan outlined in the draft EIR, most especially the imposing height of the building. I have highlighted below areas of concern where I do not believe the draft EIR adequately addressed impacts or mitigation measures. 1

1. Traffic and Infrastructure: The New Hospital will bring thousands of more people on to the campus every day. The EIR did not provide adequate solutions to traffic, parking and public transportation to accommodate such an increase. The EIR did not explore the long term funding effects on SF Muni as a result of the Covid-19 pandemic. During and post-pandemic, commuters will likely be less inclined to carpool or utilize mass transit. Impacts of such proclivities should be addressed in the EIR. 2 3

2. Aesthetic and View: The size of the proposed new hospital is very out of scale with the rest of the UCSF campus and the neighboring residential community and I believe in violation of existing city codes? The building will have a substantial negative impact on views from Golden Gate Park and the hiking trails of Mt Sutro. Sutro Tower, one of the City's most recognizable landmarks, will be completely blocked from view from the north side of the new hospital. The EIR should contemplate alternative locations both within the Parnassus Heights campus and beyond, and alternative designs with less of a visual impact on the surrounding area such as Alternative 2. 4

3. Surge Parking Lot as Construction Staging Area: A construction staging area in the Surge parking lot is a major concern. The impacts on the neighbors and block of Edgewood Avenue would be severe. The vague mention of noise shielding as a mitigation method is not adequate to address this significant impact. Noise, dust, safety, and pollution from a construction staging area are major problems that need to be addressed in far greater detail (especially as they're about 10 feet from our hours). This doesn't seem like the best place to put it, and the EIR should explore alternative locations further away from neighbors already affected by the hospital's noise. Additionally, locating the construction staging area in the Surge parking lot will cut off the trail from Farnsworth and the Surge lot steps, both highly trafficked access points to the Reserve for the general public and UCSF community. 5

We sincerely appreciate all the impressive research and medical work that is done at UCSF and we want to find a way for the community and hospital to continue coexisting happily as neighbors. 6

Thank you,
Emma

Emma Frances Hanley

(415) 518 2292

Efhanley@gmail.com

Responses to Comments from Emma Hanley

I-Hanley-1 The commenter indicates sharing a property line with the UCSF Parnassus Heights campus site; expresses a general concern regarding scale and height of the proposed New Hospital; and indicates the Draft EIR has not adequately addressed impacts or mitigation measures. Please see responses to the specific issues raised by the commenter, below.

I-Hanley-2 The comment asserts that the Draft EIR does not adequately assess the effects of the increase in campus population due to the New Hospital. Please note that the total projected increase in campus population under the CPHP includes the projected increase in on-campus population from the development of the New Hospital. For information regarding the analysis of transportation impacts of the CPHP-related population increase, please see Master Response 19. Additionally, the comment asserts that the Draft EIR does not adequately assess the funding effects of COVID-19 on Muni. Refer to Master Response 20 for discussion of why Muni operational issues are not a CEQA concern, and therefore analysis of these effects is not required in the EIR. Refer to and Master Response 3: COVID-19 for a discussion of the effects of COVID-19.

I-Hanley-3 The commenter requests the EIR consider the effects of COVID-19 on public transit. Please see Master Response 3: COVID-19.

I-Hanley-4 The commenter asserts that the New Hospital is very out of scale with the rest of the campus site and neighborhood and will have a substantial negative impact on views. Please refer to Master Response 7: Aesthetic Impacts, and Master Response 13: Land Use Impacts.

I-Hanley-5 This comment asserts that potential significant impacts of the Surge parking lot staging area on noise, dust, viewshed, lighting, and air quality are not identified in the Draft EIR. The comment also states that the use of the parking lot for staging will limit trail access and suggests that other sites be considered for construction staging.

As stated in Section 4.11 Noise and Vibration on page 4.11-24 of the Draft EIR, the Surge parking lot is located as close as 20 feet from the nearest off-site receptors (on Edgewood Avenue), and would likely be used for staging for the Aldea Housing Densification project and the New Hospital. The staging area would be used for construction material and off-road equipment storage. Emissions from the staging area would be limited to starting of off-road equipment prior to deployment to the work sites or trucks delivering materials and would be reasonably expected to be of brief duration and not a substantial source of air pollutant exhaust or fugitive dust emissions. CPHP Mitigation Measure NOI- 1a: Construction Noise Control Measures would require shielding of the staging area where adjacent sensitive receptors have direct line-of-sight with loading and delivery activities which would reduce off-site transport of

fugitive dust emissions. In addition, the watering requirement of CPHP Mitigation Measure AIR-1b would require all exposed surfaces to be watered twice a day which would also reduce fugitive dust created at staging areas. As such, the Draft EIR identifies feasible mitigation to reduce construction phase impacts at the Surge parking lot staging area to the extent feasible.

The commenter requests alternative staging sites at greater distances from sensitive receptors and residential neighborhoods be identified and studied. As discussed in the Draft EIR Chapter 3, Project Description on page 3-36, there are several potential on-site CPHP construction materials/construction worker staging areas, including the 1) the existing parking lot area located south of UC Hall (i.e., site of the former Laboratory of Radiobiology building); 2) the Surge parking lot, and/or 3) the top level of the Medical Building 1 parking lot. Feasible areas for staging on the campus site are limited, when taking into account factors such as staging space requirements, proximity to construction areas (to minimize travel distances for movement of trucks, heavy equipment and materials), avoiding undeveloped areas of the campus site for staging, and considering proposed CPHP construction phasing. It should be noted that the greatest construction-related impacts under the CPHP, including construction air emissions and noise, would occur at the construction zones, rather than at construction staging areas. In any case, as described above, the Draft EIR identifies feasible mitigation to reduce construction staging impacts at the staging areas to the extent feasible.

I-Hanley-6 The commenter expresses support for UCSF research and medical work, and indicates a desire for the community and hospital to coexist. The comments are noted.

From:	Pam Hofmann
To:	Campus Planning - EIR
Subject:	Comments to the CPHP Draft EIR Friday,
Date:	September 11, 2020 12:35:45 AM

Dear Ms. Wong,

Please accept these comments regarding the EIR.

Best regards,
Pam Hofmann

1. **NOISE AND DUST on the west side of campus**

The noise after construction on the west side.

There are three multifamily dwellings adjacent the Parnassus Heights campus on the campus' southwest corner that have not been considered by the EIR. These are 1540, 1550 and 1560 5th Avenue. These buildings face 5th Avenue, but due to the curves in the upper part of 5th Avenue they abut UCSF property.

1540 is horizontally 25 feet from Kirkham Street, and vertically 25 feet higher than Kirkham Street.

1550 is horizontally 30 feet from the UCSF property line at 4th and Kirkham/Koret Way. It is vertically 30 feet higher than the Kirkham/Koret/4th Avenue intersection.

1560 is horizontally 30 feet from UCSF, and vertically 65 feet higher than the Kirkham/Koret/4th Avenue intersection.

Source: Van Meter, Williams, Pollock, LLC drawing for the Kirkham Project.

The CPHP indicates that the Kirkham/Koret Way/4th Ave intersection will have increased noise, dust, pollution and traffic due to the servicing of newly constructed buildings, the proposed connection between Medical Center Way, and the restored 4th Avenue via Koret Way. This directly affects these three buildings.

As an example of proximity, conversations taking place outside the Kirkham Childcare Center on Kirkham at 4th Avenue are easily heard and understood while standing in front of 1550 5th Avenue.

Prevailing winds are from the north and west. Wind from the north will exacerbate noise and pollution issues for these three buildings.

Please analyze the impact of noise, both during and after construction, on the residential housing at 1540, 1550, and 1560 5th Avenue. Please include noise generated by stationary equipment noise sources.

Since deliveries by service vehicles begin at 4:00AM, please analyze the noise from 4:00AM to 9:00AM. Noise levels that may be acceptable during the day are not acceptable during normal sleeping hours.

1

FROM EIR DOCUMENT - *4.11 Noise and Vibration*

For the purposes of this analysis, it is assumed that noise from line and point sources to a distance of 200 feet attenuates at rates of between 3.0 and 6.0 dBA per doubling of distance, and the noise from line and point sources at a distance greater than 200 feet attenuates at a rate of 4.5 to 7.5 dBA per doubling of distance, to account for the absorption of noise waves due to ground surfaces such as

2

soft dirt, grass, bushes, and intervening structures (Caltrans, 2009).

4.7-45 Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dBA increment be added to "quiet time" noise levels to form a 24-hour noise descriptor called the day-night noise level (Ldn). The Ldn adds a 10-dBA penalty during the night hours (10:00 p.m. to 7:00 a.m.).

4.11 Ambient noise levels on the campus site are also affected by noise generated by stationary equipment noise sources, particularly in the east portion of the campus core where principal campus support functions exist [e.g., Central Utility Plant (CUP)].

4.11 (Updated 2019) - Noise measurement locations are shown in Figure 4.11-1. To characterize ambient noise in the campus site area, short-term measurement data were compiled for three locations in 2019 where existing off-site residential land uses are present near proposed CPHP development on the campus site,

4.11 Long-term monitoring location LT-1 is located at the top of the ridge at the eastern property line of the campus site. The noise environment at this location is dominated by noise generated by mechanical equipment at the CUP and delivery trucks at the loading docks behind Long Hospital at the campus site.

4.11 – Noise levels monitoring

ST-1 - 5th and Judah Time 11:00 AM;

ST-2 - 5th and Kirkham Time 11:33AM;

ST-# - Irving and Arguello Time 10:34 AM

Will LT-1 and LT-2 be moved to the Koret Way/West Side Area?

LT = long term monitoring

ST=short term monitoring

4.11-27 - As discussed in Chapter 3, Project Description, the CPHP proposes a service corridor that would extend from Medical Center Way to Koret Way and hence, to a proposed extension of Fourth Avenue on the west side of the campus site. The proposed service corridor would facilitate transport of goods and materials by freight vehicles for back-of-house functions that would otherwise take a longer route. Notwithstanding the partial shielding provided by existing and proposed buildings at the campus site, and improvement in truck circulation provided by the proposed service corridor, there would be the potential for residences along Edgewood Avenue to be exposed to increased noise generation from increases in vehicle travel, including trucks, along the Medical Center Way.

2 cont.

2. SCENIC VIEW – IMPACT ON Kirkham Heights (1530 – 1585 5th Avenue, especially for 1540, 1550 and 1560 5th Avenue)

The view from Kirkham Heights multifamily residences will be impacted by the new buildings. The replacement for the childcare center will be twice as high. The replacement for the demolished two-story building MR 4 will be 120 feet tall.

Proposed buildings along 4th Avenue from Kirkham to Judah will be visible from and impactful to Kirkham Heights. Currently looking north from Kirkham Heights, residents enjoy views of Golden Gate Park, San Francisco Bay, the Golden Gate Bridge and portions of Marin County.

3

Please analyze whether the line of sight looking north from the residential buildings in Kirkham Heights (1530 – 1585 5th Avenue) will be diminished by proposed CPHP buildings relative to the current line of sight provided by current Dental Clinics building.

It appears the views from Kirkham Heights (1530 - 1585 5th Avenue) will be impacted by the proposed tall buildings that will replace the Kirkham Childcare Center, the Dental Building and the

Koret Building. The proposed structures will range from approximately six to ten stories up to 72 to 120 feet in height. In another statement in the EIR the RAB buildings would range from three to nine stories (up to 45 to 130 feet in height). 3 cont.

2. Project Description page 11 - RAB Building – (Dental Bldg, Koret) Future uses in these new spaces, which would total about 435,000 gsf, would include primarily research and academic space. The buildings would range from three to nine stories (up to 45 to 130 feet in height).

2. Project Description page 11 – West Side Housing – Approximately 281,000 gsf of new housing within the West Side district would be located on both sides of the proposed Fourth Avenue extension. Approximately 430 units of housing are proposed. The structures would range from approximately six to ten stories up to 72 to 120 feet in height, and would step down (east to west) along the slope. 4

3. SENSITIVE RECEPTORS

4.8-2 Off-campus receptors (residences) abut the western, northern and southern campus site boundaries. There are three public schools operated by the San Francisco Unified School District within a quarter mile of the Parnassus Heights campus site boundary: Independence High School is located at 1350 7th Avenue, approximately 500 feet northwest of the campus site boundary; Grattan Elementary School (which also contains Grattan Nursery and School-Age Children's Center) is located at 165 Grattan Avenue, approximately one quarter mile east of the campus site boundary; and Clarendon Alternative Elementary School is located at 500 Clarendon Avenue, approximately 1,100 feet south of the campus site boundary. There are also a number of private child care centers within one-quarter mile of the campus site: the Stepping Stones Preschool is located at 1329 7th Avenue, approximately 800 feet northwest of the campus site boundary; the Haight Ashbury Community Nursery School is located at 1180 Stanyan Street, approximately 1,000 feet east of the campus site boundary; and the ABC Bay Area Child Care facility is located at 115 Lawton Street, approximately 900 feet west of the campus site boundary. 5

Please include Kirkham Heights Apartments (1530 – 1585 5th Avenue) in your analysis of off-campus receptors (residences).

4.GRIDLOCK ON 7th AVENUE, TRAFFIC ON KIRKHAM at 4th Avenue and Koret Way, 4th Avenue and Parnassus

7th Avenue is already grid locked not only during rush hour, but much of the day. As noted in the EIR "The service trucks will further congest Kirkham Street and 7th Avenue."

The EIR states *"The proposed service corridor would facilitate transport of goods and materials by freight vehicles for back-of-house functions that would otherwise take a longer route. Notwithstanding the partial shielding provided by existing and proposed buildings at the campus site, and improvement in truck circulation provided by the proposed service corridor, there would be the potential for residences along Edgewood Avenue to be exposed to increased noise generation from increases in vehicle travel, including trucks, along the Medical Center Way."* 6

The EIR makes no mention of the effect on truck traffic and diesel emissions on Kirkham Street or at the corner of 4th Avenue and Koret Way.

Please analyze the current truck traffic and diesel emissions on Kirkham at 4th Avenue and Koret Way from 4:00AM to 9:00AM.

Please analyze the projected truck traffic and diesel emissions after the proposed service corridor is built on Kirkham, and at 4th Avenue and Koret Way from 4:00AM to 9:00AM.

Please analyze the effect on truck traffic on 7 Avenue and Kirkham after the service corridor is built.

Please analyze the truck traffic at 4th and Parnassus after the service corridor is built.

6 cont.

5. GRIDLOCK ON PARNASSUS AND EMERGENCY VEHICLE ACCESS

Parnassus is grid locked, too. Parnassus is already too narrow for the ambulance traffic. Yet the proposed "Streetscape" makes no mention of ambulance traffic on Parnassus. One of the major purposes of the hospital is the Emergency Room which means there will be ambulances arriving at all hours including rush hours 3:00PM to 7:00PM in the afternoon. At the same time ambulances are arriving there will be people getting off work, patients going home, the street will be filled with bicycles, cars picking up patients and pedestrians. The plan mentions bulb outs for pedestrians to use, but this doesn't take into consideration ambulances trying to navigate a gridlocked street. Reducing vehicular space allows for less maneuverability for the ambulances trying to get to the Emergency Room.

3-32 The 2014 LRDP FEIR analyzed the Parnassus Streetscape Plan, a proposal that calls for improvements along Parnassus Avenue generally between Fifth Avenue and Medical Center Way. The purpose of the proposed improvements is to make crossing the street safer and more convenient for pedestrians; increase bicycle safety; reorganize and improve transit and UCSF shuttle operations; create more usable outdoor pedestrian space; strengthen UCSF's identity; and enhance the public realm as called for in the UCSF Physical Design Framework. Specific improvements include new paving, street furniture, lighting, and street trees, as well as sidewalk and crosswalk widening in certain locations and better defined campus gateways.

3-32 UCSF may voluntarily propose improvements to public streets or other public realm areas that, while not considered mitigation measures under CEQA, may nonetheless improve operations or otherwise enhance conditions at those locations. Such voluntary improvements, or "community investments," may include, but are not limited to, payment to the City of San Francisco for stop signs and/or traffic signals at intersections, turning lanes, curb extensions to improve sightlines and crosswalks to clarify rights-of-way, greening, and other traffic-calming measures or public realm enhancements

7

Please analyze the time it *currently* takes the ambulances to arrive from both the east and west along Parnassus. Please include rush hours as part of the analysis.

Please analyze the time it *will take* for the ambulances to arrive from both east and west Parnassus after the proposed street enhancements are make. Please include rush hours as part of the analysis.

6. DEWATERING PUMPS 24/7 NOISE DURING CONSTRUCTION

Section 3-35 – "Equipment to include use of cranes for pier drilling for foundations, steel and/or precast erection, and building façades. Other mobile equipment such as excavators, backhoes, front-end loaders, dump trucks, concrete boom trucks and forklifts would be used at the project site for a range of other construction tasks on the project site, including site clearing, excavation and grading, building construction, and/or hardscape and landscape materials installation. Project construction would generate off-site truck trips for deliveries of concrete and other building materials, transportation of construction equipment to and from the site, hauling soils and debris from the site, and street sweepers. A variety of other smaller mechanical equipment would also be used at the project site during the construction period, such as saw cutters, chopping saws, tile saws, stud impact guns, impact drills, torque wrenches, welding machines, and concrete boom pumps."

8

4.8-20 only mentions BMPS (Best Management Practices). There is no mention of the placement and noise mitigation with regard to dewatering pumps. These pumps will run 24/7 for 2 years or more as foundation work takes place.

Please analyze the projected location and mitigations for these pumps and their tanks with regard to noise.

8 cont.

7. DUST AND PARTICULATE MATTER FROM CUT AND FILL ON MEDICAL CENTER WAY AND SERVICE ROADS

While Section 3-38 is concerned with a widened Medical Center Way and excavation into the adjacent hillside in the Reserve. *"This would require tree removal, excavation and regrading of a portion of this hillside, and shoring of the hillside around the perimeter of the building footprint."* There seems to be no such concern for the service corridor running along the steep hillside between Medical Center Way Koret Way and 4th Avenue.

Excavation on Mt. Sutro is known to have hazards.

3.6.2 Chert exposed in road cuts typically is moderately weathered and strongly fractured. Much of the rock is friable, with strong rock present where less fracturing has occurred. The bedrock in this area is typically overlain by a thin mantle of weathered slope debris, which generally consists of a very well graded mixture of angular rock fragments in a matrix of sand, silt, and clay.

4.2 - individual projects may emit toxic air contaminants (TACs). TACs collectively refer to a diverse group of air pollutants that may cause chronic (i.e., of long duration) and acute (i.e., severe but short-term) adverse effects on human health, including carcinogenic effects. Human health effects of TACs include birth defects, neurological damage, cancer, and death.

The impacts of excavations are left to be determined during construction. There is mention of leaving tree stumps to mitigate excavation! Section 3-38 Page 120 - 4.8-20 only mentions BMPS (Best Management Practices). This is inadequate. There needs to be looking ahead to the effect of excavations on the hillside before excavation begins**.**

Please analyze the predicted effects of excavation of the new service corridor with regard to landslide risk and concomitant dust and particulate matter released from such a slide.

9

Responses to Comments from Pam Hofmann

I-HofmannP-1 This comment identifies three multi-family residential sensitive receptors on the west side of the campus site and requests analysis of the noise impacts specific to these receptors from construction noise, operational noise and delivery vehicle noise.

With respect to construction noise effects on sensitive receptors, this topic is addressed on pages 4.11-16 through 4.11-26 of Section 4.11, Noise and Vibration, in the Draft EIR and the impact is identified as a significant and unavoidable impact. A programmatic analysis is provided for full development of the CPHP on pages 4.11-16 through 4.11-19 of the Draft EIR, and a project level analysis is provided for the CPHP Initial Phase projects, including the New Hospital, on pages 4.11-19 through 4.11-26 of the Draft EIR.

The project-level analysis of noise impacts examined the impact to the closest sensitive receptors to the building sites for the Irving Street Arrival, RAB, Aldea Housing Densification, and the New Hospital. As indicated in Table 4.11-6 on page 4.11-22, the nearest sensitive land uses would be located 70 to 75 feet away from each of these proposed CPHP Initial Phase projects as a worst-case analysis. The receptors cited in the comment would be approximately 1,400 feet from the proposed Irving Street Arrival, approximately 650 feet from the proposed RAB, approximately 1,500 feet from the proposed Aldea Housing Densification project, and approximately 1,500 feet from the proposed New Hospital. Therefore, the construction noise contributions at the west side residences cited by the commenter would be 20 dBA or less than those identified in Table 4.11-6 of the Draft EIR for receptors at a distance of 70 feet. Consequently, the residences cited by the commenter would not experience the significant and unavoidable construction noise impacts of the CPHP Initial Phase projects identified for the nearest residential receptors in the Draft EIR. In addition, construction haul trucks would use Parnassus Avenue or Clarendon Avenue and would not impact roadways near to these west side receptors.

CPHP Future Phase projects, particularly the proposed buildings along the southern end of the Fourth Avenue extension, could be as close to these receptors identified by the commenter as the distances presented for receptors in Table 4.11-6 for the Initial Phase projects. Therefore, construction noise impacts at the receptors cited by the commenter during Future Phase construction could be similar to those impacts assessed in the Draft EIR for the nearest receptors to the Initial Phase projects. As result, construction noise impacts to the residences cited by the commenter during the Future Phase would be potentially significant and unavoidable, same as the noise impact finding identified in the Draft EIR for both CPHP Initial Phase and Future Phase construction projects. Please note that as and when projects at the west end of the campus site are proposed, they will be

evaluated for their project-specific impacts, including their potential to result in significant noise impacts on nearby sensitive receptors.

With respect to stationary source noise during CPHP operations, these impacts were assessed at a programmatic level for development under the full CPHP buildout on Draft EIR pages 4.11-26 through 4.11-28, and at a project-level of analysis for the Initial Phase projects on Draft EIR pages 4.11-29 through 4.11-30. CPHP Mitigation Measure NOI-2: Operational Noise Control was identified to address potential stationary source impact of both full CPHP development as well as of the Initial Phase projects. This mitigation measure establishes a performance standard consistent with City of San Francisco Police Code requirements to ensure a less than significant impact from stationary source noise on adjacent noise sensitive land uses. This measure would also apply to any stationary sources included in projects proposed by UCSF in the western portion of the campus site in the Future Phase.

With respect to noise from delivery trucks, this potential impact is addressed on page 4.11-27 of the Draft EIR. The CPHP proposes a service corridor that would extend from Medical Center Way to Koret Way and hence, to a proposed extension of Fourth Avenue on the west side of the campus site. The proposed service corridor would facilitate transport of goods and materials by freight vehicles for back-of-house functions. The Draft EIR determined that the increase in noise levels from CPHP traffic, including trucks, on Medical Center Way at the nearest residential receptors would not be significant. It should be noted that this corridor would provide a one-way circuit through the campus site, and thus would preclude two-way truck traffic, and would also likely minimize the need for trucks to utilize their backup alarms, as trucks would proceed in a single direction. When considering these factors, the increase in noise along the service corridor is expected to result in a less than significant impact. Please note, however, that when the proposed service corridor project is advanced in terms of design, it would be subject to additional environmental review, as needed.

I-HofmannP-2 The commenter includes a number of excerpts from Draft EIR Section 4.11, Noise and Vibration. No response is required to these excerpts.

The commenter also appears to inquire if long-term monitoring would be conducted in the Koret Way/West Side area. The Draft EIR presents a number of long- and short-term monitoring results at several locations on the campus and environs. The commenter is referred to short-term monitoring conducted at Kirkham Street and Fifth Avenue (ST-2), which provides a representative noise measurement for this location raised in the comment.

I-HofmannP-3 CEQA Section 21060.5 defines the environment as “the physical conditions that exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, or objects of historic or aesthetic

significance." Thus, while scenic vistas can be considered part of the environment, in general, CEQA analysis focuses on views from publicly accessible viewpoints; private views (e.g., from the Kirkham Heights apartments) are normally experienced by fewer members of the public. As defined on Draft EIR page 4.1-1, "scenic vistas are those that are experienced from publicly accessible locations and include urban skylines, valleys, mountain ranges, or large bodies of water," and the EIR reasonably relies on this definition to frame its analysis. (Similarly, the analyses of wind and shadow impacts evaluate potential effects on public sidewalks and publicly accessible open spaces, respectively.)

For information, however, the following is noted: The Kirkham Heights apartments, comprises 11 buildings at 1530-1585 Fifth Avenue, situated to either side of the steeply sloping, curving portion of Fifth Avenue south of Kirkham Street, south across Kirkham Street from the UCSF Parnassus Heights campus core. The Kirkham Heights buildings are at elevations of between about 400 feet and 510 feet above sea level (asl). By way of comparison, the elevation at the intersection of Fourth Avenue and Kirkham Street (southwestern entrance to the campus, and the terminus of the project's proposed Fourth Avenue extension) is approximately 415 feet asl. The upper roof of the existing Dental Clinics Building is at an elevation of approximately 430 feet asl, while the roof of the existing Koret Vision Research building is at approximately 480 feet in elevation asl. The roof of the UCSF Kirkham Childcare Center is at an elevation of about 425 feet asl.

All three of the buildings mentioned above are assumed to be demolished as part of the proposed CPHP. (Demolition of the Koret Vision Center was previously approved under the 2014 LRDP.) New CPHP buildings along the Fourth Avenue extension north of Kirkham Street could range from approximately 45 feet to 120 feet in height. New buildings along the north side of Kirkham Street at the Fourth Avenue Extension under the CPHP, closest to the Kirkham Heights apartments would be approximately 80 to 120 feet tall, or about two to three times as tall as the existing childcare center.

The Kirkham Heights apartment buildings are variously oriented, with some generally east-west (with primarily northerly views), some north-south (with primarily westerly views), and some northeast-southwest (with primarily northwesterly views). Observers in the lower-elevation, generally north- and northwest-facing Kirkham Heights apartment buildings (1530, 1535, 1540, 1545, and 1550 Fifth Avenue) would experience some degree of blockage of views to the north by proposed buildings on the Fourth Avenue extension. Generally, the lower the elevation, the greater the view blockage, although it is also the case that existing vegetation partially obscures some northerly and northwesterly views from lower elevations.

Long-range views from the three Kirkham Heights buildings at the highest elevations would not be substantially affected by the proposed 80-foot-tall building at Fourth Avenue extension and Kirkham Street, as observers would be able to see over the top of this building. However, the proposed 120-foot-tall buildings and the 130-foot-tall RAB would partially obscure views to the north-northwest from 1585 Kirkham Street, which faces generally northward. Other Kirkham Heights buildings, such as on 1570 and 1580 Fifth Avenue generally face westward, and therefore would be less affected.

I-HofmannP-4 The commenter includes certain descriptive information from the Project Description in the Draft EIR (square footages and building heights), but incorrectly cites page 11 from the Project Description as the source, and appears to combine certain development square footages. In any case, these comments do not address the adequacy of the Draft EIR. Consequently, no response is required.

I-HofmannP-5 The commenter presents the sensitive receptors discussion from page 4.8-2 of the Draft EIR, and then requests Kirkham Heights Apartments be included in the analysis of off-campus residences. The Draft EIR already acknowledges that off-campus residences that abut the west border of the campus site are sensitive receptors – this would include those apartments cited in this comment. A similar discussion of sensitive receptors is included in the Draft EIR Section 4.2 Air Quality, page 4.2-12, and in Section 4.12, Noise and Vibration, page 4.11-7. Please see other responses that follow.

I-HofmannP-6 The comment makes an assertion about traffic operations within the vicinity of the campus site, excerpts a portion of the Draft EIR (page 4.11-27) discussing the potential effect of the proposed service corridor effect on noise to nearby residences, and comments on the geographic extents of the greenhouse gas emissions analysis found in Section 4.7. It then makes several requests to expand the temporal and geographic scope of the noise and vibration and greenhouse gas emissions analysis in the EIR; specifically, to include existing truck traffic and diesel emissions Kirkham Street and Fourth Avenue from 4–9 AM and projected truck traffic on Kirkham Street at Fourth Avenue and Koret Way from 4–9 AM and at Kirkham and Seventh Avenue and Parnassus Avenue and Fourth Avenue, all following the opening of the proposed service corridor.

The effect of the service corridor was assessed as part of full implementation of the CPHP. With respect to truck traffic, it was considered that the service corridor would extend from roughly Medical Center Way to Koret Way (and the new extension of Fourth Avenue in the future), and would provide access for freight and utility vehicles to transport goods and materials for back-of house purposes. The service corridor would alter the existing path of truck traffic. This alteration of truck routes – including to routes that could cause truck traffic to pass through intersections at the times requested in the comment – was

considered as part of the transportation analysis; specifically, in the development of peak hour traffic volumes (as included in the Appendix TRANS) that were used as inputs to the noise and vibration and greenhouse gas emissions analysis. Existing truck traffic at the location that is currently Kirkham Street and Koret Way, but which would be intersected by the extension of Fourth Avenue as part of the CPHP was included as part of this process.

The analysis found in these sections follows past accepted practices, is thorough, and is appropriate for a program-level EIR. Please note, however, that when the proposed service corridor project is advanced in terms of design, it would be subject to additional environmental review, including for transportation and noise, as needed.

The commenter also makes a comment about existing congestion on Seventh Avenue and that the CPHP, specifically service trucks would further congest Kirkham Street and Seventh Avenue. As discussed in Master Response 19, a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA. Therefore, transportation impacts based on congestion and vehicular delay are appropriately not analyzed in the Draft EIR.

The assessment of operational air quality impacts of the CPHP, including the service corridor, is performed at a programmatic level, as stated in page 4.2-23 of the Draft EIR. Specific detail regarding the path of the eastern extent of the service corridor is not yet available; and as such, a quantitative assessment of the portion of the corridor is not feasible at this time. However, page 4.2-60 of the Draft EIR identifies CPHP Mitigation Measure AIR-4b: Design for Diesel Delivery Truck Emissions Minimization provides for UCSF to incorporate health risk reduction measures into the project design and construction contracts (as applicable) in order to reduce the potential health risk due to exposure to toxic air contaminant emissions from diesel trucks.

I-HofmannP-7 This comment asserts that the Parnassus Avenue Streetscape plan would cause vehicular congestion on Parnassus Avenue that would delay ambulances and impair emergency access, especially during rush hours. Refer to Master Response 21 for a response to this comment.

I-HofmannP-8 This comment requests construction noise analysis for construction dewatering pumps. Please note the commenter appears to incorrectly reference the Hazards and Hazardous Materials section of the Draft EIR (Section 4.8), instead of Noise and Vibration section of the Draft EIR (Section 4.11).

Construction noise is addressed on pages 4.11-16 through 4.11-26 of the Draft EIR, and the impact is identified as a significant and unavoidable impact. A programmatic analysis of construction noise was provided for full development of the CPHP on Draft EIR pages 4.11-16 through 4.11-19 and a project level

analysis was provided for the initial phase projects, including the New Hospital on pages 4.11-19 through 4.11-26 of the Draft EIR.

As stated on page 4.11-14 of the Draft EIR, the FTA methodology for general assessment of construction noise entails a process for calculating the hourly dBA, Leq for each stage of construction considering (1) the reference noise emission level at 50 feet for equipment to be used for each stage of construction, (2) the usage factor for each piece of equipment, and (3) the distance between construction centerline and receptors. This methodology entails determining the resultant noise levels for the two noisiest pieces of equipment expected to be used in each stage of construction. Off-road equipment is much noisier than submersible dewatering pumps raised in the comment. Accordingly, the Draft EIR analyzed noise from equipment types that generate the highest noise levels and represent a worst-case analysis. The Draft EIR determined that construction activities would result in temporary but significant noise impacts. The Draft EIR identified feasible mitigation, including implementation of construction noise control measures (CPHP Mitigation Measure NOI-1a), restrictions on construction hours (CPHP Mitigation Measure NOI-1b), and pile-installation noise-reducing techniques (CPHP Mitigation Measure NOI-1c). CPHP Mitigation Measure NOI-1a includes a measure for stationary noise sources, such as dewatering pumps, to be located as far from adjacent receptors as possible, and be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures to mitigate noise from such equipment. However, please note that while implementation of CPHP Mitigation Measures NOI-1a through NOI-1-c would reduce the severity of construction noise and reduce potential annoyance and others from this noise, the noise impact from peak construction activities would still be considered significant and unavoidable.

I-HofmannP-9 This comment requests an analysis of the landslide risk associated with excavation of the new service corridor, and associated dust and particulate matter released during such a potential landslide.

The commenter first references an excerpt from the Draft EIR Chapter 3, Project Description page 3-38 that describes that construction of the New Hospital and widening of Medical Center Way would require tree removal, excavation and regrading of a portion of the hillside, and reshoring of the hillside around the perimeter of the New Hospital footprint. The commenter asserts that there is no such concern in the Draft EIR for the proposed service corridor along the hillside between Medical Center Way, Koret Way and Fourth Avenue. The commenter indicates the excavation of Mount Sutro is known to have hazards, and references an excerpt of existing campus site geology on page 4.6-2 in Section 4.6, Geology and Soils of the Draft EIR (apparently incorrectly referenced by the commenter as page 3.6-2), an excerpt of background discussion of toxic air contaminants on page 4.2-7 in Section 4.2 Air Quality of the Draft EIR.

The commenter is referred to Section 4.6, Geology and Soils environmental setting discussion of landslides and slope stability at the campus site, which described the results of 2006 and 2019 site-specific slope stability risk assessments conducted by UCSF's geotechnical consultant, Rutherford & Chekene. The assessments reported that there is evidence of small movements in some cut slopes, especially steep vegetated slopes; and water and trees are the primary agents of observed small movements where root growth tends to open and widen existing cracks in near surface bedrock materials. The Draft EIR also illustrated (Figure 4.6-2, page 4.6-6) the location of previously determined landslide scarps and rockfalls at the campus site, including on the slopes in the vicinity of the proposed service corridor, and other locations.

Impact GEO-3 (page 4.6-20 to 4.6-22) reported that while there continues to be no evidence of a deep seated landslide hazard at the campus site, smaller slope stability hazards could still result in a potentially significant impact. Accordingly, CPHP Mitigation Measure GEO-3 included measures recommended by UCSF's geotechnical consultant. This included a measure for cutting selected trees on the slopes or on the crest of slopes in which tree root wedging decreased slope stability; and leaving stumps such that the root system can rot in situ with minimal disturbance to the surface geology. The Draft EIR concluded that with implementation of CPHP Mitigation Measure GEO-3, the potential impact associated with these landslide hazards would be reduced to a less than significant level.

Impact GEO-3 also acknowledged that slope stability hazards could also be caused by the excavation and grading activities for building construction that would occur under the CPHP, and noted areas of the campus site where notable excavation was proposed, including for the new service corridor. Impact GEO-3 reported that all development that would include excavation and grading would be required to prepare appropriate site specific design-level geotechnical evaluations prior to final design and commencement of construction. Impact GEO-3 also specified that the final design-level geotechnical evaluation would include any necessary recommendations; and, if applicable, the final design-level geotechnical report would be required to adhere to CGS SP 117A. Impact GEO-3 concluded that implementation of appropriate site specific design-level geotechnical evaluations would improve slope stability at the campus site, and reduce the potential landslide hazards to a less than significant level.

As slope instability, including landslides, would be avoided by the implementation of CPHP Mitigation Measure GEO-3, dust and particulate matter would not be released to the environment as a result of landslides or other types of slope instability.

From:	Richard Rothman
To:	Campus Planning - EIR
Subject:	UCSF Comprehensive Parnassus Heights Plan
Date:	Friday, September 11, 2020 7:24:32 AM

Hello,
I would like to say something here about the murals in Tolland Hall. I think this report does not comprehend fully the problems of the murals in Toland Hall. 1

1) I was always told that the murals would stay in place and that's a new building with built around till win home I do not see why this cannot be done. If you see really wanted to see these murals they could leave them in place. 2

2)I'm concerned about moving of the murals is very dangerous to move the murals there's no guarantee that this will be successful. And why not wait till they find a suitable location on campus to move the murals to if they need to be moved. 3

3) Why is not the University taking out an insurance policy and have them murals appraised? 4

4) These murals show the history of medicine and have great historical value. 5

5)There is nothing written in this report about the oyster point warehouse in the conditions in which the murals will be stored. 6

6) Once the murals are in storage what guarantee do we have that they will be displayed again in a timely manner? 7

Best,
Richard Rothman
415 350-7629

Responses to Comments from Richard Rothman

I-Rothman-1 The commenter states the Draft EIR does not fully comprehend the issues associated with removal of the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Rothman-2 This comment suggests that the murals should remain in situ. Please refer to Master Response 11: Toland Hall Murals.

I-Rothman-3 This comment expresses concern over transporting the murals and suggests UCSF should wait to move the murals until a suitable location on campus is identified. Please refer to Master Response 11: Toland Hall Murals.

I-Rothman-4 This comment suggests that the UCSF should have an appraisal and insurance policy for the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Rothman-5 This comment notes that the murals show the history of medicine and that they have historical value. Please refer to Master Response 11: Toland Hall Murals.

I-Rothman-6 This comment states the Draft EIR does not adequately describe the conditions in which the murals will be stored at the Oyster Point Warehouse. Please refer to Master Response 11: Toland Hall Murals.

I-Rothman-7 The commenter requests that the murals be displayed again in a timely manner. Please refer to Master Response 11: Toland Hall Murals.

From: Joshua Klipp Campus
To: Planning - EIR
Subject: EIR Objection: Tree Felling @ Parnassus Heights
Date: Friday, September 11, 2020 10:47:29 AM

To Whom It Concerns,

I respectfully and strenuously object to the proposed tree felling as part of the Parnassus Heights Plan/EIR. At a time when the sky is choked and orange with the ash of millions of burnt trees, the air is so full of particulate matter that it is not safe for humans to breathe, and people are leaving San Francisco in droves, now is not the time to cut down a single healthy tree in the name of development, period.

San Francisco already has the lowest percentage of urban canopy of any major city in the United States. Now we are staring down the barrel of a major public health crisis, exacerbated by the crushing existential tidal wave slowly bearing down that is climate change. On top of this the City continues to lose trees at record rates, and, post COVID, has even less funding to replace them.

This path is unsustainable, and it is especially egregious when this is done in the name of public health. I know this plan has been in the works for many many years, but please do not plow forward because it is now too far along to consider anything different. We can always change our plans, if we have the will to do so. I respectfully ask you to reconsider this tremendous loss of canopy, at a time our world - and our City - literally cannot afford it. 1

Thank you, Josh Klipp

--
Josh Klipp, Esq.
Certified Access Specialist with the California Division of the State Architect (CASp-812)
Accessibility for Built and Virtual Environments. made-welcome.com

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Responses to Comments from Joshua Klipp

I-Klipp-1 The commenter objects to tree loss that would occur under the CPHP. This is not a comment on the adequacy of the EIR. The comment has been noted and will be forwarded to decision-makers. Please also note that all potential environmental impacts associated with tree loss that would occur at the campus site under the CPHP are addressed and mitigated to the extent feasible. As discussed in Draft EIR Impact BIO-3 on page 4.3-22 to 4.3-23, pursuant to the University of California's constitutional autonomy, on university-controlled property used in furtherance of the University's educational mission, UCSF is not subject to local policies protecting biological resources. However, UCSF will avoid removal of trees that would be considered significant or protected to the maximum extent feasible. Any trees within the public right-of-way that may be removed during the course of off-site construction under the CPHP would conform to the City ordinance governing tree protection. Thus, this impact would be less than significant. Please note UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP, including the New Hospital, when detailed designs become available.

From:	Jeff Cole
To:	Campus Planning - EIR
Cc:	Wong, Lily (University Relations)
Subject:	Comments on Draft EIR for Comprehensive Parnassus Heights Plan
Date:	Friday, September 11, 2020 10:54:47 AM

To whom it may concern:

My name is Jeff Cole and I live with my wife at 277 Edgewood Avenue, a home we have owned since 1989. I have the following comments on the draft EIR:

1. **The Reserve Size and Boundaries:** Our home is on the West side of Edgewood Avenue. Our back yard adjoins a small forest on UCSF's property, between the Woods and Surge parking lots. The draft EIR asserts that, in attempted mitigation of the fact that the proposed new hospital would be built across Medical Center Way and would involve excavation of what is now a forested hillside at the North end of Edgewood Avenue, new forest lands would be added elsewhere on UCSF's property so that the overall size of the "Reserve" would not be reduced. However, no new forest land is identified in the draft EIR. Moreover, Figure 3-21 at page 3-41 purports to illustrate the area behind our home as being changed from "Support" to "Open Space Reserve." This is misleading, and certainly does not represent any additional forest area, as the area is already a forest. The draft EIR should be revised to be clear about this, and UCSF should adhere to its pledge not to reduce the size of the Reserve. The hillside forest at the North end of Edgewood Avenue should be preserved. The proposed new hospital should not be allowed to cross Medical Center Way. 1

2. **Construction Noise:** Section 4.11 of the draft EIR addresses noise, including construction noise, and admits that it will be significant. The draft EIR proposes that, to mitigate the significant adverse impacts of construction noise, consistent with the San Francisco noise ordinance, construction hours be limited as specified on page 4.11-19. The draft EIR represents that noise levels will be measured at the Parnassus and Irving construction locations. However, it is equally important, and perhaps more important, that noise levels also be measured at construction staging areas, and that "construction hours" within which construction noise may occur also be restricted at those staging areas. For example, the Surge parking lot is identified as a "possible" staging area. Without further detail, it is impossible to assess what UCSF might have in mind for that location, but it must be noted that homes on the West side of Edgewood Avenue are adjacent to that parking lot, and bedrooms of residents are very near to the property boundary, within a very short distance of the pavement. It is of critical importance that noise from vehicles, particularly trucks and heavy equipment, not be allowed to occur at that Surge lot location outside of the designated construction hours. Moreover, noise levels should be regularly monitored from that location at regular intervals throughout the construction period, not just from Parnassus or Irving streets. To that end, Figure 4.11-1 shows certain "Noise Monitoring Locations" including one designated "ST-5" that appears to be approximately where our home is located, near the 2

Surge lot. UCSF has already done some noise monitoring at this location for purposes of measuring "existing noise." It is essential that monitoring from this location occur throughout the construction period. 2 cont.

3. **New Roadway Behind Existing Hospitals:** The draft EIR provides little detail about a proposed new roadway that has been mentioned as possibly running between Medical Center Way and 4th Avenue. Any such roadway would have environmental significance, yet that has not been studied or evaluated. Before the project as a whole can be properly evaluated, much more detail is needed about any such new roadway, and its impact on the Reserve. 3

4. **Alternatives Not Really Considered or Evaluated:** Because the proposed new hospital would have significant adverse environmental impacts, UCSF is required to demonstrate that they have considered alternatives to the proposal. While admitting that adverse environmental impacts would be significantly reduced if UCSF reduced the size of the Parnassus project to remain within its longstanding Space Cap commitment, and also admitting that additional space could be constructed at the Mount Zion location, the draft EIR asserts that such an alternative was "considered but dismissed," and concludes that operating at 3 sites would be "less than ideal and inefficient." There is no support for this conclusion, and it needs to be reconsidered in light of the Covid-19 pandemic and all it has changed about how medical services can be rendered in a viable financial model. It is apparent that UCSF executives conceived the proposed plan for an enormous tower at the Parnassus location long before anyone had even heard about Covid-19. It is also probable that, during the last 6 months, UCSF has studied the extent to which a centralized location may be deterring paying patients from scheduling lucrative non-emergency procedures. Having operations at 3 locations, far from being "less than ideal," may actually provide UCSF with a more viable financial model as Covid (or other contagious) patients could be isolated at one location, leaving the other for other patients who would not need to fear being put at risk of contagion. This needs to be fully evaluated before UCSF can be credited with having considered alternatives. 4

5. **Traffic and Transit Impacts:** Although the draft EIR acknowledges that the proposed project would have significant impacts on traffic and transit in the neighborhoods near the Parnassus campus and beyond, its representations that those impacts could be adequately mitigated are purely aspirational and unsupported by professional traffic studies or other support. These adverse impacts are potentially devastating for the neighborhoods and the City of San Francisco as a whole. The draft EIR should be deemed inadequate and insufficient based on the current lack of support for its conclusory assertions about mitigation of adverse traffic and transit impacts. 5

6. **Space Cap:** Finally, I join with other neighborhood groups and individuals who have objected to the proposed project exceeding the Space Cap that has been a commitment of UCSF over many decades. The size and scale of the proposed project are simply not appropriate for a 6

residential neighborhood, and the adverse environmental effects cannot be adequately mitigated.

6 cont.

Very truly yours,

Jeff Cole

Responses to Comments from Jeff Cole

I-Cole-1 The commenter objects to the replacement of lost acreage in the Reserve, and indicates that no new forest land is identified in the Draft EIR. The area of the forest adjacent to the Surge Parking lot illustrated in Figure 3-21 is currently designated as a "Support" zone in UCSF's existing functional zone map, and under the CPHP would be designated as an "Open Space Reserve" zone. Accordingly, the CPHP would provide permanent open space reserve protection that is not currently provided for this area.

The commenter indicates the forest at the north end of Edgewood should be preserved, and that the New Hospital should not be allowed to cross Medical Center Way. These comments do not address the adequacy of the Draft EIR. However, the comments are noted and will be forwarded to decision-makers.

I-Cole-2 This commenter is concerned that noise from vehicles, trucks, and heavy equipment should not be allowed to occur at the Surge lot staging area outside of the designated construction hours and that noise levels should be monitored at that location at regular intervals throughout the construction period.

With respect to the impact from construction noise, this topic is addressed on pages 4.11-16 through 4.11-26 of the Draft EIR and the impact is identified as a significant and unavoidable impact. As stated in Section 4.11 Noise and Vibration on page 4.11-24 of the Draft EIR, the Surge parking lot is located as close as 20 feet from the nearest off-site receptors (on Edgewood Avenue) and would likely be used for staging for the Aldea Housing Densification project and the New Hospital. CPHP Mitigation Measure NOI-1b: Construction Hours is identified on page 4.11-19 of the Draft EIR to restrict the hours of construction to the degree feasible. Material deliveries and equipment start-ups at the staging area would fall within the "not noisy work" category within this mitigation measure and would be restricted to the applicable construction hours. Additionally, CPHP Mitigation Measure NOI- 1a: Construction Noise Control Measures identified on page 4.11-18 of the Draft EIR would require shielding of the staging area where adjacent sensitive receptors have direct line-of-sight of loading and delivery activities. As shown in Table 4.11-5 on page 4.11-17 of the Draft EIR, all construction equipment would operate within the quantitative standards of the City of San Francisco noise ordinance. Therefore, construction noise monitoring was not included as an element of CPHP Mitigation Measure NOI-1a: Construction Noise Control Measures.

I-Cole-3 The commenter asserts that the draft EIR provides little detail about the service corridor that would extend between Medical Center Way and 4th Avenue and that it has not been adequately studied and should be further evaluated.

Available details of the proposed service corridor are described on pages 3-29 to 3-30 of the Draft EIR, including its purpose, conceptual alignment, and which

utilities would be extended within the corridor. The service corridor would provide access for freight and utility vehicles to transport goods and materials for back-of house purposes. Regardless, all potential impacts of this improvement adequately are addressed and mitigated to the extent feasible as its alignment and design have not been finalized. Please note, however, that when the proposed service corridor project is advanced in terms of design, it would be evaluated to determine what, if any, additional environmental would be needed, prior to approval

I-Cole-4 The commenter requests discussion of additional alternatives. Please see Master Response 5: EIR Alternatives. Please also see Master Response 3: COVID-19.

I-Cole-5 The comment asserts that the Draft EIR finds that the CPHP would have significant impacts on traffic and transit and that mitigation measures would be insufficient to address those adverse impacts. This is incorrect, as the Draft EIR does not find that the CPHP would have any significant impacts on transportation or transit. Refer to Master Response 19 and Master Response 20 for a discussion of why the project's effects on automobile delay or transit do not constitute a significant environmental impact. Because the Draft EIR does not find that the CPHP would have significant environmental impacts on traffic or transit, mitigation is not required. As such, the Draft EIR's assessment of transportation effects of the CPHP is both accurate and adequate under CEQA.

I-Cole-6 The commenter objects to the proposed CPHP exceeding the Space Ceiling. Please refer to Master Response 4: Space Ceiling and Population.

September 11, 2020

Save Zakheim "History of Medicine in California" murals at UCSF!

EIR – State Clearinghouse Number 2020010175)

Dear Chancellor Hawgood and UC Regents;

The destruction of the Zakheim "History of Medicine in California" murals in Toland Hall is not unavoidable, as stated in the DEIR. I demand the CPHP EIR include new project alternatives that more appropriately protect, conserve and restore all of the murals, and provide for a specific public display of them – either by retaining the Toland Hall auditorium and incorporating it into the new Research and Academics Building planned on the same building footprint as UC Hall – or by identifying the specific location on the UCSF Parnassus Heights campus at which the murals will be reinstalled, and how they will be made accessible and interpreted to the public. 1

Briefly, after participating in the RFP Zoom meeting, reviewing comments and letters from the GSA and the Zakheim Family "90 Day" demand Letter, etc. I am writing to register concerns with UCSF's questionable positions dealing with the Zakheim murals in Toland Hall: e.g., 2

- **UCSF abdicating your Art stewardship to protect priceless New Deal/WPA Art**
-
- **No reports or studies to verify that leaving Toland Hall and Zakheim murals could be "safely" left in place during the projected excavation of UC Hall and the new seismic compliant construction of a new campus.** 3

- **At present, there is no architect assigned and/or approved master campus plan that**
- **could possibly Include - somewhere on the new campus plan – identifying the permanent (re)instalment of the Toland Hall/Zakheim murals.** 4

- **No proactive plan to move, preserve, curate, atmospheric controlled storage and/or having a permanent reinstalment plan and designated location for "Public Access"** 5

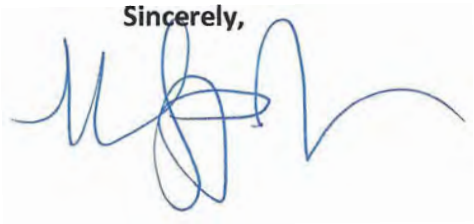
- **Possible California Environmental Quality Act (CEQA) law violations making any significant decisions prior to following all CEQA protocol procedures** 6

Both the Zakheim "90 Day Dead Line" Demand letter and the incremental RFP process must be suspended to ensure that a positive and proactive long term master plan is created first; and, that UCSF follows all the CEQA law/protocols to ensure that the Zakheim Murals are preserved, protected, safely moved (if necessary), curated and safely stored (if necessary). 7

Most importantly, a permanent location must be identified and secured first for reinstalment for "Public Access" before UC Hall is demolished and replaced. 8

In the same year we have a female African-Asian American running as a vice presidential candidate, UCSF is considering permanently removing New Deal/WPA murals, one of which is of a renowned historical African American female. Bernard Zakheim's priceless murals deserve better respect and treatment. 9

Sincerely,



Lope Yap, Jr.

30 Waterbury Lane
Novato, CA 94949-8239
lyjr44@riseup.net
415 755-5271

Responses to Comments from Lope Yap

I-Yap-1 The commenter states that the alternatives in the Draft EIR are inadequate and new alternatives to preserve the murals should be developed. The commenter requests that alternatives should be developed that incorporate the murals into the new Research and Academic Building or by relocating the murals to a publicly accessible location on the campus site. Please refer to Master Response 11: Toland Hall Murals.

I-Yap-2 This comment states UCSF is abdicating its responsibility to protect the Toland Hall Murals. Please refer to Master Response 11: Toland Hall Murals.

I-Yap-3 The commenter states UCSF has not adequately studied an alternative that leaves the murals in place. Please refer to Master Response 11: Toland Hall Murals.

I-Yap-4 This comment indicates there is no plan to identify a permanent on-campus location for the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Yap-5 This comment states there is no relocation plan provided for public access to the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Yap-6 This comment states the Draft EIR has possibly violated the requirements of CEQA. Please refer to Master Response 11: Toland Hall Murals.

I-Yap-7 This comment requests that a plan for mural preservation be developed that preserves and protects the murals. Please refer to Master Response 11: Toland Hall Murals.

I-Yap-8 This comment states that a permanent location must be identified to preserve public access to the murals prior to demolition of UC Hall. Please refer to Master Response 11: Toland Hall Murals.

I-Yap-9 This comment notes that UCSF has decided to pursue removal of the Toland Hall Murals at the same time as the first female Asian- and African-American is running for vice president of the United States. This comment does not address the adequacy of the Draft EIR; no response is necessary.

From:	Neal DeSnoo
To:	Campus Planning - EIR
Cc:	ajw1271@gmail.com; gwestermark@scu.edu; Katie Wolf; kimberly.hauschild@gmail.com; molly mcdonald peets; Seth Peets; Stephen Wolf
Subject:	UCSF DEIR Comments
Date:	Friday, September 11, 2020 12:15:10 PM
Attachments:	Comments_UCSF_neighbors.pdf

Please accept the attached comments from neighbors of UCSF.

Thank you for your consideration.

September 11, 2020

Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Via email: EIR@ucsf.edu

Dear Ms. Wong:

Thank you for the opportunity to review the draft EIR for the Parnassus Heights Development Plan.

While we appreciate the need for height to increase density and hospital capacity, we are concerned about the impacts of shadows in the adjacent neighborhoods. We respectfully request that the final EIR address this issue and consider mitigation, perhaps in the form of **increased massing at lower levels and/or achieving a more efficient floor plan.**

We were surprised that there is no reference to the impacts of shadows on the adjacent neighborhoods. The impacts of shadows in the DEIR are limited to public parks. While the City of San Francisco does not require consideration of shading impacts other than with respect to parks, it would be irresponsible not to consider them given the scale of the development. (It should be noted that San Francisco does require consideration of shading impacts to community gardens[1] and the DEIR does not appear to have considered the impact to the garden at Arguello and Lincoln.) 1

Sunlight provides numerous benefits that accrue to society in general, particularly with respect to energy, including: passive heating (there are no energy-related cooling benefits from shading in this area); daylighting; and solar plus storage -- all of which are essential to the City's and State's policy goal of transitioning away from natural gas. 2

As noted in the DEIR, Golden Gate Park will be impacted by shadow until 9 AM during the winter solstice. While this may seem insignificant, the nearest section of the Park Kezar Triangle, is approximately 700 feet from the new hospital. The impacts in the adjacent neighborhoods will be larger and should be understood before approving the plan. For a perspective, it appears that the shadow at dawn on the winter solstice will extend to the infields of Big Rec at 7th Avenue (see illustration). While that shadow will quickly shorten, it illustrates that the impact to the more immediate neighborhoods is not insignificant and needs to be better understood. 3

In addition to the shadows, we also wish to point out that this sixteen-story building, set on a hill, is not only out of character with the neighborhood but will in fact be far larger than anything on this side of the City. 4

[1] July 2014 Planning Department Memo from Schuett and Guy

In terms of mitigation, we recommend considering means of reducing the height of the hospital without reducing its capacity. One approach would be to increase the bed density. Moffit/Long has one bed for every 1,588 sf of floor space. Long itself has one bed per 1,134 sf. The proposed hospital would have one bed for every 1,961 sf. That is 23% more space per bed than Moffit/Long and 73% more space per bed than Long itself.

Another approach would be to increase the massing of the lower floors and reduce the number of floors. This might be done by filling in some of the space between the wings of the new hospital.

While the specifics above relate to the new hospital, the same issues should be explored with the other buildings, most notably the Irving Street Arrival complex. 5

Thank you for your consideration.

Sincerely,

Neal De Snoo
1260 2nd Avenue
San Francisco, CA 94122

Molly and Seth Peets
1258 2nd Avenue
San Francisco, CA 94122

Katie Wolf
1272 2nd Avenue
San Francisco, CA 94122

Kerry Yates
1272 2nd Avenue
San Francisco, CA 94122

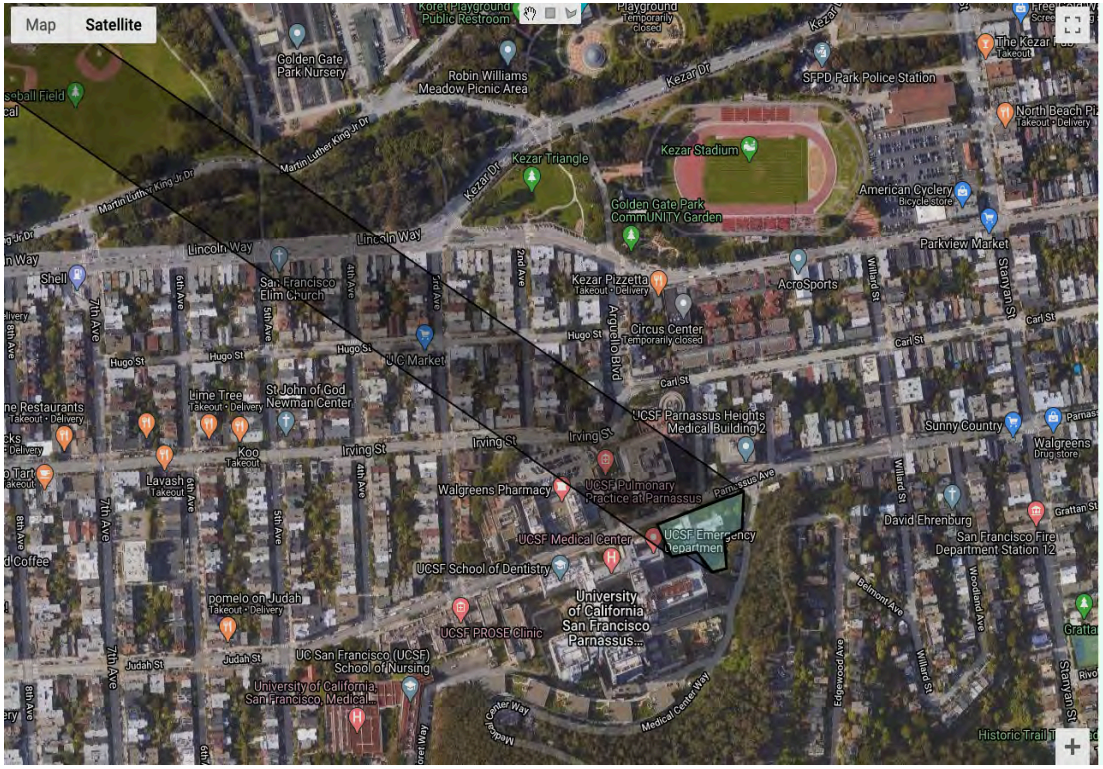
Nicole Narlock
25 Hugo St.
San Francisco, CA 94122

Shalea Karaban
25 Hugo St
San Francisco, CA 94122

Margo McGrath and Stephen Wolf
45 Hugo St
San Francisco, CA 94122

Allan Westermark
1271 2nd Ave
San Francisco, CA 94122

Kimberly Hauschild & George Westermark
1269 2nd Ave
San Francisco, CA 94122



Modeled using http://shadowcalculator.eu/ based on static street elevations at Parnassus (397') and 2nd and Hugo (295').

Responses to Comments from Neal DeSnoo, et al.

I-DeSnoo-1 The comment states that the Draft EIR does not adequately analyze shadow on neighborhoods surrounding the UCSF campus. Please refer to Master Response 9: Shadow Impacts.

I-DeSnoo-2 and I-DeSnoo-3: The commenter discusses the benefits of sunlight, and indicates that sunlight is essential to the City's and State's policy goal of transitioning away from natural gas. The comment further states that the Draft EIR does not adequately analyze shadow on neighborhoods surrounding the UCSF campus.

Please refer to Master Response 9: Shadow Impacts.

I-DeSnoo-4 The comment states that the proposed New Hospital would be out of character with its neighborhood and larger than any other building on the west side of San Francisco. Please refer to Master Response 7: Aesthetic Impacts.

I-DeSnoo-5 The comment states that the Draft EIR should include mitigation for shadow and aesthetic impacts, such as reducing the height or altering the massing of the proposed New Hospital. Please refer to Master Response 7: Aesthetic Impacts.

The commenter suggests that as a way to reduce the height of the New Hospital without reducing its capacity, that 1) the bed density in the New Hospital could be increased; or 2) the massing and/or number of the lower floors could be reduced.

Please refer to Draft EIR Section 3.5, Project Needs, and Section 3.6, Project Objectives, which describe the need and objectives for providing a New Hospital at the size it is proposed at. The proposed New Hospital requires sufficient space to accommodate modern regulatory requirements and industry standards of contemporary hospitals, such as construction codes, sizes of operating rooms, ratio of operating rooms to pre-and post-recovery areas, and space for privacy and infection control issues. The proposed New Hospital also requires sufficient space to accommodate modern technology, including telemedicine, robotics, and new diagnostic, imaging, testing, treatment, surgery and laboratory equipment, all requiring substantial infrastructure and space. In addition, the New Hospital requires sufficient space to accommodate patient satisfaction requirements of contemporary hospitals, such as private patient rooms of sufficient size. Given these reasons, the suggestions from the commenter about reducing the size of the New Hospital are not considered feasible.

From: Elaine Cater
To: Campus Planning - EIR
Subject: Removal ofZakheim murals
Date: Friday, September 11, 2020 12:28:06 PM

Dear Chancellor Hawgood and U.C. Regents

I, Elaine Bibel Cater, am the daughter of Leon Bibel, an artist who worked with Bernard Zakheim on the History of Medicine murals. I now live in England and have only just today been alerted to the threat currently posed to these famous pieces of art. I am shocked that UCSF is actively considering any procedures, major or minor, that would result in either the demolition or damage to the murals. They represent a great moment in the history of public art in California and should be cherished as an eminent part of the state's fantastic heritage—indeed with a wider significance for the United States as a whole. It would be an act of terrible vandalism to destroy or damage them. I write to demand that these murals be preserved intact and safe for public access in the future. If they must be moved, let it be under the close supervision of conservation experts and let them be integrated into a suitable building, where they can be viewed by countless appreciative viewers long into the future. As the daughter of one of the artists who assisted Zakheim on the painting of the murals I have a personal interest in their preservation. but I feel sure that there is a much wider public interest in the paintings than may have been appreciated by the authors of UCSF's current plan. Please, please heed this call.
Elaine Bibel Cater

1

Responses to Comments from Elaine Cater

I-Cater-1 This comment notes that the murals represent a great moment in the history of public art in California and demands that the murals be preserved for future public access. The comment also states that the relocation of the murals should be supervised by preservation experts and integrated into a suitable building providing public access. Please refer to Master Response 11: Toland Hall Murals.

Robert C. Goodman
317 Parnassus Avenue
San Francisco, CA 94117

September 11, 2020

Via Email Only (EIR@ucsf.edu)

Ms. Diane Wong
UCSF Real Estate – Campus Planning
654 Minnesota Street
San Francisco, California 94143 – 0286

Re: UCSF Comprehensive Parnassus Heights Plan

Dear Ms. Wong:

I am submitting these comments on the draft Environmental Impact Report dated July 2020 ("DEIR") concerning the UCSF Comprehensive Parnassus Heights Plan ("CPHP"). The CPHP contemplates a massive expansion of UCSF's Parnassus Heights campus, adding 2.04 million gross square feet of buildings – roughly the combined size of the Sales Force Tower and the Transamerica Building – in the middle of a residential neighborhood. Further, UCSF seeks approval to increase the footprint of the campus far beyond the permanent restrictions on campus growth that the Regents agreed to in 1976. 1 2

The Regents should reject the CPHP because it breaches the Regents' 1976 agreement to permanently restrict the size of the Parnassus Heights campus. The Regents should also reject the DEIR because it fails to comply with the requirements of the California Environmental Quality Act ("CEQA"). 3

I first moved to Cole Valley in 1983, and have lived in the 300 block of Parnassus since 1995. Soon after moving to Cole Valley I learned of the long standing and successful efforts of people in this neighborhood to preserve and maintain its unique character. This included stopping the "Panhandle Freeway,"[1] and resolving litigation with UCSF in the 1970s that resulted in agreements to limit UCSF's further intrusion into and impacts on neighboring residential areas. 4

[1] UCSF was apparently on the wrong side of history then, too, supporting the proposed Panhandle Freeway. *See* "The Panhandle Freeway and the Revolt that Saved the Park," *San Francisco Hoodline*, March 29, 2015(https://hoodline.com/2015/03/panhandle-freeway-revolt)

Among the commitments that the Regents made in 1976 to residents of this area, and the people of San Francisco generally, were that the Regents would permanently maintain open space on Mount Sutro, the Regents would require UCSF to respect specified boundaries of the Parnassus Heights campus, and the Regents would permanently limit nonresidential space on the UCSF campus to no greater than 3.55 million gross square feet ("gsf"). Specifically, the Regents made the following commitment:

> The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets) ***and this limit shall be permanent***.

1976 Regents' Resolution (emphasis added). The Regents reaffirmed these commitments a mere four years ago, when they approved the 2014 UCSF Long-Range Development Plan ("2014 LRDP").

5

UCSF has been less than candid with the public, and the Regents, regarding its plans to undermine this permanent space restriction. At the February 11, 2019, meeting of the Regents' Health Services Committee, Chancellor Hawgood represented that modifications to the permanent space limitation "would depend on the terms that UCSF could negotiate with the community and the City."[2] But UCSF never "negotiated" with the community. Rather it unilaterally decided to ask that the Regents breach the 1976 agreement, recasting the permanent space limitation as a "guideline" in a memorandum to the Members of the Finance and Capital Strategies Committee in July 2020.[3] And the DEIR fails to disclose that the 1976 Regents' Resolution provided that 3.55 million gsf limitation on structures within the campus "shall be permanent." (DEIR at 3-43, 3-44)

6

While it is clear that UCSF wants to pick up where it left off in 1976, and radically expand the footprint of the Parnassus Heights campus, the CPHP ignores the clear language of the 1976 Regents' Resolution, which is that the limitation on UCSF's space is "permanent." It does not say, as UCSF plainly wishes it did, that the space limitation applied only until UCSF found it inconvenient, or wished to expand.

The CPHP thus represents an incredible breach of trust. While at the national level we have become accustomed to government officials ignoring legal obligations and breaking norms, it is not something that we expect from the Regents. The CPHP asks the Regents to breach commitments that the Regents made in 1976 to settle a lawsuit, that they

[2] (Minutes of the Health Services Committee, February 11, 2019, p. 25 https://regents.universityofcalifornia.edu/minutes/2019/hs2.pdf.
[3] https://regents.universityofcalifornia.edu/regmeet/july20/f4.pdf

have used to justify UCSF's expansion in other parts of the City, and that those of us who live near the campus have relied on for decades. For that reason alone, the Regents should reject the CPHP, decline to certify the DEIR, and require the leadership of UCSF to develop a plan that is consistent with the prior commitments that the Regents have made. Beyond that, and as described in greater detail below, the DEIR fails to satisfy the requirements of CEQA and the Regents should refuse to certify it for that independent reason. 6 cont.

The CPHP contemplates a massive extension of the UCSF Parnassus Heights campus adding 2 million gsf of buildings to the existing 3,955,200 gsf, expanding the daily population of students, faculty and staff, patients and visitors by more than 6,800, and unleashing nearly 30 years of virtually unending construction on the residential neighborhood that surrounds the campus.

The DEIR contemplates construction of a "New Hospital" that will be 16 stories tall and up to 294 feet tall – more than double the height of the privately owned medical office building across the street, and immediately adjacent to, and across the street from, single-family homes. (DEIR at 3–21, 3-26) The proposed New Hospital would occupy 955,000 gsf, more than triple what was evaluated in the 2014 LRDP, and approved by the Regents. (DEIR at 3-25) Yet the DEIR impermissibly defers many mitigation measures relating to the New Hospital. 7

Aesthetics, Wind and Shadows.

The DEIR claims that Public Resources Code Section 21099(d) exempts UCSF from analyzing aesthetic and parking impacts. (DEIR at 4.0-3). But the Parnassus Heights campus does not meet the statutory definition of a "residential, mixed-use residential, or employment center project," and this statutory provision is inapplicable. Thus, the DEIR's failure to consider aesthetics and the adequacy of parking in determining the significance of impacts of the project is legally defective. 8

The DEIR recognizes that the proposed New Hospital "would contrast sharply both in height and scale with the existing residential development to the east, which is limited to 40 feet in height.…In addition, the proposed New Hospital would be a prominent newly visible feature in the viewsheds from nearby neighborhoods [.]" (DEIR at 4.1-35) The degree to which the New Hospital is out of scale with current development, and impacts public views is demonstrated in Figures 4.1-12 through 4.1-18 of the DEIR. 9

The New Hospital would obliterate public views of Sutro Tower from Kezar Triangle at Lincoln Way and Arguello Boulevard.

Existing

Proposed

SOURCE: Prevision Design, 2019 — UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-14
Viewpoint 6: Visual Simulation of the Parnassus Heights Campus Site with CPHP Development from Lincoln Way and Arguello Boulevard, Looking South

9 cont.

The New Hospital is wholly out of character with the surrounding neighborhood. The New Hospital would create a looming presence in what is currently a low rise residential area, bringing a bit of Houston (a city without zoning and where high rises are routinely built next to single family homes) to San Francisco.

Existing | Proposed

SOURCE: Prevision Design, 2019 | UCSF Comprehensive Parnassus Heights Plan

Figure 4.1-16
Viewpoint 8: Visual Simulation of the Proposed CPHP New Hospital from Parnassus Avenue and Willard Street, Looking West

9 cont.

The DEIR concedes that these significant aesthetic impacts are inconsistent with objectives of the 2014 LRDP, particularly sub-objective 1B (to be guided by local zoning and height and bulk limitations), and sub-objective 1C (to design new buildings to be "sensitive to the surrounding neighborhood and landscape, taking into account use, scale, potential noise generation, and density.") (DEIR 4.1-30 to 4.1-31) But rather than design a project that is consistent with the LRDP objectives, the DEIR proposes to exempt the New Hospital from these objectives. And because of its incorrect reliance on Public Resources Code Section 21099, the DEIR does not evaluate the significance of these aesthetic impacts, and concludes that no mitigation is required. (DEIR at 4.1-41)

The DEIR acknowledges that the Project will have significant wind impacts, generating winds "in excess of the 11-mph pedestrian comfort criterion." (DEIR at 4.1-46) But the DEIR does not analyze an appropriate range of mitigation measures, deferring

10

mitigation and promising that the new building will be designed to "minimize wind impacts at pedestrian level," without any meaningful discussion of what this means. 10 cont.

The DEIR concedes that the CPHP will cast shadows on Golden Gate Park, Richard Gamble Memorial Park, Grattan Playground, Independent High School and Grattan Elementary School. (DEIR at 4.1-51) But the DEIR inexplicably concludes that these shadow impacts are "less than significant" based on the conclusory statement that the shadows would occur "during the time of day when usage is expected to be lowest," and thus does not "substantially and adversely [affect] the use and enjoyment of publicly accessible open spaces." (DEIR at 4.1-74) But the DEIR offers no empirical evidence to support this conclusory statement. As someone who has lived near and used Golden Gate Park for several decades I have personal knowledge that the areas of the Park that will be subject to the project's shadows. These areas are routinely used by numerous people during the periods when they will be in shadow and the shadows cast over these areas of the Park will substantially and adversely affect the use and enjoyment of this important public space. 11

Cultural Resources.

UCSF proposes to destroy the historically and culturally significant murals painted by Bernard Zakheim in UC Hall, recognizing that this is a significant impact of the Project. (DEIR at 4.4-13 to 4.4-16) But the DEIR concludes that this significant impact is unavoidable, and that it "has determined that it will not attempt to remove the Zakheim murals." *Id*. But the DEIR does not offer any factual support for this conclusory statement. 12

Hazardous Materials.

The DEIR states that the Parnassus Heights campus currently utilizes a wide range of hazardous and toxic materials, including cancer-causing radionuclides. (DEIR at 4.8-5) The DEIR provides no information on the specific hazardous materials currently stored at the Parnassus Heights campus, where they are stored, how they are transported to the campus and how they are disposed of. The DEIR also states that the campus currently stores 150,000 gallons of diesel fuel in underground storage tanks that "do not meet current code requirements." (*Id.*) 13

The DEIR fails to disclose whether the CPHP will result in an increase in usage of such materials, an increase in the transportation of such materials to the campus and where these materials will be stored and used. Nonetheless, the DEIR concludes that – because the "new and expanded facilities would continue to adhere to existing regulatory requirements and UCSF policies"— the use of these unknown quantities of undisclosed hazardous materials at undisclosed locations will not (1) create a significant hazard to the public through the routine transport, use or disposal and (2) will not create a significant

hazard to the public or the environment to reasonably foreseeable upset and accident conditions. (DEIR at 4.8-14, 4.8-19) There is no support for these assertions.

The DEIR should disclose the hazardous materials that are currently used at the Parnassus Heights campus, how these materials are transported to the campus, where they are stored, how they are used and how are they are disposed of. The DEIR should further disclose and analyze what changes are reasonably expected as a result of the massive increase in the size of the Parnassus Heights campus. It is only with this information that the public, and the Regents, can understand whether the use of hazardous materials will present a significant impact on the environment. 13 cont.

Land Use and Planning.

The discussion of "Consistency with UC Plans and Policies" is particularly illogical. The DEIR recognizes that the CPHP – which proposes to increase the square footage of nonresidential space at the Parnassus Heights campus by nearly 2 million gsf – is inconsistent with the 1976 Regents' Resolution. But the DEIR claims that the project is nonetheless "consistent" with this permanent limitation on growth because the Project involves breaching this 1976 commitment. The DEIR fails to analyze the legality of breaching the 1976 commitment by the Regents that the space limitation would be "permanent." Rather, the DEIR reasons that no mitigation is required for this major change, based on the tautology that the project will be consistent with the new policy that the CPHP seeks to implement. 14

The DEIR also concedes that the New Hospital is wholly inconsistent with applicable San Francisco zoning requirements. While the DEIR claims that UCSF "strives to adhere to City zoning codes to the extent possible," the fact that it is unashamedly ignoring those zoning codes belies the statement. 15

Noise and Vibration.

While recognizing that emergency vehicle sirens "can produce short-term noise up to 106 dB," the DEIR fails to disclose and analyze the degree to which the Project will increase ambulance traffic, sirens and associated noise. (DEIR at 4.11-28) The DEIR dismisses these impacts with the conclusory (and unsupported) assertion that "normal practice is for ambulance drivers to turn off their sirens within a few blocks of the hospital emergency access." (*Id.*)[4] 16

[4] As a neighbor of UCSF I have personal knowledge that ambulances routinely do not turn off their sirens "within a few blocks" of the hospital, and that San Francisco Fire Department vehicles never do.

In discussing increased noise from ambulances as well as patient drop-off events, the DEIR states – again with no citation to evidence – that "the New Hospital ***would be assumed*** to only marginally increase the potential frequency of emergency vehicle visits." (*Id*.)(emphasis added) But the DEIR fails to explain how the much larger New Hospital will result in only "marginally" more emergency vehicle visits, and also fails to discuss what the baseline noise impacts of existing emergency vehicle visits are. At a minimum the DEIR should provide information the current average daily, weekly and monthly number of ambulance trips and San Francisco Fire Department calls to UCSF over the past 3 years, and make a reasonable estimate as to the likely increase after completion of CPHP.

16 cont.

Given this lack of any reasoned discussion, analysis or evidence there is no basis for the DEIR's finding that "the operational impact of additional ambulance activities at the campus site associated with the New Hospital would be less than significant." (DEIR at 4.11-28)

Population and Housing.

The CPHP will result in an additional 5,180 students, faculty and staff at the Parnassus Heights campus by 2050, and the CPHP will generate an additional 3,420 jobs in the Bay Area. (DEIR at 4.12-7, 5-7) Yet the CPHP proposes to add a mere 762 new housing units by 2050, which the DEIR concedes will be insufficient to meet the demand that the CPHP will create. (DEIR at 4.12-9, 5-5) There is no analysis of where these new students, faculty and staff will reside. Will it be in San Francisco, which already has a housing crisis? Or will it be somewhere else? The DEIR does not offer any analysis or disclosure. Further, the DEIR claims that fully 16% of faculty, staff and students currently "walk or run" to the Parnassus Heights campus. (DEIR at 4.15-32) Given the post-Covid world it can be reasonably predicted that more people who work at the Parnassus Heights campus will chose to live near it to avoid public transportation, leading to displacement of existing residents.

17

In its discussion of displacement, the DEIR focuses solely on those who live in the Aldea Housing complex, stating that only forty-two households will be "temporarily displaced" and then concluding that implementation of the CPHP will not "displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere." (DEIR at 4.12-11) The DEIR should look more broadly at the Project's impact on housing, both near to the Parnassus Heights campus as well as more broadly. Without that analysis, is no basis for the DEIR's finding that impacts on housing and population will be less than significant.

18

Transportation.

The DEIR estimates that daily and peak hour vehicle trips will increase by 95% and 75% respectively as a result of the CPHP (DEIR at 4.15-35), and that "loading"

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demand will increase by 240%. (DEIR at 4.15-35). The (unattributed) "Transportation Appendix concludes that

> [t]he CPHP would result in more vehicles at the campus site throughout the day, traveling more slowly, as described in the "Existing Plus CPHP Conditions" and "Local Traffic Operations – Daytime Period" sections above. To the degree to which the CPHP is unable to accommodate vehicle trips in off-street parking and/or passenger loading facilities as described in the "Approach to Analysis" section of the Transportation Section, vehicle queues – or people circling for parking (on-street or in garages) – may periodically:
>
> - Result in transit delay on Parnassus Avenue (6 Haight/Parnassus, 43 Masonic) and Irving Street (N Judah)
> - Reduce accessibility by blocking multimodal transportation facilities, such as crosswalks, bicycle lanes, and/or transit stops

TRANS-14. These impacts are inconsistent with the 2014 LRDP's "community planning principles" to "minimize congestion" and to "take into account transportation impacts on … the neighborhood[.]" (DEIR 5.15-26). These impacts are also inconsistent with San Francisco's "Transit First" policy by negatively affecting transit. However, the DEIR makes no attempt to mitigate these expected impacts, concluding that no mitigation is needed. Further, the DEIR fails to analyze and disclose the impacts of this increased traffic on air quality, safety of pedestrians, and on public transportation that serves the Parnassus Heights campus.

19 cont.

The DEIR concludes that traffic impacts are less than significant based on its conclusions regarding "vehicle miles traveled" ("VMT") per person. But the DEIR acknowledges that due to Covid, if "transit ridership decreases over the long-term, as compared to a 2019 baseline, with more people choosing to drive or be driven, this could result in additional VMT then projected as part of the study." (DEIR at 4.15-33) The DEIR should have evaluated the degree to which these changes would affect the VMT, particularly in regard to construction that is to take place in the nearer term.

20

The discussion of transit routes that serve the Parnassus Heights campus acknowledges likely service limitations resulting from the Covid pandemic, and likely budgetary shortfalls resulting from it, but fails to discuss how that will affect the DEIR's transportation assumptions. (DEIR at 4.15-8 to 4.15-8) The DEIR assumes that there will be a 50% increase in faculty, staff, students, patients, visitors and residents of the Parnassus Heights campus upon buildout of the project. This will result in a 55% increase in daily trips. But these conclusions are drawn from a survey performed in 2017 and 2018 that is not included as part of the DEIR. In particular, there is no discussion or analysis of whether the

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survey continues to be valid, and whether its results (particularly conclusions about use of carpool, public transit, and "drive alone") are applicable in light of the Covid pandemic. While UCSF proposes to bring a significant number of people to the Parnassus Heights campus, both during construction of the CPHP as well as after development, the DEIR proposes no mitigation measures that will meaningfully reduce the impacts. 21 cont.

The transportation analysis refers to a 16 page "Transportation Appendix," that considers only seventeen intersections, inexplicably not analyzing impacts of the CPHP on the following intersections, that were analyzed in conjunction with the much smaller buildout contemplated in the 2014 LRDP: 22

- Lincoln Way/Ninth Avenue
- Lincoln Way-Kezar Way/Third Avenue
- Frederick Street/Stanyan Street
- Irving Street/Ninth Avenue
- Irving Street/Seventh Avenue
- Judah Street/Ninth Avenue
- Judah Street/Sixth Avenue
- Parnassus Avenue/Stanyan Street
- Kirkham Street/Sixth Avenue

Understanding the traffic impacts at these intersections is critical to the analysis, disclosure and mitigation of the impacts that the dramatic increase in traffic will have on localized air quality and public safety at, and in the vicinity, of these intersections. Accordingly, there is no basis for the DEIR's conclusion that the CPHP will have no significant impacts on transportation.

Alternatives.

The DEIR considered only four alternatives: a no project (or implementation of the project envisioned six years ago in the 2014 LRDP), a so-called "reduced project," a project with a nineteen story hospital, and an alternative with a "phased option" New 23

Hospital. These constricted and overly narrow range of alternatives fail to satisfy CEQA's requirement that a reasonable range of alternatives be considered.[5]

The DEIR considered and dismissed two off-site alternative –Mission Bay and Mt. Zion. (DEIR at 6-54 to 6.57) UCSF currently operates three hospitals at Mission Bay, and has for decades claimed will be the focus of its integrated approach to research and medical care. UCSF also owns the Mt. Zion site, which occupies an entire city block and is only 2.5 miles from the Parnassus Heights campus. But these alternatives were rejected early in the process, largely because they did not meet the objective of consolidating a huge amount of space and people on the Parnassus Heights campus. But this reflects a defect in the narrow project objective – which were tailored in such a way to require a project at the Parnassus Heights campus. The overly restrictive project objectives are contrary to CEQA, and undermine the validity of the alternatives analysis. 23 cont.

Another reasonable and feasible off site alternative that should have been considered was construction of the New Hospital (and other facilities) at the shipyard at Hunters Point. There is clearly space available in that location, and it would have the added benefit of providing a medical center in an underserved community and in close proximity via public transportation to the UCSF Mission Bay campus. 24

[5] This failure to comply with CEQA's requirement to evaluate a full range of alternatives appears to be a consistent practice when UCSF attempts to expand into a neighborhood. *See e.g., Laurel Heights Improvement Association v. Regents of University of California*, 47 Cal.3d 376, 403 ("UCSF's treatment of alternatives was cursory at best.") In that case, when UCSF sought to dramatically expand into a another residential neighborhood in San Francisco, the California Supreme Court took UCSF to task for not including any "discussion of the possibility of purchasing or leasing other facilities, including ones not located in a high-density city residential area such as Laurel Heights." *Id.* at 404

The Regents' commitment in 1976 to permanently limit UCSF's growth has resulted in more than 40 years of relative harmony between UCSF and its neighbors. UCSF's short sighted attempt to ignore this agreement will damage that relationship and likely lead to years of litigation. For the reasons discussed above – and for reasons that will certainly be identified by others commenting on the DEIR – the Regents should reject UCSF's attempt to abrogate the commitments that the Regents made in 1976 and decline to certify this DEIR. 25

Thank you.

Very truly yours,

ROBERT C. GOODMAN

RCG:nca

Responses to Comments from Robert C. Goodman

I-Goodman-1 The commenter refers to the net new increase in development proposed under the CPHP, and indicates UCSF seeks approval to increase the footprint of the campus beyond the permanent restrictions on campus growth that the Regents agreed to in 1976.

Stated differently, Draft EIR Chapter 3, Project Description on page 3-39 indicates the LRDP amendment would increase the future buildout space program at Parnassus Heights from the currently approved 3.61 million gsf (excluding housing) in horizon year 2035 to approximately 5.05 million gsf (excluding housing) in horizon year 2050, a net increase of approximately 1.44 million gsf. When compared to the existing (2019) space developed at the campus site (approximately 3.68 million gsf, excluding housing), the proposed LRDP amendment would result in a net increase in the space program by approximately 1.37 million gsf (excluding housing) by 2050 (approximately 74 percent of which would occur in the Initial Phase).

I-Goodman-2 The commenter asserts that the Regents should reject the CPHP because it breaches the Regents' 1976 agreement to permanently restrict the size of the Parnassus Heights campus. Please refer to Master Response 4: Space Ceiling and Population.

I-Goodman-3 The commenter asserts that the Regents should reject the Draft EIR because it fails to comply with the requirements of the California Environmental Quality Act. Please refer to Master Response 4: Space Ceiling and Population; and individual responses that follow.

I-Goodman-4 The commenter discusses past projects the commenter has been involved in. These comments do no specifically address the adequacy of the Draft EIR. Consequently, no response is required.

I-Goodman-5 The commenter refers to the requirements of the 1976 Regents' Resolution regarding the space ceiling. Please refer to Master Response 4: Space Ceiling and Population.

I-Goodman-6 The commenter expresses a number of opinions regarding the1976 Regents' Resolution. Please refer to Master Response 4: Space Ceiling and Population.

I-Goodman-7 The commenter notes the proposed increase in development and population that would occur under the CPHP, and indicates that the CPHP would result in nearly 30 years of virtually unending construction. The Draft EIR discloses all potential construction- and operational-related environmental effects associated with the CPHP, and identifies mitigation measures to reduce construction-related effects to the extent feasible.

The commenter also notes the proposed height and size of the proposed New Hospital, and asserts that the Draft EIR impermissibly defers many mitigation measures related to the New Hospital. As discussed in the Draft EIR Chapter 1, Introduction on page 1-7, a program EIR has been prepared for the CPHP that establishes a framework for tiered or project-program components. Accordingly, the Draft EIR provides a program-level analysis of the environmental impacts that could result from the development of the entire space program under the CPHP, including from the New Hospital, and identifies Plan-level mitigation measures to reduce potential significant effects of the CPHP. Further details of the New Hospital are being developed, including the specific design. Those elements of the New Hospital will be the subject of a subsequent project-specific environmental review when more details become available. It is anticipated that sufficient detail will be available to publish a project-level Draft EIR for the New Hospital in the summer of 2021.

With respect to a similar commenter assertion regarding of deferral of mitigation as it relates to the topic of wind, please see Response I-Goodman-10, below.

I-Goodman-8 The commenter asserts that the CPHP does not meet the definition in Section 21099 of being a residential, mixed-use residential, or employment center project. Please see Master Response 6: Public Resources Code 21099.

I-Goodman-9 The commenter asserts that the New Hospital would eliminate public views of Sutro Tower from Kezar Triangle; is out of character with the surrounding neighborhood; and the Draft EIR proposes to exempt the New Hospital from 2014 LRDP sub-objectives 1B and 1C. Please refer to Master Response 7: Aesthetic Impacts. The commenter also claims the Draft EIR incorrectly relies on Public Resources Code 21099. Please see Master Response 6: Public Resources Code 21099.

I-Goodman-10 The comment states that the Draft EIR's mitigation measure for wind impacts does not adequately explain how the measure would reduce pedestrian wind impacts. Please refer to Master Response 8: Wind Impacts.

I-Goodman-11 The comment states that the Draft EIR's shadow analysis fails to properly account for the uses of park areas that would be shaded. Please refer to Master Response 9: Shadow Impacts.

I-Goodman-12 The commenter asserts the Draft EIR does not offer adequate support for the conclusion that relocation of the murals is significant and unavoidable. Please refer to Master Response 11: Toland Hall Murals.

I-Goodman-13 The commenter asserts that the Draft EIR provides no information on the specific hazardous materials currently stored at the Parnassus Heights campus site. The Draft EIR Table 4.8-1 presents a list of representative hazardous materials stored and used at the campus site, including radionuclides (radioisotopes), as the

commenter notes. The Draft EIR also presents an extensive description of regulatory requirements and programs governing the storage, transport and use of hazardous materials at the campus site, including for radioactive materials. As indicated on Draft EIR page 4.8-10, the Radiologic Health Branch (RHB) of the California Department of Health Services (CDHS) administers the state's Radiation Control Law, which governs the storage, use, transportation, and disposal radioactive materials, including at the campus site. State regulations concerning radioactive substances are included in 17 CCR, which specify appropriate use and disposal methods for radioactive substances, as well as worker safety precautions and worker health monitoring programs.

The commenter indicates that the campus stores 150,000 gallons of diesel fuel in underground storage tanks that do not meet current code requirements. The Draft EIR notes on page 4.8-17 that the 2014 LRDP authorized the replacement of these diesel tanks with new code-compliant tanks prior to the end of 2025. As such, under the CPHP, the continued storage and use of diesel fuel at the campus site would be carried out in compliance with all applicable State regulations to ensure any potential exposure risks would remain less than significant.

The commenter asserts that the Draft EIR fails to disclose whether the CPHP will result in an increase in the usage of the aforementioned materials. However, in Impact HAZ-1, page 4.18-16, the Draft EIR discloses that the use of hazardous materials would be expanded as part of operation of the new or expanded facilities under the proposed CPHP; it is possible this could include increases in radioactive materials and/or diesel fuel. However, given the programmatic nature of the CPHP, the specific increase in use of hazardous materials that may occur at the campus site under CPHP are not known at this time. Regardless, the Draft EIR demonstrates that compliance with applicable hazardous storage and transportation regulations, and continuation of the programs and controls currently in place to manage hazardous materials, as mandated by State and federal laws, would minimize the hazards to workers, the public, and the environment. Therefore, implementation of the CPHP would result in a less than significant impact related to the use and disposal of hazardous materials and wastes.

I-Goodman-14 The commenter mischaracterizes that the Draft EIR claims the project is consistent with the 1976 Regents' Resolution because the project involves breaching this 1976 commitment. Please refer to Master Response 13: Land Use Impacts; and Master Response 4: Space Ceiling and Population.

I-Goodman-15 The commenter claims that the Draft EIR concedes that the New Hospital is wholly inconsistent with applicable zoning requirements. Please see Master Response 13: Land Use Impacts.

I-Goodman-16 This comment states that the Draft EIR fails to disclose and analyze the degree to which the CPHP will increase ambulance traffic, sirens and associated noise. The commenter acknowledges that the Draft EIR contains a qualitative discussion addressing this topic, but refutes the Draft EIR's statement that normal practice for ambulance drivers is to turn off their sirens within a few blocks of the hospital emergency access. Additionally, the commenter feels that the analysis of the Draft EIR should provide information on the current average number of ambulance trips and San Francisco Fire Department calls to UCSF and make a reasonable estimate as to the likely increase after completion of the CPHP.

The operational noise analysis of the CPHP Draft EIR was appropriately assessed at a programmatic level for development under the full CPHP on Draft EIR pages 4.11-26 through 4.11-28, and at a project-level of analysis for the Irving Street Arrival, RAB, and initial phase Aldea Housing Densification on Draft EIR pages 4.11-29 through 4.11-30. Noise from ambulance operations associated with operation of the New Hospital were addressed as a program-level analysis. However, the level of detail is not available at this time for the New Hospital to make a reasonable estimate of the increases in hospital emergency operations and associated potential increase in ambulance activity in the CPHP EIR. The project-level operational impacts of the New Hospital will be analyzed in a separate hospital-specific EIR that is forthcoming. Accordingly, the CPHP Draft EIR contained only a qualitative analysis of noise from emergency vehicle visitations. This quantitative analysis is supported by the text on page 4.11-28 of the Draft EIR which states that, given that existing campus operations already involve ambulance drop-offs, and that the New Hospital would be assumed to only marginally increase the potential frequency of emergency vehicle visits, the operational impact of additional ambulance activities at the campus site associated with the New Hospital would be less than significant.

I-Goodman-17 The commenter states that the CPHP will increase employees and students at the Parnassus Heights campus site but will not provide enough housing to meet the demand that will be created and that there is no analysis of where these employees and students will reside. The commenter further asserts that the new employees and students would likely live near the campus site.

Please refer to Master Response 14: Population and Housing Impacts, regarding the scope of population and housing impact analysis under CEQA, and the manner in which population and housing impacts are fully analyzed in the Draft EIR. Potential displacement of existing neighboring residents through gentrification is a socio-economic issue outside the purview of CEQA. Please see Master Response 15: Indirect Displacement and Gentrification Impacts.

I-Goodman-18 The commenter states that the Draft EIR focuses only on the displacement impacts of the Aldea Housing Densification and does not analyze broader displacement effects.

The Draft EIR analyzes the potential displacement impacts of the CPHP consistent with Appendix G of the CEQA Guidelines that recommends that the CEQA document analyze whether implementation of a proposed project would "displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere." As the Aldea Housing Densification project would demolish existing housing and displace the residents of those buildings, the impact is analyzed in the Draft EIR. With regard to broader, indirect displacement impacts, please see Master Response 15: Indirect Displacement and Gentrification Impacts.

I-Goodman-19 The comment asserts that the project's effects on transit and accessibility conflict with plans or policies addressing the circulation system – specifically, the UCSF Long Range Development Plan (LRDP) and the City of San Francisco's Transit First policy. Discussion of the project's consistency with UC plans and policies and relevant local plans and policies is included in the Draft EIR (see Impact TRANS-1 in Section 4.15.3, on Draft EIR pages 4.15-43 through 4.15-47).

With respect to the LRDP, the comment refers to two specific Community Planning Goals. These community planning goals represent "what UCSF will strive for," (UCSF LRDP, Appendix D, p. 158) and are generally not binding policies. The text of the goals specifically indicates a commitment to:

- T1: Coordinate with relevant agencies to minimize congestion and provide viable transportation alternatives to single-occupancy vehicles; and
- T5: Take into account transportation impacts at both the neighborhood and citywide levels in planning for UCSF facilities.

The CPHP follows Goal T1 by including ongoing implementation of UCSF's existing Transportation Demand Management program, which serves to reduce the amount of vehicular traffic that would otherwise be associated with the CPHP. This program has been shown to substantially reduce drive alone trips relative to other employers in San Francisco. The CPHP follows Goal T5 through the preparation of the Draft EIR itself, which discloses potential transportation impacts, allowing for UCSF to determine how to take those impacts into account for future planning purposes.

The City's Transit First policy does not contain specific language related to how individual projects may affect Muni operations. Instead, it calls for planning efforts that make public transit an "attractive alternative to travel by private automobile." By restricting the CPHP's parking supply, and continuing the existing TDM program, the CPHP actively seeks to make public transit an attractive alternative, and as such is in compliance with the Transit First policy. Therefore, the CPHP does not conflict with either of the plans and policies included in the comment, and would not have a significant impact on that basis.

Additionally, the comment asserts that the Draft EIR fails to adequately analyze the impacts of traffic on air quality, pedestrian safety, and public transit. The effect of CPHP-related traffic on air quality is analyzed in Impact AIR-2 in the Draft EIR. Master Response 19 discusses the effects of increased vehicular traffic on the transportation system and Master Response 20 discusses the effect of the project on transit.

I-Goodman-20 The comment asserts that the VMT analysis in the Draft EIR is inadequate as it does not account for the effect of the COVID-19 pandemic on travel behavior, for both CPHP-related operational travel and for construction-related travel. The effects of COVID-19, as relevant in both the near-term and through project buildout, are addressed in Master Response 3: COVID-19. Construction impacts are discussed in Impact TRANS-5 in the Draft EIR.

I-Goodman-21 The comment asserts that the Draft EIR does not adequately assess the funding effects of COVID-19 on public transit. Refer to Master Response 20 for discussion of why Muni operational issues are not a CEQA concern, and therefore analysis of these effects is not required in the EIR, and Master Response 3: COVID-19 for a discussion of the effects of COVID-19.

The comment also asserts that the use of UCSF historical travel surveys is inadequate because they are not included in the Draft EIR and because they were conducted prior to the onset of the COVID-19 pandemic. Please refer to Master Response 17 for a discussion of surveys and methods used in mode share assignments and Master Response 3: COVID-19 for a discussion of COVID-19.

The comment states that the Draft EIR does not adequately address the impacts of the effects of population increase or construction on the transportation system. Regarding the effects of population increase, please see Master Response 19. The Draft EIR does find that construction impacts would be potentially significant. The Draft EIR includes three mitigation measures to reduce the impacts of construction: construction contractor(s) shall be required to prepare a traffic control plan, the construction control plan will be required to include methods to encourage construction workers to walk, bicycle, carpool, or use transit to access the campus, and UCSF shall provide Project construction updates for adjacent residents and businesses. These mitigation measures are discussed in Impact TRANS-5 on Draft EIR pages 4.15-49 to 4.15-51.

I-Goodman-22 The comment asserts that the transportation analysis is inadequate because it does not analyze traffic impacts on intersections beyond those included in the Transportation Appendix. As discussed in Master Response 19, a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA. As such, the potential constrained capacity at and around the campus site is not a CEQA concern and transportation impacts based on congestion and vehicular delay are appropriately not analyzed in the Draft EIR. Master Response

19 further discusses the secondary effects of increased vehicular travel, including concerns regarding public safety and localized air quality effects.

The comment also states that the analysis in the Draft EIR is inadequate due to not including a larger study area, in particular the intersections listed in the comment. The intersection operations analysis included in the Draft EIR Appendix was done so voluntarily and for informational purposes. UCSF decided on the scope of the analysis to focus on locations nearest the campus site as those intersections are where CPHP-generated traffic are most concentrated and where change in operations are mostly likely to occur.

I-Goodman-23 The commenter requests that the EIR address off-site alternatives at Mission Bay and Mount Zion. Please see Master Response 5: EIR Alternatives.

I-Goodman-24 The commenter requests that the EIR address an off-site alternative at Hunters Point. Please see Master Response 5: EIR Alternatives.

I-Goodman-25 The commenter expresses opinions about implications of ignoring the 1976 Regents' Resolution, and that the Regents should reject UCSF's attempt to do away with the commitments made in 1976 and decline to certify the EIR. This comment does not address the adequacy of the Draft EIR; however, the comment has been noted and will be forwarded to decision-makers.

UCSF Real Estate
att: Diane Wong
654 Minnesota Street
San Francisco, CA
94143-0286

September 11, 2020

cc: The Board of Regents of the University of California, Mayor London Breed, Supervisor Dean Preston

RE Comments on the Environmental Impact Report of the Comprehensive Parnassus Heights Plan

Greetings:

I thank you for allowing me to comment on the Draft Environmental Impact Report for UCSF's Comprehensive Parnassus Heights Plan.

I was a post-doctoral scholar at UCSF on the Parnassus campus from 1979 to 1982. I am also a neighbor of the UCSF Parnassus campus. I have received medical care over the years at the Parnassus campus. I know this campus well.

I submit my comments with full enthusiasm and concern for the continued vibrancy of medical science and medical care by UCSF. I share this enthusiasm with most of the neighbors, who are most proud to live near UCSF.

Unfortunately I am deeply disappointed with the EIR because it ignores the dominating reality—the Covid epidemic. In fact, nowhere in the EIR is the word 'contagious.'

With pandemics, large multifaceted medical centers should be modified. They do not promote good health. Small separate centers of specialities appear to be the future of medical research and practice of medicine.

How should the EIR have evaluated Covid changes and, with Covid in mind, the future of medicine?

1

In the introduction, the EIR acknowledges that Covid-19 "will likely [cause] operational changes." In the section on transportation, changes due to Covid-19 are also discussed in the section on public transportation. There is, however, no discussion or data about how public transit trips have shifted to private vehicle trips in the world with Covid (or any other widely spread infectious disease such as H1N1, MERS or ebola). In the other sections of the EIR occasionally there is mention of 'operational changes,' but these are never described and no data are provided. 1 cont.

As examples, Here are a few 'operational changes' that are necessary that the EIR should have included:

Changes in access design: no more stairways and hallways that are enclosed and lack adequate fresh air.

Changes in ventilation system in all areas, including hospital rooms and research laboratories. The operational changes for Covid are likely to be smaller rooms with opening windows that can bring in fresh outside air. 2

Changes in research lab design: no more large, open lab spaces.

Changes in research office and staff office design.

Big changes in the who and why and how the public receives medical care.

In the last 6 months, UCSF has seen dramatic changes in their patient population, the reasons for patient visits, and the manner in which patients receive care, with many visits being virtual and not in person. I find it shocking that this new direction of medical care is not reflected in the EIR.

Perhaps the biggest change for medicine in the Covid world is that large is not better, that Covid indicates, for instance, that a separate campus for infectious diseases is better, similar to the tuberculosis centers of a century ago. 3

Surgeries—essential and elective surgeries—are preferably done at separate, specialized medical centers, very separate from cases of Covid. Other examples, a

UCSF center for organ transplants and a UCSF center for joint replacement, and so on and so forth.

Medical educational facilities have likewise changed dramatically with telecommunications and tele-education and have different operational designs.

Nowhere in the EIR is there a discussion as to whether BIG is ***better***. There is no discussion of the environmental effects of size. That small, single dedicated spaces have fewer risks of incidental, highly contagious infections. That different medical and research disciplines have differing environmental impacts—for instance, that chemistry fume hoods have different environmental hazards than bio lab fume hoods. And so on.

3 cont.

With very few exceptions this EIR pretends there is no reason to consider that future environmental effects will be different from those of the past. The present pandemic has required extensive changes at UCSF and at the Parnassus Heights campus. This EIR ignores the new Covid world. It is based on pre-Covid, pre-pandemic data, and these data are not contemporary any more.

So the question we must ask—Is the EIR operationally adequate for the next 30 years?

Another problem with the EIR concerns UC Hall, which is proposed for demolition. The only reason that the EIR gives to remove UC Hall is that a new large building for research is desired. And this proposed new building with large, interdisciplinary research labs is exactly wrong in a world where pandemics can take place.

There is no study of UC Hall itself—how its design while over 100 years old is perfect to minimize the spread of infections. The architect(s) of 1917 were very wise. 1917 was a time when tuberculosis was raging, and the pandemic of 1918 flu was just around the corner. The building has multiple, open-to-the-air (white marble) stairways, and multiple separate rooms, each with the potential for opening windows capable of bringing in fresh air without mechanical ventilation. Its basic design can accommodate research during a time of a pandemic or a rampant flu. There could be small separate spaces with one or two people per lab space.

4

Curiously the EIR does not discuss the reasons why UC Hall will be removed, and there is no discussion of the seismic state of UC Hall and the feasibility of bringing it to code. 5

One other omission—The EIR does not describe the demands with differing environmental impacts of the different programs at UCSF—the five programs being dentistry, medicine, nursing, pharmacy, and physical therapy. This topic just isn't there. 6

In summary the EIR is inadequate. It is based on a plan that does not provide for the current and future shape of medicine. It uses data that are out of synch with the present. UCSF needs to go back to the drawing board and take on the challenges of pandemics and the changes in the way medicine is **now** done. As a premier **public** medical institution, UCSF must do what is right and smart for the people of the State of California. 7

Sincerely,

Pinky Kushner, PhD

1362 6th Avenue
San Francisco CA. 94122
510 459-8289 mobile

Responses to Comments from Pinky Kushner

I-Kushner1-1 The commenter suggests that the EIR should evaluate changes due to Covid-19, pointing out that the EIR does not discuss how public transit has been affected. Please see Master Response 3: COVID-19.

I-Kushner1-2 The commenter suggests that the EIR should have discussed changes in access design, changes in ventilation system design, changes in lab design, and changes in office design due to the Covid-19 pandemic, as well as the changes in who, why, and how patients receive care. Please see Master Response 3: COVID-19.

I-Kushner1-3 The commenter suggests that essential and elective surgeries should be done at separate medical centers, and that "Covid indicates, for instance, that a separate campus for infectious diseases is better, similar to the tuberculosis centers of a century ago." Please see Master Response 3: COVID-19.

I-Kushner1-4 The commenter indicates that a "new building with large, interdisciplinary research labs" as proposed on the site of UC Hall is not appropriate given the Covid-19 pandemic and that UC Hall "can accommodated research during a time of pandemic or rampant flu." Please see Master Response 3: COVID-19.

I-Kushner1-5 The commenter suggests that UCSF should find an alternative site if it requires a new hospital as big as the one proposed, questioning UCSF's motivation, and indicating that "there are several suitable, if not superior, alternatives to accomplishing UCSF's objectives" that do not require such a large hospital building. The commenter asserts that the Draft EIR does not discuss the reasons why UC Hall would be removed.

UC Hall is over 100 years old, and is one of the oldest buildings at Parnassus Heights and is the oldest extant hospital building in the UC system. As discussed in the 2014 LRDP Final EIR, Chapter 3, Project Description, in 2012, UCSF updated the seismic evaluations of buildings, and identified UC Hall as one of the highest-priority buildings at the Parnassus Height campus site for either seismic retrofit, removal, or other appropriate action.

As discussed in the CPHP Draft EIR, Section 3.5, Project Needs, building codes for accessibility, fire and life safety, seismic performance, and other requirements have become more stringent. Older buildings such as UC Hall have low floor-to-floor heights and do not meet the current standards for contemporary specialized research needs. Modern research space requires larger open spaces that provide flexibility for new programs, space to connect to other research functions, larger floor-to-floor height to accommodate modern infrastructure, and the ability to foster programmatic research interactions in common or shared space. In short, the size and configuration of the UC Hall floor plates, low floor-to-ceiling heights, and infrastructure limitations render the adaptive reuse of UC Hall for contemporary research and academic use infeasible. The RAB, proposed at the

site of UC Hall, would provide new state-of-the-art, flexible research space to replace existing obsolete wet lab space and to satisfy existing demand.

I-Kushner1-6 The commenter asserts that the EIR does not describe the demands with differing environmental impacts of the different programs at UCSF—the five programs being dentistry, medicine, nursing, pharmacy, and physical therapy. The Draft EIR programmatically addresses all physical environmental impacts associated with implementation of the CPHP. This includes changes to the UCSF's five professional programs that would occur under the CPHP, including increases in population and space needs associated with these programs, and associated environmental effects (e.g., increases in traffic, utility demands, etc.).

I-Kushner1-7 The commenter makes assertions that the EIR is inadequate, because it is based on a plan that does not provide for the current and future shape of medicine; and uses data that are out of synch with the present. The commenter is referred to the responses above, which demonstrate that the claims raised by the commenter do not affect the analysis or change any conclusions reached in the Draft EIR.

Comment on CPHP Draft EIR
Attn: Diane Wong, UCSF Campus Planning
September 11, 2020

Waking up yesterday morning to apocalyptic dark orange skies in San Francisco from wildfire smoke, and an unprecedented streak of more than 25 continuous spare-the-air days, I am convinced that the potential environmental effects of a project the size, scope, and duration of the CPHP are more relevant and important than ever. With the Bay Area facing catastrophic climate change, I am grateful for CEQA and this process to ensure that UCSF is held accountable for prioritizing the health, safety, quality of life, and integrity of their community and the environment.

This draft EIR is massive in length but I have done my best to call attention to the many omissions and errors I found in the document. As a neighbor, pediatrician, parent, and UCSF alumna, I am deeply disappointed in UCSF's attempts to overlook the significant health and environmental impacts of the CPHP in order to have it shuttled through and certified by the UC Regents. 1

The CPHP is an aggressive, expensive, and deeply flawed plan. It will forever harm not only the immediate Parnassus Heights neighborhood, but also the entire west side of San Francisco and beyond. This is no normal project - the massive scale of the proposed New Hospital will alter the views and horizon line of Twin Peaks and Mt Sutro from almost every part of the city. I hope UCSF can be convinced of the absurdity of this plan and look more thoughtfully at the many other alternatives to move forward and modernize and improve the Parnassus campus.

Thank you for reading and addressing my comments.

THE SPACE CEILING - A TIMELINE

1976 REGENTS' RESOLUTION

"The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets) and this limit shall be permanent." (source: 1976 Regents' Resolution)

1982

"'The 1982 draft LRDP proposes a re-siting of already approved buildings in the 1976 plan without changing the total amount of space,' the Chancellor emphasized. 'It retains the commitments made by the campus and the UC Board of Regents in 1976 as to housing, parking and transportation, limitations to campus growth, and maintenance of 58 acres of Mt Sutro as a green belt.'" (1982 LRDP, Chancellor Julius R. Krevans) 2

1996

"This LRDP reaffirms the principles of the 1976 Regents' resolution which has limited development at the Parnassus Heights site. Recognizing constraints to future development at Parnassus Heights, the LRDP has been prepared, in part, to help UCSF

and The Regents to acquire and develop a major new campus site." (Joseph B. Martin, MD, Chancellor)

The 1996 LRDP promised to "respond to The Regents' space ceiling policy by carrying out demolition and new construction projects which reduce the overall space at the Parnassus Heights site, and by demonstrating good faith efforts to meet the space ceiling." (1996 LRDP)

2008

"With regard to the Parnassus Heights campus site options, space planning assumptions were made in order to address the space ceiling, a commitment by The Regents in 1976 that UCSF would not exceed 3.55 million gross square feet (gsf) of structures within the Parnassus Heights campus site boundaries." (2008 LRDP Amendment #2)

2014

"The space ceiling for the Parnassus Heights campus site is 3.55 million gross square feet. The space ceiling includes space in non-residential buildings within the boundary of the Parnassus Heights campus site." (Regents Resolution Regarding the Parnassus Heights Campus Site)

2 cont.

2019

Regarding the new hospital at the Helen Diller Medical Center at Parnassus Heights, the space ceiling was referenced obliquely by UCSF, saying that "complications" to the new hospital project "included the size of this facility and limits established in 1976 on the number of square feet that may be constructed at Parnassus Heights. There would be numerous presentations to the Regents at future meetings and opportunities for the Regents to provide advice and guidance." As recently as last year, it is unclear if even the Regents had been officially informed of UCSF's intent to violate the existing space ceiling and 1976 Regents Resolution. (Minutes from UC Regents Health Services Committee meeting, December 2019)

2020

Now, the current draft EIR calls on the Regents to "Increase the space ceiling limit from the current 3.55 million gsf to a proposed 5.05 million gsf, excluding housing (an increase of approximately 1.5 million gsf above the current space ceiling limit) in recognition of the tremendous need for program space at the campus site in order for UCSF to retain its leadership position in patient care, research, and education." (CPHP draft EIR, 2020)

Inexplicably, UCSF seems to regard the heretofore permanent space ceiling as expendable and the Regents' longstanding commitment to uphold it as revocable. The space ceiling is not an anachronism; it has been reaffirmed over and over again through decades of growth and change. This was a promise made by the Regents of the University of California to the communities around UCSF and the city of San Francisco, a promise honored by over 40 years of Boards of Regents and Chancellors, including Chancellor Hawgood himself in the 2014 LRDP.

The space ceiling was adopted to respect the inherent physical limitations of the Parnassus site - to protect it and the surrounding neighborhood from the ever expanding needs of the university. In fact, in 1996 the space limitations of the Parnassus campus were UCSF's primary justification for the acquisition and development of the new campus at Mission Bay. And although the needs of the university have continued to grow, the Parnassus site has not - it remains a small, urban, hillside campus surrounded by open public greenspace and residential neighborhoods on all sides. UCSF has continuously honored the unique location and character of its Parnassus Heights campus, while still expanding its reach and reputation throughout San Francisco, California, and the world. Until now.

3

COVID-19

The draft EIR specifically mentions COVID-19 but says the effects "cannot be predicted without speculation." However there are some obvious public health and environmental implications of the pandemic on this project that must be addressed, even in this early stage. Specifically (1) the proposed increase in campus population and ability to social distance both on campus and on public transportation, (2) the effects of airborne pollutants on respiratory health in the setting of a pandemic virus that targets the lungs, and (3) the effect of COVID-19 on how medicine and healthcare will be delivered in the future.

4

Of note, one of UCSF's justifications for this project, specifically the new hospital, is to "increase inpatient beds at Parnassus Heights to allow for the capacity to provide inpatient health care in times of severe strain such as the current pandemic, without resorting to reducing or canceling non-essential surgeries to create bed capacity."

This is a misleading statement. UCSF was not limited by bed capacity at Parnassus during COVID-19. It was UCSF's inability to engage safely in both pandemic response and other non-pandemic medical activities on a single small site that strained the system and hampered their ability to provide adequate care. Despite not being at capacity for inpatient or ICU beds, UCSF was forced to move COVID patients off the Parnassus campus (to Mt Zion and the Presidio) to allow for infection control, patient comfort/safety, and space for appropriate social distancing in order to resume non-COVID medical services. Building a bigger hospital only worsens this issue. Densification of the existing site would drastically increase daily population on campus, lead to staggering operational costs of supporting a mostly empty hospital as happened in COVID-19, and create major problems with density, accessibility, and employee and patient safety.

5

COVID-19 has been, and continues to be, the defining event of our generation. It will have far reaching impacts not just on healthcare provision and medical research, but on every aspect of urban planning. If after all these months UCSF *cannot even speculate* about how the global viral pandemic might affect their plans for the Parnassus campus, they should pause, study, and reflect. Looking at this document it is clear that COVID-19 has impaired their ability to produce a thorough and complete analysis of this project. In addition, UCSF's justification for the entire CPHP relies on pre-COVID healthcare, population, and workplace data that is

6

rendered meaningless in the face of so much new uncertainty. It would be foolish to charge ahead with a project of this cost and scale with so little information about what the future holds for medicine and the city of San Francisco in the post-COVID era. 6 cont.

AESTHETICS

Impact AES-1: Development under the CPHP would not have a substantial effect on a scenic vista (Less than significant)

This is misleading and patently false. In each scenario UCSF prioritizes its own views and vistas, at the expense of the views and vistas enjoyed by the general public 7

(1) They state the demolition of the nursing building will create new views of the ocean westward *from within the campus site,* however the new hospital, located at the eastern edge of the campus, will effectively block views westward to the ocean *for everyone else,* including the ocean view from the top of the historic Farnsworth Steps.

(2) The vistas from the trails in the Mt Sutro Forest preserve are <u>significantly</u> affected. Figure 4.1-10 shows *one single viewpoint* along the trail, likely selected to suggest minimal impact because of location and vegetation density. This is not at all representative of the entire trail. There are many other vantage points along these popular public trails that will be very negatively impacted by the massive size and scale of new hospital building. The Edgewood Trail and the Historic Trail specifically are both directly behind the proposed new hospital building. There are indeed areas in the woods with dense vegetation as the EIR states, but there are also many openings along the trail that afford hikers beautiful expansive views across the city that will be blocked and ruined by the huge new hospital building. It is absurd for UCSF to claim that the vistas from Mt Sutro preserve are not affected. The new hospital building will afford scenic vistas for patients and employees *inside the building,* while blocking vistas for everyone else. 8

(3) This statement requires further clarification: “UCSF’s proposed LRDP Amendment would clarify that sub-objectives 1B and 1C *would not apply to the New Hospital project*, in recognition of the substantial amount of space required for the New Hospital, although UCSF would make efforts in the design process to come as close as possible to meeting these objectives, if feasible” This statement does *not* support the claim of Impact AES-2 being “less than significant.” Rather it states that the already agreed upon aesthetic objectives cannot be met simply because the new hospital is too massive in scale to meet them. Why would any building be exempt from aesthetic impacts because of its enormous size? This impact should be reclassified as “Significant and Unavoidable” 9

(4) Impact AES-2. Although as a state institution UCSF doesn’t have to meet the applicable zoning regulations because it has jurisdiction over its own land use, it is disingenuous to state that the impact is “less than significant.” The impact of the New Hospital is completely out of scale and in direct conflict with applicable zoning regulations - in height, square footage, and positioning on Parnassus Ave at the edge of the campus directly at street level. Not only that, it goes against many of the design principles UCSF *set for themselves* in the 2014 LRDP. 10

(5) Viewpoint 4 in 4.1-12 and viewpoint 6 in figure 4.1-14 show the vista from Kezar Triangle and Lincoln Way/Arguello Ave respectively. These viewpoints are both on the route of the <u>designated scenic route of the 49 Mile Scenic Drive</u>. As seen in the simulations, the proposed New Hospital is so tall that it not only blocks the mountaintop view of Twin Peaks, but also blocks *entire structure of the iconic Sutro Tower.* This plan therefore substantially and specifically damages scenic resources from a scenic route. 11

The planners keep referring to the proposed new campus as a “Park-to-Peak” design, but the proposed New Hospital blocks both the view of the park from hikers enjoying the public trails on the peak and the view of the peak from people enjoying the grassy Kezar triangle in the park. The only beneficiary of this supposed Park-to-Peak plan will be UCSF. 12

AIR QUALITY

Wildfire smoke and construction/operations Air Quality
In referencing baselines, the discussion of air quality does not take into account the additive effects of particulate matter from wildfires, which in the last few years have dramatically increased exposure to environmental pollutants all around the Bay Area. Air quality data must be updated to include the significant changes in regional air quality from the last 3 years, *including current data from the 2020 season*, from wildfires. The EIR must also specify the potential health consequences of the additive impacts of construction/operational air quality effects and wildfire smoke, both acutely and over the long term. As part of its mitigation strategies the EIR should specify plans for modification of the construction schedule, *including complete cessation of construction if necessary*, at times when wildfire smoke significantly impacts regional air quality. 13

Health Risks
Multiple tables in section 4.2 show a dramatically increased cancer risk for “Resident - Offsite Receptor” during construction from airborne particulate matter, with a reduction to “less than significant” impact with mitigation. There is insufficient evidence to substantiate this reduction based on the strategies given. In a dense residential neighborhood with many families and children and elderly residents, not to mention UCSF staff and patients, many of whom will be exposed to these carcinogens over the cumulative 10-30 year span of this project (not just 5-6 as years specified in the chart), more substantive data must be provided to support this claim. 14

Mitigation Strategy: Watering
With respect to construction air quality, the primary mitigation strategy offered is watering of “all exposed surfaces (eg. Parking areas, staging areas, soil piles, graded areas, and unpaved access roads) two times per day.” The following questions must be addressed regarding both the feasibility and environmental impact this mitigation strategy:

- Is twice-a-day watering a feasible strategy given the extent of construction, the size and scale of the multi-project site, and the duration of the project?

- How many gallons of water would this strategy require for a project of this scale, and is that an acceptable use of a limited public resource, especially given the fact that California has spent much of the last decade in severe drought conditions and fighting seasonal wildfires? 15

- What is the downstream effect of dousing a construction site of this size, in this location, with water twice a day over a decade or more of construction? Please address what contaminants would be present from demolition, construction debris, and medical research/ clinical waste (including radioactive compounds if applicable), and how each of these chemical substances will affect groundwater, local water supply and safety, and the effect of drainage of this contaminated water into adjacent natural spaces or the bay?

- If water rationing and drought conditions arise, as is almost certain to happen at some point in the project, will the University be able to keep up with the twice a day watering of the entire site, or will they have to stop, thus creating an unacceptable air quality risk for the

entire neighborhood? What would the air quality impact of the construction without the "watering" mitigation?

15 cont.

Sensitive Receptors - Edgewood Ave
It is unclear why the CPHP discussion of air quality believes that "sensitive receptors" to the east of Parnassus campus will be substantially buffered by "varying depths of open space", as this neighborhood is closest to the construction activity and operations of the campus facilities, specifically the new hospital, staging areas, and power plant, than any other sensitive receptors identified in this report. Because of its unique proximity to construction and operations of the proposed facilities, air quality impacts on the residences on Edgewood Ave, Willard Ave, and Woodland Ave must be assessed and quantified. There is in fact no "open space buffer" because the CPHP calls for substantial intrusion into and construction activity within the forest space between the project site and the residences to the east of campus. The Surge Lot in particular, which has been identified as a construction staging site, directly abuts the backyards of the homes on the west side of Edgewood, with no buffer at all between them and construction activities, materials, and vehicles. Air quality (as well as noise and vibration) analyses should be done both for duration of construction and for operations of proposed campus facilities, with specific attention to residential neighborhood on Edgewood Ave, directly adjacent to the eastern boundary of campus.

16

Health Effects of Significant and Unavoidable Impacts
Impact AIR-2 and Impact C-AIR-1 are both Air Quality impacts that are identified as "Significant and Unavoidable" even with mitigation strategies. So the operation of the proposed facilities will create significant, ongoing, un-mitigatable, unhealthy air quality in a residential neighborhood which includes families, children, childcare facilities, elder care facilities, and schools - not only for the duration of construction, but essentially, forever.

The EIR states that it would be only PM10 that is increased in operations of campus facilities (SU), but does not provide sufficient evidence on PM2.5 and other pollutants. As these are dangerous toxins with major health effects, more detailed data is necessary on these substances specifically.

17

UCSF must analyze, with relevant data and outcome information, the specific health effects (immediate and long term) of this anticipated breach of air quality standards, including but not limited to: respiratory effects (please address vulnerable populations such as elderly residents with COPD, or children with existing asthma, or increased risk of children developing asthma, pregnant women) and also long term effects such as increased cancer risk and neurocognitive and developmental effects, especially for children growing up in this neighborhood who will have a cumulative exposure to unsafe air at critical developmental stages.

UCSF has established itself as an international health leader in identifying and calling attention to the impact of regional air quality on community health. Their own faculty in the departments of environmental health, pulmonology, and pediatrics have contributed meaningfully to research on the effects of air quality and particulate matter on respiratory health including the Children's Health and Air Pollution Study, the UCSF Human Exposure Laboratory, and even a recent New England Journal article entitled "The Need for a Tighter Particulate-Matter Air-Quality Standard" (August 2020.) It is unconscionable that a leading health care institution would blatantly disregard the substantial and significant environmental health effects of unhealthy air quality on neighbors, nearby eldercare and childcare facilities, its own faculty and staff, and the community it serves, by knowingly and intentionally violating state and federal air quality standards.

18

HAZARDOUS MATERIALS

Again, the identification of "sensitive receptors" in this section omits mention of the residences on the eastern boundary of campus that are closest to the construction site, staging areas, construction roads, and power plant. The effects of hazardous materials on this dense residential neighborhood must be analyzed and disclosed, including both data on exposures to different substances (asbestos, mercury, PCBs, lead, etc. per Table 4.8-1), detailed mitigation strategies, and detailed description of the health effects of each.

There is enough information about the new hospital construction to include it in this analysis of hazardous materials, and it must be included to give a full picture of the impacts of the CPHP. New hospital data is included in other sections of the draft EIR (air quality, etc.) so it is unlclear why it would be omitted here. The impact of the hazardous materials from the new hospital is significant and as it is to be part of the first phase of construction, it must be included even if a project specific EIR is forthcoming. As they are overlapping, the cumulative environmental and health impacts of hazardous materials of all four initial phase projects (*including any demolition of existing structures*) must also be addressed by this EIR. This cumulative analysis cannot be done without including data regarding construction of the New Hospital. 19

Soil and groundwater contamination - this section states that medical offices, research facilities, and hospitals generate hazardous wastes that affect soil and groundwater, but does not address the impacts of CPHP construction and construction mitigation strategies on the soil and groundwater with hazardous materials. Specifically, demolition of existing medical/ research sites, construction debris, and the environmental impact of the EIR's primary air quality mitigation strategy of watering the site twice daily to control construction debris/air contamination should be fully addressed here. 20

CPHP Mitigation measure HAZ-1
It appears that the mitigation measures put forth in this section are:
(1) Have a qualified professional prepare a plan
(2) Apply "best management practices"

It is unclear how these two extremely non-specific mitigation measures prove their claim of reduction of risk from Hazardous Materials to "less than significant." UCSF cannot base their claim on handwaving and vague language, but must provide sufficient hard data to support it, including specific mitigation strategies for each of the identified contaminants. 21A

Hydrology and Water quality
Addressed in other sections but revisited here, it is unclear whether the draft EIR analysis includes effects of runoff from watering the entire construction site including "all exposed surfaces (eg. Parking areas, staging areas, soil piles, graded areas, and unpaved access roads) two times per day" including what contaminants would be present from demolition, construction debris, and medical research/clinical waste), and how each of these chemical substances will affect groundwater, local water supply and safety, and the effect drainage of this contaminated water into adjacent natural spaces or the bay. 21B

LAND USE AND PLANNING

To omit the New Hospital from the section on Land Use and Planning is unacceptable. It is the most significant of the four early phase projects, has a huge impact on the issue of land use and planning of the CPHP, and it must be included in the CPHP program level EIR even if some issues will be revisited/clarified in a future project level EIR. The sections of the draft EIR on general project description and aesthetics contain a high level of detail about the footprint, square footage, height, and massing of the proposed structure of the New Hospital, so much so that they are able to provide schematic renderings of the proposed building from multiple perspectives. So there is obviously enough information available for UCSF to also include it here. The New Hospital has by far the biggest physical size and most square footage of any project in the CPHP and thus cannot be excluded from the program level EIR. If UCSF cannot provide the necessary information for the new hospital at this stage, they should be required to withdraw the current draft EIR until they are able to provide all relevant information. 22

TRANSPORTATION

As the CPHP proposes to add over 8000 persons per day to the campus census, the parking and traffic analyses provided in this EIR are insufficient to address the massive increase in private vehicles, ride-share vehicles (Uber, Lyft), and demand on public transportation.

Items to be addressed regarding transportation and mobility (for both construction and operations): 23

- Parnassus campus is accessed almost exclusively by small two-lane roads. Given the increase in anticipated daily population coming to and from campus, traffic/accessibility/ safety impacts should be examined for the surrounding streets including, but not limited to, Parnassus Ave (to Clayton), Stanyan (north and south of Parnassus), the inner sunset avenues especially 7th Ave, and Arguello Ave.
- Effects of increased vehicle demand on city “arteries” of 19th Ave and Park Presidio, Lincoln Ave, 17th Street and Clarendon 24
- Parking: off street parking is expected to *decrease* with this project. Interestingly, the EIR claims that “As the total campus population increases in a more parking constrained environment, people will likely change the way they travel to and from the campus site.” This is purely speculation, and even if some people choose ride shares or public transportation, there will still be a major net increase in cars that park in neighboring streets. It should also be noted that off street campus parking is likely to be reserved for high level faculty and administrators, leaving other employees who commute, many from outside the city, to find street parking in local neighborhoods or pay the cost of ride shares. 25
- There is a discussion of bicycle commuters, and it is noted that bicycle use has increased, with reference to a 2018 survey which showed that “6% of employees” ride bicycles to campus. Is this 6% of all employees? A subset of employees? All campuses or only Parnassus? Commute by bicycle every day or sometimes? This number does not include patients. Rather than offering a percentage of an unknown, it would be more helpful to have absolute numbers showing on average how many individuals on the Parnassus campus (employees and staff, accounting for seasonal differences) arrive by bicycle each day. UCSF is at the top of a large hill so estimates of increased bicycle commuting should account for topography. 26
- **Impact TRANS-4: implementation of the CPHP would not result in inadequate emergency access.** It is unclear from this discussion whether emergency vehicles include ambulances traveling to/from UCSF. This section discusses roadway width for passage, but not ambulance traffic volume. Ambulance traffic is an issue unique to hospital planning but should be addressed here. With the massive size of the proposed New Hospital comes a 27

bigger Emergency Department, with more patients arriving by ambulance for emergency services, as well as many more ambulance transfers to and from the estimated 600+ inpatient beds. The anticipated increase in the number of EMS and patient transport vehicles coming to-and-from campus should be quantified and that data included in analysis of the project. Also, what effect will the increased ambulance traffic have on local traffic (when EMS travels with lights and sirens, cars on local 2-lane roads must stop and pull over) and can this increased number of vehicles get to their destinations safely and efficiently.

27 cont.

Public Transportation
UCSF needs to provide a more detailed analysis of the existing public transportation and how this project and the addition of so many additional people on campus would stress the N-Judah, 43, 6 and 7

Does MUNI currently have the capacity and budget to add the number of additional busses/ trains/drivers that UCSF would require to meet their transportation needs? If not, this can not be relied upon as a mitigation strategy.

Effects of COVID-19: MUNI services have been substantially cut back, and the number of passengers must also decrease for safe social distancing. So realistically, any claims of MUNI adding service or carrying extra passengers are wholly unsubstantiated at this time.

28

ALTERNATIVES

Alternative 1B: No Project - Development under 2014 LRDP

This cannot be labeled a “no project” alternative. The 2014 LRDP is a *different* project, but is in no way a “no project” alternative. Like the CPHP, the 2014 LRDP includes full plans for a new hospital on the LPPI site to replace seismically unsound Moffitt Hospital, and includes many updates to the Parnassus Heights campus. It is a fully realized alternate plan, with a certified EIR, that was billed as the “guiding plan for institutional development, including Parnassus Heights, for 20 years” when it was approved by the Regents just 6 years ago. The LRDP contains a significant, meaningful, *already approved* alternative and includes all the updates and improvements necessary to modernize the Parnassus Campus. It is disingenuous to call it “no project”, as it is a full scale plan that accomplishes the goals of the CPHP with drastically reduced environmental impacts.

29

6.4.3 New Hospital at Mt Zion Campus Site

In looking at alternatives it is important to note that UCSF is a multi-campus institution that is woven into the fabric of the city of San Francisco, with existing campuses at Mission Bay and Mt Zion. There is no reason why the entirety of the construction must happen on Parnassus Heights campus when there are several other opportunity sites that could be developed to meet UCSF’s institutional needs. It should also be recognized that UCSF’s need to update, modernize, and meet seismic standards at Parnassus Campus can be completely achieved with the parameters of the existing LRDP.

In examining project alternatives, the EIR must look beyond the Parnassus Heights campus and treat UCSF as the city-wide multi-campus institution that it is. As such, UCSF should fully evaluate the alternative options of: (1) siting the New Hospital at a UCSF location different from Parnassus campus and (2) the possibility of a reduced project on the Parnassus Campus that is supplemented with development of other UCSF sites such as Mt Zion or Mission Bay.

30

1. Draft EIR does not provide reasonable analysis of the alternative project of building the new hospital at Mt Zion.

Although UCSF claims that it would be "inefficient" and "less than desirable" UCSF is already a decentralized, multi-campus institution operating at multiple sites within the city, including Mission Bay which hosts both the Benioff Children's Hospital and Bakar Cancer Hospital. So it is clear that proximity to the Parnassus campus has never been a dealbreaker in other institutional development projects, including, specifically, selecting major hospital sites.

It is also important to note that Mt Zion is only 2.5 miles from the Parnassus campus, and is already part of the existing shuttle network that connects all the UCSF campuses.

Mt. Zion offers unique benefits:

- It is easily accessible by public transportation, car, bicycle, pedestrian traffic, and UCSF's intercampus shuttle system.
- The site and surrounding neighborhood already includes many other UCSF facilities and UCSF-affiliated facilities including doctors offices, outpatient services, pharmacies, and medical supply businesses.
- It is an historically significant and beloved site (former Mt Zion Hospital established in1887), which also used to provide medical and emergency services in the underserved Lower Fillmore/Western Addition neighborhood before it was shuttered during the brief UCSF-Stanford merger in the 1990's
- It allows for construction to occur away from existing inpatient facilities, and solves the "empty chair" problem of having to relocate clinical services without interruption in providing care
- Zoning and accessibility of Divisadero corridor more appropriate for scale of the hospital being proposed

For these reasons, a full analysis of Mt Zion as a project alternative must be included in the EIR.

31

2. Draft EIR does not provide analysis of the alternative project of building a smaller hospital on Parnassus Campus and meeting additional capacity needs by building, remodeling, or acquiring other hospital space elsewhere in the UCSF system.

The alternative of achieving the overall project goals by building a smaller hospital on the Parnassus site and another hospital on a different site (Mt Zion or Mission Bay) was raised multiple times at community meetings, and this alternative should also be included for analysis. In this scenario, building a smaller clinical facility at Parnassus and on another UCSF site could not only effectively address the programmatic needs of the university, but also increase the reach of UCSF and accessibility to health care in San Francisco.

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There is precedent for this approach - in fact, this scenario was the preferred alternative in UCSF's 2008 LRDP Amendment #2:

3.4.2 PROGRAM SCENARIOS FOR 650 BEDS AT MULTIPLE LOCATIONS

Various combinations of the four hospital site scenarios that could achieve the Hospital Replacement Program's desired 650-bed capacity were considered by UCSF. The combinations selected for study in this EIR are as follows.

- *250-bed hospital at Mission Bay North or at Mission Bay South; and 400-bed hospital at Parnassus East or at Parnassus West*
- *400-bed hospital at Mission Bay North or at Mission Bay South; and 250-bed hospital at Parnassus East or at Parnassus West*
- *650-bed hospital at Mission Bay South*

Although there are many possible combinations to achieve the program's 650-bed goal, decisions regarding the first hospital project, which would begin during the LRDP Phase, would establish a basic direction and planning framework for the future that would influence subsequent options. Table 3-2 presents possible LRDP Phase projects and then traces logical hospital program options for the Future Phase. The combination listed first, above, resembles the current UCSF vision, previously described, with a small hospital at Mission Bay in the LRDP Phase followed later by a hospital at Parnassus Heights developed during the Future Phase.

32 cont.

A campus-wide analysis of multi-site alternatives that address the university's current programatic needs should also be undertaken in this EIR for the CPHP.

Rationale for the two hospital alternative:

- Allows for flexibility in strain/crisis scenarios, including pandemic or natural disaster. It is important to note that during COVID-19 UCSF was forced to relocate coronavirus patients to Mt Zion *not because of insufficient bed capacity*, but to allow for infection control, patient comfort/safety, and provide space for appropriate social distancing. Having two separate acute care sites allows for institutional flexibility moving forward in an uncertain time. This redundancy would also be an enormous asset in natural disaster scenarios such as earthquakes or fires.
- Spreads out the traffic, public transportation, and population density burden throughout the city
- Provides more beds, and serves more patients, better access for marginalized communities. (including emergency services)
- Again, allows for smaller project, staged construction, which would be less disruptive for the city, adjacent neighborhoods, employees, and patients. Also significantly less environmental impact and ability to "build greener" with smaller scale buildings.
- It allows for construction to occur away from existing inpatient facilities, and solves the "empty chair" problem of having to relocate clinical services without interruption in providing care

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SUMMARY

This draft EIR is inadequate and fails to meaningfully address major aesthetic, health, safety, and environmental impacts that arise from the proposed CPHP. It also attempts to dodge and delay addressing many potentially problematic issues by inexplicably omitting the New Hospital from most of the analyses, despite the fact that the New Hospital is the most physically and programmatically significant project of the plan. Even if a project specific EIR is forthcoming, the entire CPHP hinges on the building of the New Hospital and at the very least any data UCSF is capable of providing at this time should be included. UCSF should have to go back to the drawing board with this draft EIR. For a multi-billion, thirty year project, which will impact many thousands of residents of San Francisco, UCSF must be compelled to do better. 34

Thank you,
Lisa Kessler, MS, MD

Responses to Comments from Lisa Kessler, MS, MD

I-Kessler-1 The commenter indicates that potential environmental impacts of a project the size, scope, and duration of the CPHP are relevant and important, and expresses gratefulness for the CEQA process to ensure the UCSF is held accountable for prioritizing the health, safety, quality of life and integrity of the community and the environment. The commenter generally asserts there are omissions and errors in the Draft EIR, and asserts that UCSF attempts to overlook the significant health and environmental impacts of the CPHP. The commenter claims the CPHP is aggressive, expensive, deeply flawed, and will harm the immediate Parnassus Heights neighborhood and the entire west side of the City, and beyond.

These comments either do not address the adequacy of the Draft EIR or consist of general comments without specificity, for which no direct response is possible; Please see Master Response 1: Non-CEQA Comments, and Master Response 2: General Comments on EIR and Environmental Topics. These comment are noted and will be forwarded to decision-makers. Please also refer to the other responses provided herein.

The commenter also indicates the scale of the New Hospital will alter the views and the horizon line of Twin Peaks and Mount Sutro from almost every part of the City. Please see Please refer to Master Response 7: Aesthetic Impacts.

I-Kessler-2 The commenter provides a history of the 1976 Regents' Resolution. Please refer to Master Response 4: Space Ceiling and Population.

I-Kessler-3 The commenter indicates the importance of the space ceiling, and that it was adopted to protect the Parnassus Heights campus site and surrounding neighborhood. Please refer to Master Response 4: Space Ceiling and Population.

I-Kessler-4 The commenter requests the EIR evaluate the implications of COVID-19 on the project, including social distancing, effects of airborne pollutants on respiratory health, and the effects of COVID-19 on how the delivery of medicine and healthcare. Please see Master Response 3: COVID-19.

I-Kessler-5 The commenter questions the proposed bed capacity in light of COVID-19. Please see Master Response 3: COVID-19.

I-Kessler-6 The commenter asserts that COVID-19 will have far reaching impacts on healthcare, medical research and urban planning. Please see Master Response 3: COVID-19.

I-Kessler-7 The comment states that the proposed project would result in view blockage that the Draft EIR should identify as a significant aesthetic impact. Please refer to Master Response 7: Aesthetic Impacts.

I-Kessler-8 The comment states that, in particular, view blockage from trails in the Mount Sutro Open Space Reserve would result in a significant aesthetic impact. Please refer to Master Response 7: Aesthetic Impacts.

I-Kessler-9 The comment objects to the CPHP's proposed amendment to the UCSF LRDP to clarify that sub-objectives 1B and 1C would not apply to the New Hospital project and claims that this change would result in a significant aesthetic impact. Please refer to Master Response 7: Aesthetic Impacts.

I-Kessler-10 The comment states that the Draft EIR fails to acknowledge alleged conflicts with the San Francisco Planning Code and that these conflicts would result in a significant aesthetic impact. Please refer to Master Response 7: Aesthetic Impacts.

I-Kessler-11 The comment states that some viewpoints depicted in the Draft EIR represent location on the route of San Francisco's 49-Mile Scenic Drive and that the proposed project would therefore damage scenic resources visible from a scenic route. Please refer to Master Response 7: Aesthetic Impacts.

I-Kessler-12 The comment states that the proposed New Hospital would block views of Golden Gate Park from hikers on Mount Sutro, as well as the view of the peak of Mount Sutro from Golden Gate Park. Please refer to Master Response 7: Aesthetic Impacts.

I-Kessler-13 This comment is concerned that the analysis of air quality impacts does not take into account the additive effects of particulate matter from increased wildfires and requests that air quality data be updated to include the significant changes in regional air quality from the last 3 years, including current data from the 2020 season, from wildfires. The commenter also suggests that the EIR should include the effects of wildfire smoke in the cumulative air quality analysis, both acutely and over the long term. Additionally, the commenter recommends that construction-related air quality mitigation measures of the EIR should include the potential for modification of the construction schedule inclusive of work stoppage at times when wildfire smoke significantly impacts regional air quality.

The existing air quality in the project area is provided in pages 4.2-1 through 4.2-19 of the Draft EIR. Specifically, the existing air quality monitoring data for San Francisco for the past five years that was available at the time of Draft EIR preparation is provided in Table 4.2-1 on page 4.2-3 of the Draft EIR, while a summary of air quality index for the past five years for the entire Bay Area regions is provided in Table 4.2-2 on page 4.2-7 of the Draft EIR. As stated on page 4.2-4 of the Draft EIR, the State 24-hour $PM_{2.5}$ standard was exceeded on 21 days from 2014 through 2018 in San Francisco: 7 days in 2017 and 14 days in 2018. Many of these exceedances of the 24-hour $PM_{2.5}$ standard can be attributed to the October 2017 and November and December 2018 fires in Northern California. As stated on Draft EIR page 4.2-6, historical air district data indicate

that the San Francisco Bay Areas Air Basin experienced air quality in the red level (unhealthy) on 13 days between the years 2013 and 2017. The October 2017 fires in Northern California resulted in the federal 24-hour $PM_{2.5}$ standard being exceeded on up to seven days just in the first part of the month of October 2017 in certain counties. Even though the air district's data have not been validated yet, these levels of $PM_{2.5}$ in many counties have been the highest levels recorded in recent times. As a result, the index in several neighboring counties reached the "very unhealthy" designation, ranging from values of 201 to 300. Consequently, the air quality setting of the Draft EIR's air quality analysis contains several acknowledgements and quantifies the contribution of wildfire smoke to both the localized concentrations of particulate matter and the regional air quality index. Summarized air quality data for year 2020 is currently unavailable from BAAQMD and summarized data for 2019 became available on September 24, 2020, after publication of the Draft EIR. $PM_{2.5}$ data for San Francisco in 2019 indicates no exceedances of the State 24-hour standard for the year.

With respect to assessing cumulative air quality impacts, as lead agency, UCSF has discretion to rely on BAAQMD's recommended thresholds of significance and the use of those thresholds is supported by substantial evidence. In consideration of state and federal air quality standards, and based on its own independent review of thresholds of significance for air quality impacts recommended by the BAAQMD, UCSF and its environmental consultants have determined that BAAQMD's recommended significance thresholds are appropriate to use to evaluate potentially significant air quality impacts associated with the proposed project. BAAQMD's 2009 Justification Report develops and considers a variety of air quality thresholds and recommends thresholds of significance that BAAQMD staff believed to provide a fair share of emission reductions from land use development.

Page 5-15 of the BAAQMD's 2017 Air Quality CEQA Guidelines states the following with respect to cumulative assessment of health risks:

> A Lead Agency shall examine TAC and/or $PM_{2.5}$sources that are located within 1,000 feet of a proposed project site. Sources of TACs include, but are not limited to, land uses such as freeways and high volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners using perchloroethylene, and gasoline dispensing facilities. A Lead Agency should determine what the combined risk levels are from all nearby TAC sources in the vicinity of sensitive receptors.

According to the BAAQMD, the above sources are the right sources that a lead agency may use to establish the background risk when conducting a cumulative health risk assessment and these sources were considered in the Draft EIR. Contributions from cumulative global atmospheric transport of DPM or

contributions from wildfire events are not an element to be considered in the BAAQMD's methodology or relative to the 100 in one million increased cancer risk cumulative threshold.

With respect to modification of the construction schedule to include work stoppage at times when wildfire smoke substantially impacts regional air quality, such a stoppage would be the purview of the BAAQMD, which designates spare the air days within the region and has the power to impose certain restrictions

I-Kessler-14 This comment points out that multiple tables in Section 4.2 show a dramatically increased cancer risk during construction from airborne particulate matter for "Resident – Offsite Receptor," with a reduction to "less than significant" impact with mitigation and refutes the validity of the indicated risk reduction with implementation of mitigation. The commenter is also concerned that the analysis does not consider the full chronological extent of cumulative exposure to toxic air contaminants.

Mitigated health risk from construction activities were calculated using the CalEEMod model developed by the California Air Pollution Officers Association (CAPCOA) as described on page 4.2-25. The method of mitigation assumed use of construction equipment with EPA-certified Tier 4 Final engines as described in CPHP Mitigation Measure AIR-1a: Clean Construction Equipment for CPHP Projects on Draft EIR page 4.2-29. The CalEEMod output files are presented in the Appendix AIR on page 1,088 for the Initial Aldea Housing Densification, page 1,115 for the New Hospital, page 1,148 for the Irving Street Arrival, and page 1,175 for construction of the RAB. Taking the output for the New Hospital as the primary example, unmitigated maximum exhaust emissions of PM_{10} are estimated by the model to be 0.1317 tons in year 2026, while the mitigated emissions are estimated to be 0.0218 tons in 2026. This represents an 83 percent reduction in exhaust PM_{10} emissions with using off-road equipment with Tier 4 certified engines. This reduction is commensurate with USEPA estimates that by implementing the federal Tier 4 standards, NO_x and PM emissions will be reduced by more than 90 percent.[5] Reductions in increased cancer risk are consistent with the reduction in diesel emissions from off-road diesel equipment.

With respect to the methodology of construction-related health risks as it affects duration, as stated in the Draft EIR on page 4.2-47, Table 4.2-11, Table 4.2-12, Table 4.2-13 and Table 4.2-14 present the unmitigated HRA results for existing receptors due to construction that represent a 30-year exposure which begins at the start of construction. This methodology compares to a project-level contribution threshold specified by BAAQMD of 10 in one million. Cumulative health risk impacts are addressed on pages 4.2-69 through 4.2-71 of the Draft EIR.

5 USEPA, "Clean Air Nonroad Diesel Rule: Fact Sheet," May 2004.

I-Kessler-15 This comment takes issue with the feasibility of watering of construction site as a mitigation for control of fugitive dust in light of the size of the construction area, the quantity of water required, the potential for water to disseminate contaminants, and the need to conserve water during drought conditions.

As stated on Draft EIR page 4.2-22, studies have shown that the application of best management practices (BMPs) at construction sites substantially control fugitive dust (WRAP, 2006) and individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to 90 percent (BAAQMD, 2009). BAAQMD has identified a number of BMPs to control fugitive dust emissions from construction activities (BAAQMD, 2017a). The analysis in the Draft EIR assumes that UCSF would implement all BAAQMD Best Management Practices (BMPs) and not just watering for individual construction projects, which is the basis for determining the significance of air quality impacts due to fugitive dust emissions.

It should also be noted that the City of San Francisco has adopted San Francisco Health Code Article 22B and San Francisco Building Code Section 106.A.3.2.6, which collectively constitute the Construction Dust Control Ordinance (adopted in July 2008). The ordinance requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control measures. These control measures almost always include watering of construction sites. Dust suppression activities may include watering of all active construction areas sufficiently to prevent dust from becoming airborne; increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Implementation of construction site watering is conducted regularly for all sizeable construction sites in the City of San Francisco pursuant to the Construction Dust Control Ordinance and the element of twice daily watering identified in CPHP Mitigation Measure AIR-1b: Best Management Practices for Controlling Particulate Emissions is feasible and required by law for most construction projects.

With respect to the quantity of water that would be required for dust control, there is no reasonable way to quantify it at this time as it will depend on the size of the construction site, the construction schedule, and numerous other factors. Note that the construction of projects on the campus site would be spread over time and the entire campus site would not be graded or disturbed at one time, requiring excessive amounts of water for dust control.

Regarding the concern that contaminants may be discharged off-site as a result of watering for dust control, that is not likely to occur for two reasons: first, water for dust control is applied in the right amounts so that it does not result in off-site runoff, and second, construction sites that are more than 1 acre in size are subject to NPDES regulations which require that BMPs are implemented to control the

release of any hazardous materials on construction sites and the discharge of any sediment into storm drains and/or other receiving waters. Refer to Impact HYD-1 of Section 4.9 Hydrology on Draft EIR pages 4.9-10 and 4.9-11 for a discussion of measures used to control sediments in runoff and storage and use of hazardous materials during construction to prevent discharge of pollutants into stormwater.

With respect to the use of water as a dust control measure during drought years, the State may impose restrictions on the source of water for such uses. As an example, the City of San Francisco will require some projects to use reclaimed water pursuant to article 21, section 1100 et seq. of the San Francisco Public Works Code in its Dust Control Ordinance. However, the source of water would not affect the effectiveness of use of water as a dust control measure.

I-Kessler-16 This comment takes issue as to the characterization of sensitive receptors to the east of the campus site being substantially buffered by "varying depths of open space," as this neighborhood is closest to the construction activity and operations of the campus site facilities, and demands that air quality, noise, and vibration impacts on the residences on Edgewood Avenue, Willard Avenue, and Woodland Avenue be assessed and quantified.

The description of the sensitive receptors to the east of the campus site, referred to in this comment, is on Draft EIR page 4.2-12 in the "Existing Setting" discussion of the Air Quality section. Currently, there is a vegetated hillside between the campus site and residences to the east, including those on Edgewood Avenue. This vegetated hillside provides approximately 200 feet of buffer between these residences and any structures on the campus site to the west. The Draft EIR acknowledges that the Surge parking lot is proposed as a construction staging area, and is located as close as 20 feet from sensitive land uses (Draft EIR page 4.11-24).

With respect to assessment of potential air quality impacts on the residences to the east, as stated on Draft EIR page 4.2-26, a 20-meter receptor grid co-located with the City of San Francisco's Community Risk Reduction Plan Heath Risk Assessment grid was modeled using a receptor height of 1.8 meters (breathing height). The lateral extent of this modeling effort extended 1,000 feet from the project boundary, consistent with BAAQMD guidance, and included receptors east of the Parnassus Heights campus site to Cole Street. Therefore, residences on Edgewood Avenue, Willard Avenue, and Woodland Avenue were considered in the assessment of health risk. The health risk analysis then identified the maximally impacted receptor for each evaluation based on dispersion modeling that included meteorology and topography. Health risk impacts from construction are presented in Table 4.2-11, Table 4.2-12, Table 4.2-13 and Table 4.2-14 of the Draft EIR which indicate the increased cancer risk for the maximally impacted receptor within the receptor grid identified.

With respect to noise and vibration impacts from construction for receptors in this area, these receptors would be primarily impacted by construction of the New Hospital which is analyzed at a programmatic level in the Draft EIR, as for the whole CPHP, on pages 4.11-16 through 4.11-19 of the Draft EIR. CPHP Mitigation Measures NOI-1a, NOI-1b, and NOI-1c are identified for these impacts which were determined to be significant and unavoidable. Construction vibration impacts are also analyzed at a programmatic level, as for the whole CPHP, on pages 4.11-30 through 4.11-32 of the Draft EIR.

I-Kessler-17 This comment cites the significant and unavoidable impact finding of the Draft EIR with respect to regional emissions of respirable particulate matter (PM_{10}), and raises concern that emissions of other pollutants may also be significant, and requests a discussion of relevant data and outcome information, the specific health effects (immediate and long term) of this anticipated exceedance of air quality standards. This includes but is not limited to: respiratory effects on vulnerable populations and also long term effects such as increased cancer risk and neurocognitive and developmental effects, especially for children growing up in this neighborhood who will have a cumulative exposure to unsafe air at critical developmental stages.

Operational emissions of criteria air pollutants from implementation of the full CPHP are quantified and compared to significance criteria in Table 4.2-9 on page 4.2-35 of the Draft EIR. The significance criteria used in the Draft EIR have been put forth by the BAAQMD, and are based on new source review emission limits for particulate matter and offset requirement limits for non-attainment pollutants established by the US EPA. As can be seen from Table 4.2-9, emissions of ozone precursors of reactive organic gases (ROG) and oxides of nitrogen (NO_x) as well as fine particulate matter ($PM_{2.5}$) from CPHP implementation would increase compared to existing conditions. However, the increases would not exceed the BAAMQD significance criteria. Increases that are below the significance criteria would not result in a substantial effect on air quality in the air basin, including the air quality in the area adjacent to the campus site.

The only non-attainment criteria pollutant emissions that would exceed the applicable BAAQMD criterion would be PM_{10} emissions. The source of the estimated PM_{10} emissions is motor vehicle trips that would increase as a result of CPHP implementation. These emissions would not be localized but would occur on roadways throughout a very large region from where UCSF students, employees, patients and visitors would make trips to and from the campus site. This criteria pollutant analysis was therefore a regional analysis in that it considered the motor vehicle trips throughout the region that would be generated by project improvements.

With respect to the specific health effects (acute and chronic) of the significant and unavoidable regional PM_{10} emissions impact identified in the Draft EIR, the Draft EIR dedicates an entire Health Impact Assessment (HIA) analysis on pages 4.2-37 through 4.2-42. The full HIA is also presented in Appendix HIA. Please refer to these sections of the Draft EIR for the requested discussion of the specific health effects from increased PM_{10} emissions due to CPHP implementation.

Please note that the Draft EIR includes an analysis of likely health risk and localized concentrations of $PM_{2.5}$. Please see Draft EIR pages 4.2-45 through 4.2-63.

I-Kessler-18 The commenter asserts that significant environmental health effects will occur from unhealthy air effects on nearby sensitive receptors, and that State and federal air quality standards are being violated. Please also see Response I-Kessler-17, above.

I-Kessler-19 The commenter indicates that Hazards and Hazardous Materials section discussion of sensitive receptors omits mention of the residences on the east boundary of the campus site. The comment is noted; please refer to Section 8.5 of this Comments and Responses document for the proposed edit to this text to acknowledge off campus residences on the east boundary of the campus site as sensitive receptors.

The commenter also requests the effects of hazardous materials during construction of the New Hospital on the off-campus residences along the eastern boundary of the campus site be analyzed and disclosed. All potential impacts associated with construction and operation of the CPHP to off-campus residences (including those along eastern boundary of the campus site) are adequately disclosed in the Draft EIR. With respect to the potential for excavation, construction or demolition activities under the CPHP to encounter hazardous materials, including those identified by the commenter [asbestos, mercury, polychlorinated biphenyls (PCBs) and lead], this is addressed in the Draft EIR Impact HAZ-1. As described on Draft EIR Impact HAZ-1, page 4.8-15, existing federal, State, and local regulations require demolition or renovation activities that may disturb or require the removal of materials that consist of, contain, or are coated with asbestos containing materials (ACM), lead based paint (LBP), PCBs, mercury, and other hazardous materials to be inspected and/or tested for the presence of hazardous materials. Further, all hazardous materials must be managed and disposed of in accordance with applicable laws and regulations.

The Draft EIR also identifies CPHP Mitigation Measure HAZ-1, which provides the appropriate mechanisms to ensure that an Excavation Management Plan would be prepared, and that the California Air Resources Board (CARB) Airborne Toxic Control Measures (ATCM) would be implemented. In addition,

CPHP Draft EIR CPHP Mitigation Measure HAZ-4 includes preparation of a Soil Management Plan that would include measures to address protocols for identifying, handling, and characterizing suspect contaminated soils, and if needed, removal and remediation, in accordance with the applicable overseeing agency requirements.

For all the reasons listed, compliance with the applicable federal and State regulations, along with implementation of mitigation measures identified in the Draft EIR, would ensure the impact associated with potential exposure to hazardous building materials, and/or previously unknown potentially contaminated soils, would be less than significant.

I-Kessler-20 The commenter asserts that the Draft EIR does not address soil and groundwater contamination effects associated with demolition of existing medical/research sites and construction debris. However, as described in Response I-Kessler-19, above, the Draft EIR discloses potential impacts associated with excavation, construction and demolition activities under the CPHP, including potentially contaminated building materials and/or previously unknown soil contamination. The Draft EIR appropriately references applicable regulatory mechanisms, along with implementation of mitigation measures, to ensure these impacts would be less than significant.

The commenter is also referred to Draft EIR Section 4.9, Hydrology and Water Quality. Impact HYD-1 addresses potential impacts associated with construction on the potential to violate water quality standards or waste discharge requirements, or degrade surface or groundwater quality. In accordance with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), UCSF would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) for proposed development activities to minimize water quality impacts during construction and demolition. The SWPPP will identify pollutant sources within the construction area and recommend site-specific best management practices (BMPs) regarding control of sediments in runoff and storage and use of hazardous materials to prevent discharge of pollutants into stormwater. Compliance with the NPDES CGP permit regulations and UCSF's Storm Water Program would prevent any substantial degradation of water quality during construction of any development associated with the CPHP.

The commenter also references watering sites twice a day. This is one of the suite of measures recommended by the Bay Area Air Quality Management District (BAAQMD) and included in CPHP Mitigation Measure AIR-1b in Draft EIR Section 4.2, Air Quality, for controlling fugitive dust emissions during construction. This is a common and effective measure for controlling construction dust. The measure would only involve use of water in an amount to suppress dust, and would not involve excess water that would create runoff from the sites, or contribute to soil or groundwater contamination. When considering this factor,

and the above-described SWPPP that would be implemented during construction, no adverse secondary effects associated with construction site watering are anticipated.

I-Kessler-21 The commenter indicates it is unclear whether the Draft EIR analysis includes effects of runoff from watering the construction sites. Please refer to I-Kessler-20, above.

I-Kessler-22 The commenter incorrectly asserts that the New Hospital is omitted from the Draft EIR Land Use and Planning section. The Draft EIR appropriately addressed the New Hospital programmatically in Impact LU-1 on pages 4.10-10 to 4.10-11, and page 4.10-14; and in Impact LU-2, on pages 4.10-16 to 4.10-17. The New Hospital will also be addressed in the forthcoming project-level EIR for the New Hospital. Please also see Master Response 13: Land Use Impacts.

The commenter also indicates if UCSF cannot provide the necessary information for the New Hospital at this stage, they should be required to withdraw the current Draft EIR until they are able to provide all relevant information. The comment is noted, however, as explained above, the Draft EIR appropriately addresses land use impacts of the New Hospital programmatically in Draft EIR Section 4.10.

I-Kessler-23 The comment asserts that the parking and traffic analyses in the Draft EIR insufficiently address how the population increase with CPHP implementation will increase vehicle demand on the roadway network. As discussed in Master Response 19, a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA. As such, the capacity of the roadways around the campus site is not a CEQA concern and transportation impacts based on congestion and vehicular delay are appropriately not analyzed in the Draft EIR. Master Response 19 further discusses the secondary effects of increased vehicular travel, including concerns regarding public safety and localized air quality effects. Intersection operations analysis was included in the Draft EIR Appendix voluntarily and for informational purposes.

The comment also asserts that the construction of projects under the CPHP could have impacts on traffic, accessibility, and safety. The Draft EIR does find that construction impacts would be potentially significant. Nonetheless, the Draft EIR includes three mitigation measures to reduce the impacts of construction: construction contractor(s) shall be required to prepare a traffic control plan, the construction control plan will be required to include methods to encourage construction workers to walk, bicycle, carpool, or use transit to access the campus, and UCSF shall provide project construction updates for adjacent residents and businesses. These mitigation measures are discussed in Impact TRANS-5 on Draft EIR pages 4.15-49 to 4.15-51.

I-Kessler-24 The comment asserts that analysis of vehicle demand should include additional streets beyond those included in the transportation appendix. Please see Response I-Kessler-23 above.

I-Kessler-25 The comment asserts that travel behavior assumptions are inadequate due to assumptions made about mode share in a parking constrained environment. This comment is addressed in Master-Response 17. The comment also asserts that the project will result in an increase in cars parked on local streets. This comment is addressed in Master Response 18. The comment asserts that the Project's off-street parking will be reserved for certain employees at UCSF, causing others to pay for ride-share. Allocation of parking to different employees and the cost of ride share to employees does not represent a change to the physical environment, and as such is not a CEQA concern. Additionally, the CPHP is not concerned with how parking permits will be distributed among staff, and as such this comment does not pertain to project elements. The comment is noted.

I-Kessler-26 The comment requests clarification about the bicycle commute mode share of employees presented in Table 4.5-18 of the Mode Choice subsection in the Draft EIR found on pages 4.5-29 to 4.5-33. As stated in the section, 6percent of all faculty, staff, and students as an aggregate group commute to/from the Parnassus Heights campus site by bicycle. Survey participants are asked to identify "What mode(s) of travel do you typically use to get to work?". Of the existing average daily population of 11,078 faculty, staff, and students presented in Table 4-12-2 on page 4.12-7 of the Draft EIR, 6 percent represents an average of 665 daily bicycle commuters. Master Response 17 provides additional discussion of methods used in mode share assignments.

I-Kessler-27 The comment asserts that the impact analysis of emergency access may not include ambulances in its impact analysis of emergency access. As discussed in Master Response 21, the designation of "emergency vehicles" used in the analysis includes ambulances. The comment also asserts that potential changes in the number of emergency vehicles accessing the campus site as a result of the New Hospital should be included in the analysis, and that the effects of that change on local traffic should be analyzed. Refer to Master Response 21 for why the increase in the number of emergency vehicles due to the New Hospital and the effects of ambulances on local traffic are not analyzed in the Draft EIR.

I-Kessler-28 The comment asserts that the Draft EIR does not adequately analyze or disclose the CPHP's effects on public transit service, specifically service provided by San Francisco Muni. Refer to Master Response 16 for a discussion of why an analysis of the CPHP's effects on transit capacity is not required when assessing environmental impacts. In addition, refer to Master Response 20 for additional discussion of why Muni operational issues are not a CEQA concern, and therefore analysis of these effects is not required in the Draft EIR. Additionally, the comment asserts that the Draft EIR does not adequately assess the funding

effects of COVID-19 on Muni. A response to this comment is presented in Master Response 20 and Master Response 3: COVID-19.

I-Kessler-29 The commenter disputes Alternative 1B: No Project – Development under the 2014 LRDP being addressed as a no-project alternative. Please see Master Response 5: EIR Alternatives.

I-Kessler-30 The commenter requests the EIR address alternatives involving siting the New Hospital at UCSF location different than the Parnassus Heights campus site, and the possibility of a reduced project at the Parnassus Heights campus site that is supplemented with development at other UCSF sites. Please see Master Response 5: EIR Alternatives.

I-Kessler-31 The commenter asserts the Draft EIR does not provide a reasonable analysis of an alternative involving building a New Hospital at Mount Zion. Please see Master Response 5: EIR Alternatives.

I-Kessler-32 The commenter asserts the Draft EIR does not provide a reasonable analysis of an alternative involving building a smaller New Hospital at the Parnassus Heights campus site and meeting capacity needs by building, remodeling, or acquiring other hospital space elsewhere in the UCSF system. Please see Master Response 5: EIR Alternatives.

I-Kessler-33 The commenter request the EIR provide a campus wide analysis of multi-site alternatives that address the University's current programmatic needs. Please see Master Response 5: EIR Alternatives.

I-Kessler-34 The commenter claims the Draft EIR is inadequate and fails to meaningfully address major aesthetic, health, safety, and environmental impacts that arise from the proposed CPHP. Please refer to the responses above that address the specific issues raised by the commenter on these topics.

The commenter also asserts that UCSF attempts to avoid and delay addressing problematic issues by omitting the New Hospital from most analyses. As discussed in the Draft EIR Chapter 1, Introduction on page 1-7, a program EIR has been prepared for the CPHP that establishes a framework for tiered or project-program components. Accordingly, the Draft EIR provides a program-level analysis of the environmental impacts that could result from the development of the entire space program under the CPHP, including from the New Hospital, and identifies Plan-level mitigation measures to reduce potential significant effects of the CPHP. Further details of the New Hospital are being developed, including the specific design. Those elements of the New Hospital will be the subject of a subsequent project-specific environmental review when more details become available. It is anticipated that sufficient detail will be available to publish a project-level Draft EIR for the New Hospital in the summer of 2021.

Phyllis Wrynn
559 10th Street
Brooklyn, NY 11215

Dear Chancellor Hawgood and U.C. Regents,

I represent the estate of Leon Bibel, who was Bernard Zakheim's assistant on the History of Medicine Frescoes in the Toland Hall Auditorium in UC Hall.

Attached below is a pen and ink drawing done by Leon Bibel of Bernard Zakheim while Zakheim was working on a fresco. 1

The **UCSF Comprehensive Parnassus Heights Plan and its Draft EIR – State Clearinghouse Number 2020010175** is an ill-advised plan. 2

The work created during the Federal Art Project and other divisions of the WPA is an important reminder of when government actually WORKED for the benefit of its citizens. To not save them, or to make the descendants of the artist responsible for removing them is incomprehensible. 3

Can a more reasonable solution be worked on? These projects are part of our history as a nation. The brilliance of the Roosevelt administration officials is so clear. They realized that artists were in tremendous jeopardy when unemployment was at 25%, and created various programs…art instruction, the decoration of federal buildings, theater companies, silk screen poster-making as a way of getting messages to the people…just to name a few. 4

There was a time that destruction of buildings and artifacts of other eras was greeted with a shrug.

I thought that we had learned our lesson, given the huge number of excellent exhibitions of WPA paintings and prints in great museums throughout this country as well as in places like the British Museum. 5

Then, there is the celebration of murals in major spaces like the Brooklyn Museum, rescued and installed, and a wonderful example of mid-century abstraction. Here is the description from the Brooklyn Museum website:

The exceptional murals installed in this area, executed by the pioneer American abstractionists Ilya Bolotowsky, Balcomb Greene, Paul Kelpe, and Albert Swinden, were commissioned by the Works Progress Administration/Federal Art Project in 1936 for Brooklyn's Williamsburg Houses, one of the earliest and best public housing projects in New York City.

Please agree to at least consider the two current alternatives. 6

My very best,
Phyllis Wrynn
Park Slope Gallery
Brooklyn, NY

Responses to Comments from Phyllis Wrynn

I-Wrynn-1 The commenter includes a drawing done by Leon Bibel of Bernard Zakheim while Zakheim was working on a fresco. The comment is noted; no response is required.

I-Wrynn-2 The commenter makes a general assertion that the UCSF Comprehensive Parnassus Heights Plan and its Draft EIR is an ill-advised plan. Due to lack of specificity; no response is required. Please see responses to specific comments raised by the commenter that follow.

I-Wrynn-3 The commenter states that not saving the murals or making descendants of the artists responsible for their removal is incomprehensible. Please refer to Master Response 11: Toland Hall Murals.

I-Wrynn-4 The commenter questions whether a different solution can be developed and notes the historical significance of the Toland Hall murals. Please refer to Master Response 11: Toland Hall Murals.

I-Wrynn-5 This comment describes the history of publicly-supported art in the United States in the mid-twentieth century and describes other publicly-supported murals. Please refer to Master Response 11: Toland Hall Murals.

I-Wrynn-6 The comment asks UCSF to consider the alternatives in the Draft EIR. Please refer to Master Response 11: Toland Hall Murals.

From: Sarah Jones
To: Campus Planning - EIR
Subject: CPHP EIR
Date: Friday, September 11, 2020 2:40:10 PM

Public Comment on CPHP Draft EIR
Attn: Diane Wong, Environmental coordinator

I want to register my strong dismay at the preliminary plans for UCSF's CPHP. The size of the planned expansion was decided upon by UCSF while completely ignoring UCSF's space ceiling commitment to the surrounding community, even though the ceiling was reaffirmed in the 2014 new hospital plan. Having single-handedly declared the Space Ceiling irrelevant, UCSF has had the nerve to engage in "community outreach", asking whether neighbors would like 8 or 10 more bike racks, to serve the 8000 or so additional people on campus, when the real issues are that the plan is too big for the Parnassus campus and the neighborhood, it reneges on past agreements, and is limited in planning how to deal with the huge increase of demand upon the infrastructure, neighborhoods, and environment that the new building project would engender. 1

1. Noise and air pollution.
The EIR does discuss the many ways air and noise pollution will be increased by the construction and running of the new buildings, but does not address how this air pollution will affect the neighborhoods closest to UCSF, on Edgewood, Willard, Farnsworth, and 5th Ave. The EIR notes that the Sutro Reserve gives a "buffer" to the neighbors on Edgewood, but fails to acknowledge that part of the new hospital will be built within that "buffer zone", and that construction will be staged in the Surge Parking lot, which is separated from homes by a small wooden fence, no trees. The EIR must address how construction will affect the air and noise quality for neighbors on Edgewood. 2

After construction, the new hospital is planned to be within a few feet of the western side of Edgewood houses, and I would like to know what effect of air and noise pollution will be for them, in addition to what serious steps UCSF plans to mitigate those effects.

2. Forest and Green Space
The planned new hospital building in the CPHP will cut directly into the hillside of Sutro Forest to the west of Edgewood Ave., destroying Green Space and paths that are frequently used by visitors from all over the city. UCSF has said that it will replace the Green Space by taking out the Surge Parking lot, after construction is over. As construction is planned to take place over 30 years, please forgive me if I find this a specious argument. In any case, one cannot make up for the destruction of green space in one area, by its extension in another. The trees and animal habitats will be destroyed permanently, and the restoration of green space thirty years later in a separate spot will not in any meaningful way mitigate that loss. 3

3. Aesthetics
Looking through the draft EIR, the photos of how the UCSF project will impact city views and shadows is jawdropping. The view from Golden Gate Park to Sutro Tower is completely blocked by the new hospital. In addition, light and views from the hiking trails in Sutro Forest, where light filters through the trees, and glimpses of the north bay are often visible, will be totally blocked and cut out by the planned structure. This destruction of views goes beyond individual neighbors, and affects residents all over the city, not to mention those who 4

visit from afar.
In addition, the shadows that the new hospital is projected to cast go far beyond the immediate neighboring streets. Particularly striking, Grattan Playground, frequented by families and children from all over the neighborhood, and home to a cooperative preschool, will experience a near total shadowing in the early evening. I have often frequented this park in the early evening with my children, getting the last bit of sunlight and activity before nightfall, and am shocked that the UCSF project would so thoroughly wreck that prospect. 4 cont.

4. Traffic, parking, public transportation
Three streets connect the neighborhood to the east of the Parnassus Campus to the neighborhood to the west: Parnassus, Carl and Frederick. All three are heavily trafficked. The CPHP plans to bring about 8000 new people to campus daily, not to mention new patients, but has very little idea of how people will get there, or where they will park, if they bring their own cars. Even if UCSF manages to greatly mitigate individual drivers, a quarter of that number would mean at least 2000 new cars coming into the neighborhood each day. The proposed parking in no way meets the projected need, and neighbors will be inundated by cars parked throughout the surrounding neighborhoods. In addition, because housing is planned to be the last phase of the building (20 years in to the process), new employees will have to come from far away, perhaps from surrounding towns and cities, putting great pressure on the current transportation infrastructure. The EIR fails to meaningfully address how UCSF plans to manage the new influx of people and vehicles. 5

5. Alternative building spaces
There is no sign that UCSF has meaningfully considered alternatives to building an additional 1.5 million square feet in a small campus footprint, in what is otherwise a residential neighborhood. The Mt Zion or Mission Bay Campuses provide larger spaces in mixed use neighborhoods that could surely be considered for new hospitals and offices. We are all meeting and discussing via Zoom these days, and distance should be no barrier to collaboration. Why the insistence on building a skyscraper, that dwarfs all UCSF's current buildings, in a residential neighborhood? This project is just not in the best interests of the city, or even of UCSF. With so many campuses all over the city, why cram everything here? I would like to see the reasoning and evidence that other locations were considered and explored. 6

6. Covid-19 changes in the way medicine is practiced
We have recently come to understand what will be asked of the medical profession in this new world of pandemics and rolling disasters. The idea that UCSF would want to bring all patients into one huge hospital, regardless of infection vectors, goes against everything we have learned since March. UCSF itself has found that it needed separate hospitals to treat victims of Covid-19 and its Covid negative patients. Why now push to build one enormous hospital? 7

UCSF medical school, research facility and clinical care are a jewel in the crown of San Francisco. There is not a resident who does not appreciate the talent, dedication, and expertise this institution brings to our community. We are not against UCSF as an institution, nor even against UCSF building a new hospital. However, the size and scope of this project, so outsized compared to projects proposed before it, is not in keeping with the best interests of the neighborhood, the city, or UCSF itself. Please consider altering the UCSF CPHP to fit the prior agreed upon Space Ceiling. 8

All the best,
Sarah Smith Jones
190 Edgewood Ave., SF, CA.

Responses to Comments from Sarah Jones

I-Jones-1 The commenter asserts that the planned expansion ignores UCSF's space ceiling commitment. Please see Master Response 4: Space Ceiling and Population.

The commenter also asserts that the CPHP is too big for the Parnassus Heights campus site and its neighborhood, reneges on past agreements, and is limited in planning how to deal with the increase in demand upon the infrastructure, neighborhoods and the environment. This comment does not address the adequacy of the Draft EIR; consequently, no response is required. However, the comment has been noted and will be forwarded to decision-makers. Please also refer to the other responses provided herein.

I-Jones-2 This comment states that the Draft EIR does not address how air pollution will affect the neighborhoods closest to UCSF, on Edgewood Avenue, Willard Street, Farnsworth Lane, and Fifth Avenue; does not acknowledge that part of the New Hospital will be built within the "buffer zone" identified in the Draft EIR; and that construction will be staged in the Surge parking lot, which is adjacent to these residences with no vegetative separation. The commenter requests that the EIR should address how construction will affect the air and noise quality for neighbors on Edgewood Avenue and, once constructed, what the effect of air and noise pollution from the New Hospital will be for these residences, in addition to what steps UCSF plans to mitigate those effect.

The response to much of this comment can be found in Response I-Kessler-16, above. Specifically, Response I-Kessler-16 addresses the characterization of the buffer in the existing setting section of the Draft EIR, the air quality and noise impacts with respect to the use of the Surge parking lot as a staging area and the methods by which the localized air quality impacts for residences of this neighborhood were considered in the Draft EIR. Localized air quality impacts are addressed on Draft EIR pages 4.2-45 through 4.2-63.

As stated in Section 4.11 Noise and Vibration on page 4.11-24 of the Draft EIR, the potential staging at the Surge parking lot would be located as close as 20 feet from the nearest off-site receptors (on Edgewood Avenue). Emissions from the staging area would be limited to starting of off-road equipment prior to deployment to the work sites or trucks delivering materials and would be reasonably expected to be of brief duration and not a substantial source of $PM_{2.5}$ emissions. CPHP Mitigation Measure NOI-1a: Construction Noise Control Measures would require shielding of the staging area where adjacent sensitive receptors have direct line-of-sight with loading and delivery activities which would reduce off-site noise impacts and off-site transport of fugitive dust emissions as would the watering requirement of CPHP Mitigation Measure AIR-1b. Localized noise impacts with respect to operational noise are programmatically addressed on Draft EIR pages 4.2-26 through 4.2-33.

Please also note that air quality and noise impacts from the operation of the New Hospital, including any potential impacts on the neighborhood to the east, will be analyzed and presented in a project-level EIR that will be prepared for that project, and if the programmatic CPHP mitigation measures are not adequate to address the impacts of the project, additional project-specific mitigation measures will be developed to mitigate the impacts of that project.

I-Jones-3 The commenter asserts that the proposed New Hospital would cut directly into the adjacent hillside in the Reserve, and destroy Green Space, including trees and animal habitat, and paths. The CPHP Draft EIR addressed all potential environmental impacts associate with the potential encroachment of the New Hospital into the adjacent reserve, including impacts to biological resources and recreation, and mitigated those impacts to the extent feasible. It should be noted that UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP, including the New Hospital, when detailed designs become available. Furthermore, as discussed in the Draft EIR Section 4.15, Recreation, page 4.14-7, under the CPHP, UCSF would maintain Reserve trail access to and from the Farnsworth Lane trailhead.

Please also note that while CPHP construction may occur intermittently over the duration of the CPHP, construction of the New Hospital would occur over a duration of approximately 6.5 years (mid 2023 to beginning of 2030). As part of the project approvals for the CPHP, the proposed LRDP Amendment will include revisions to functional zones, include the adjustment to the Reserve boundary, and the proposed open space swap. When the New Hospital is designed, if it is determined that this project would not result in encroachment into the Reserve, UCSF would then reverse that change to the Reserve boundary.

Lastly, the commenter asserts that the Surge parking lot would be removed. The commenter is referring to a prior concept that was briefly under consideration but later rejected. However, as illustrated in the Draft EIR, Chapter 3, Project Description, page 3-40, an approximate 0.40-acre of undeveloped land between the Surge and Woods parking lots would be redesignated from Support to Open Space Reserve.

I-Jones-4 The comment states that the proposed project, and particularly the New Hospital would result in substantial view blockage and substantial shading of Grattan Playground. Please refer to Master Response 7: Aesthetic Impacts, and Master Response 9: Shadow Impacts.

I-Jones-5 The comment asserts that the Draft EIR does not adequately assess the CPHP's transportation impacts due to constrained roadway capacity in the vicinity of the campus site. As discussed in Master Response 16, a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA. As such, the potential constrained capacity at and around the campus site

is not a CEQA concern and transportation impacts based on congestion and vehicular delay are appropriately not analyzed in the Draft EIR.

The comment states that the CPHP includes inadequate parking, which would lead to increase in the number of parked cars on nearby streets. As stated on page 4.15-33 and in Master Response 18, parking is not a CEQA significance topic, and additional discussion of parking supply and demand in the campus site vicinity is not required.

The comment also asserts that the analysis fails to account for how the phasing of the new housing under the CPHP will affect transportation impacts. The comment asserts that employees will travel longer distances and have greater impacts on transportation infrastructure because campus housing will be constructed in a later phase of the CPHP. As noted in Master Response 17, the travel demand and VMT analysis presented in the Draft EIR is based on commute patterns of existing employees, students, patients, and visitors. The Draft EIR transportation impact analysis of the project assesses the potential impacts of the Initial Phase projects and the CPHP, but does not assess project elements in a temporal or sequential fashion. As such, that new campus housing is included in latter stages of the CPHP does not affect the findings of the VMT analysis, of which populations, travel demand, and origins/destinations are all inputs. Thus, the analysis presented in the Draft EIR is both accurate and complete.

I-Jones-6 The commenter asserts the Draft EIR should include alternatives at the Mount Zion and Mission Bay campus sites. Please see Master Response 5: EIR Alternatives.

I-Jones-7 The commenter questions the size of the New Hospital in light of COVID-19. Please see Master Response 3: COVID-19.

I-Jones-8 The commenter indicates that the size and scope of the project is not in keeping with the best interests of the neighborhood, the city or UCSF; and requests UCSF to alter the CPHP to fit the prior agreed upon space ceiling. This comment does not address the adequacy of the Draft EIR. However, the comment has been noted and will be forwarded to decision-makers.

September 11, 2020

John A. Pérez, Chair
Cecilia Estolano, Vice Chair
Regents of the University of California
c/o Ms. Diane Wong
UCSF Campus Planning, Box 0286
San Francisco, CA 94143
EIR@UCSF.edu

Attn: Diane Wong

Re: Comment on Draft Environmental Impact Report, UCSF Comprehensive Parnassus Heights Plan (SCH 2020010175)

To Whom It May Concern,

Our family has lived in the Parnassus Heights neighborhood of San Francisco since 2008. We have four young children aged 7 to 14. Our home is located adjacent to the UCSF Parnassus campus – our kids can see the campus buildings and hear the noise from the campus power plant through their bedroom windows.

We submit the following comments on UCSFs Draft Environmental Impact Report ("DEIR") for its Comprehensive Parnassus Heights Plan ("CPHP").

1. We incorporate by reference into this letter the comments contained in the CPHP DEIR Richard Drury of Lozeau Drury LLP, Ed Leonard (resident), Robert C. Goodman (resident), and Dr. Lisa Kessler (resident). 1

2. The Space Ceiling prohibits UCSF from building the additional square footage called for in the CPHP. 2

> *"The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets) and **this limit shall be permanent."***
>
> *–Resolution of the Board of Regents of the University of California, May 21, 1976 (Exhibit A)*

The CPHP hinges on UCSF reneging on the Regents promise to never exceed 3.55 million square feet of development at the Parnassus Heights campus. Both UCSF and current UCSF Chancellor Sam Hawgood reaffirmed this promise in 2014.

The Space Ceiling is legally enforceable under the doctrines of promissory and equitable estoppel. Additionally, the violation of the Space Ceiling policy is a significant impact under CEQA and must be further analyzed. 2 cont.

3. The DEIR does not consider the impacts of COVID-19. 3

4. The DEIR project alternatives analysis is deficient. 4

5. The DEIR improperly delays the analysis of the hospital. 5

6. The DEIR does not adequately analyze the project's impacts on the following: aesthetics, wind, shadows, land use, public services, biological resources, air quality, and transportation. 6

For the reasons outlined above and incorporated by the reference herein, we believe that the DEIR is so materially flawed and inadequate that proper public review and comment is impossible. Therefore, we believe that UCSF must prepare a new DEIR and recirculate it for comment. 7

We also believe that UCSF is prohibited from building the additional square footage called for in the CPHP due to the Board of Regents 1976 resolution which permanently limits the amount of space that UCSF can build at the Parnassus Heights campus. 8

Thank you for considering these comments and the comments incorporated by the reference herein. We ask that you include this letter in the record of proceedings for this project.

Sincerely,

Scott Jacobs Jing Jacobs

Responses to Comments from Scott and Jing Jacobs

I-Jacobs-1 The commenter indicates incorporation by reference into the comment letter the comments raised by Richard Drury of Lozeau Drury LLP, Ed Leonard, Robert C. Goodman, and Dr. Lisa Kessler. For responses to these comment letters, please see the responses to Comment Letters O-LD1, O-LD2, LD3, I-Leonard, I-Goodman, and I-Kessler.

I-Jacobs-2 The commenter asserts that the space ceiling prohibits UCSF from building the additional square footage called for in the CPHP. Please refer to Master Response 4: Space Ceiling and Population.

I-Jacobs-3 The commenter asserts the Draft EIR does not consider the impacts of COVID-19. Please see Master Response 3: COVID-19.

I-Jacobs-4 The commenter asserts the Draft EIR alternatives analysis is deficient. Please see Master Response 5: EIR Alternatives.

I-Jacobs-5 The commenter asserts that the Draft EIR improperly delays the analysis of the hospital. As discussed in the Draft EIR Chapter 1, Introduction on page 1-7, a program EIR has been prepared for the CPHP that establishes a framework for tiered or project-program components. Accordingly, the Draft EIR provides a program-level analysis of the environmental impacts that could result from the development of the entire space program under the CPHP, including from the New Hospital, and identifies Plan-level mitigation measures to reduce potential significant effects of the CPHP. Further details of the New Hospital are being developed, including the specific design. Those elements of the New Hospital will be the subject of a subsequent project-specific environmental review when more details become available. It is anticipated that sufficient detail will be available to publish a project-level Draft EIR for the New Hospital in the summer of 2021.

I-Jacobs-6 The commenter makes a general comment that the Draft EIR does not adequately analyze the project's impacts on the following: aesthetics, wind, shadows, land use, public services, biological resources, air quality, and transportation. Due to lack of specificity in the comment, no direct response is possible; please see Master Response 2: General Comments on EIR and Environmental Topics.

I-Jacobs-7 The commenter asserts that the Draft EIR is so materially flawed and inadequate that proper public review and comment is impossible, and that UCSF must prepare a new Draft EIR and recirculate it for comment. Due to lack of specificity in the comment, no direct response is possible; please see Master Response 2: General Comments on EIR and Environmental Topics. As indicated in Section 8.1.4 in this Comments and Responses document, none of the specific issues identified in the comments, or response to these comments, result in any of the conditions of

Section 15088.5(a) being met. Thus, UCSF has determined that recirculation of the Draft EIR on the issues raised by the comments is not warranted.

I-Jacobs-8 The commenter asserts that UCSF is prohibited from building additional square footage under the CPHP due to the 1976 Regents' Resolution. Please refer to Master Response 4: Space Ceiling and Population.

UCSF Real Estate-Campus Planning

654 Minnesota Street

San Francisco, CA 94143

Attn: Diane Wong

EIR@UCSF.edu

September 11, 2020

Ladies and Gentlemen:

I am submitting the following comments on UCSF's Draft Environmental Impact Report for its Comprehensive Parnassus Heights Plan. For the reasons set forth below, I believe that the DEIR is so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment is precluded. Therefore, under section 15088.5 of the Guidelines for Implementation of the CEQA, UCSF must prepare and recirculate a new DEIR. I also believe that UCSF is barred from implementing the CPHP by virtue of the Board of Regents 1976 resolution permanently limiting expansion of UCSF's Parnassus Heights campus. 1 2

I. Failures to comply with California Environmental Quality Act which affect multiple sections of the EIR

1. UCSF's DEIR is attempting to create a hybrid EIR, combining elements of a Program EIR and a Project EIR in an attempt to evade specific project descriptions of significant elements of the CPHP, most notably the new hospital. However, the CPHP is within a constrained area with specific buildings and project elements and UCSF already has a high degree of definition of the details of the entire project. Recent California cases have rejected vague project descriptions and required the sponsoring agency to describe "stable, accurate and finite" project to allow informed public participation. The DEIR falls far short of this standard. 3
2. The DEIR analyzes the environmental impact of the CPHP as if each element is an independent project but does not consider the cumulative impact of all the projects, notwithstanding that they are all occurring on the same construction site at essentially the same time. This is contrary to CEQA Guidelines section 15130 (a) which requires that an EIR discuss significant 4

cumulative impacts. Several California cases, most notably *Communities for a Better Environment v. Cal. Resources Agency,* (2002) 103 Cal. App. 4th 98 have upheld these guidelines. While this defect applies to virtually all of the analyses in the DEIR of the environmental impacts of the CPHP, it is particularly troublesome with respect to the treatment of air quality and increased cancer risk. Long term exposure to toxic substances is known to increase both the likelihood of contracting cancer and the severity of the cancer. By failing to consider the cumulative effects of exposure UCSF is both ignoring CEQA guidelines and exposing its neighbors to unnecessary and significant risk.

4 cont.

3. The DEIR contains mitigation measures in many of its sections but essentially contains no discussion of the environmental impact of such mitigation measures. CEQA Guideline Section 15126.4(a)(1)(D) requires an analysis of the environmental impact all mitigation measures.

5

II. The Space Ceiling prohibits the expansion envisioned by the CPHP

In order to induce a citizens group to withdraw a lawsuit opposing an expansion to the Parnassus Heights campus, the Board of Regents in 1976 adopted a resolution permanently establishing a Space Ceiling of 3.55 million square feet on the space it would occupy at that campus. The Regents' resolution states:

"The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use …) **and this limit shall be permanent.**"

6

The CPHP would increase the Space Ceiling to 5.05 million square feet.

UCSF has repeatedly reaffirmed its commitment to the Space Ceiling and to consulting with its neighbors before deciding on major planning decisions. These reaffirmations generally occurred in the context of a UCSF planned expansion which would have exceeded the Space Ceiling if it were not for the objection of local groups. The 1994 Long Range Development Plan explicitly committed to the Space Ceiling and set forth how UCSF would satisfy its obligations. UCSF again reaffirmed this undertaking only six years ago in its 2104 Long Range Development Plan, Appendix D of which commits UCSF to pre-decision consultation.

UCSF also acknowledged and relied on the binding, permanent nature of the Space Ceiling in a filing in a California Supreme Court case, *Laurel Heights Improvement Ass'n v. Regents of University of California ("Laurel Heights II")* (1993) 6 Cal.4th 1112. In the draft EIR for the Laurel Heights project, UCSF stated that it was unable to add to its Parnassus Heights campus because the Space Ceiling prohibited it from doing so. The court relied on the draft EIR and UCSF's reliance on the 1976 resolution in determining that UCSF had an adequate basis for determining that expansion at the Parnassus Campus was not feasible. It is completely disingenuous to declare in a litigation brief to the California Supreme Court that the Space Ceiling has a binding effect preventing the University from expanding at Parnassus then, without consulting the parties who negotiated and relied on the commitment, to later maintain that it is free to disregard it if it so choses.

Notwithstanding these repeated and publicly declared commitments, the CPHP ignores them. Although a series of community meetings was convened on the CPHP, community comments were solicited in a highly scripted and biased manner and, despite repeated demands, the Space Ceiling never became a topic of discussion.

Richard Drury, who is representing the Parnassus Neighborhood Coalition, has submitted a response confirming that the Space Ceiling is a legally enforceable obligation of UCSF. In his comments, Mr. Drury points out that "the Space Ceiling is a policy adopted by the Regents to address the environmental impacts in almost every area: traffic, population, growth inducement, air pollution, noise, etc. The violation of the Space Ceiling is therefore a significant impact that must be analyzed under CEQA. The most obvious alternative is for the University to continue to abide by the Space Ceiling. This is a feasible alternative since it was deemed feasible only a few years ago in the 2014 LRPD."

6 cont.

III. Specific sections of the EIR which fail to meet CQEA requirements

***Air Quality*.** Dr. Lisa Kessler has submitted detailed comments on this section, pointing out that multiple tables in section 4.2 of the DEIR show dramatically increased cancer risk to surrounding neighborhoods with a reduction to "less than significant" impact based on mitigation strategies. However, the DEIR does little to show how these mitigation strategies will reduce the health risks. The standard

7

for analyzing these risks was set forth in *Sierra Club v County of Fresno 6 Cal 5th 502 (2018),* which held that an EIR must provide facts or analysis to support the inference that mitigation will have a quantifiable substantial impact on reducing adverse effects, not just rely on "bare conclusions or opinions." The DEIR contains only conclusions and opinions and does not meet this standard. Dr. Kessler also notes that the DEIR mentions the impact of toxic emissions on the Haight Ashbury pre-school several blocks beyond Edgewood Avenue but does not mention the impacts on Edgewood Avenue, notwithstanding that Edgewood Avenue is both proximate to the construction and is a neighborhood whose population includes small children and elderly residents.

The *Sierra Club* decision cited above stated that "CEQA requires that the EIR have made a reasonable effort to discuss relevant specifics regarding the connection between two segments of information already contained in the EIR, the general health effects associated with a particular pollutant and the estimated amount of that pollutant the project will likely produce." UCSF's DEIR makes no attempt to connect these two segments and thus fails to meet the *Sierra Club* standard.

7 cont.

Alternatives to the CPHP. In the published CPHP, UCSF makes the unsupported assertion that a massive hospital is necessary on the Parnassus Heights site in order to foster communication and collaboration between all three elements of its business; research, education and patient care. It also conflates the very real requirement of upgrading one of its existing hospitals to current seismic standards with its desire to increase revenues by adding a significant number of hospital beds through the construction of a new hospital on the site. There are several suitable, if not superior, alternatives to accomplishing UCSF's objectives, not requiring the building of an elephantine structure, completely unsuitable for the space it will occupy, in a residential neighborhood. **If UCSF really requires a hospital as big as it claims, it should find an appropriately scaled new site.**

8

UCSF has produced an unimaginative plan to address its potential future growth and many other, more creative and forward-looking, as well as practical, alternatives exist. Further, UCSF's projections of future population growth in San Francisco are all pre-Covid-19. Many commercial and residential real estate developers are revising their projections of population growth in the Bay Area in

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the light of Covid-19 and other urban problems and the increasing acceptance of remote work. UCSF's Draft Environmental Impact Report acknowledges that the impact of the pandemic cannot be predicted without speculation at this point, yet it nevertheless intends to implement the CPHP relying on pre-Covid-19 growth projections. No one knows what post Covid-19 medical care will look like. The damage to the Parnassus Heights neighborhood and the City will be permanent and the effectiveness of the UCSF's plan in the post Covid-19 world is highly uncertain.

9 cont.

CEQA Guidelines require that an EIR "[d]escribe a reasonable range of alternatives to the project, or to the location of the project, which could feasibly attain the basic objectives of the project and evaluate the comparative merits of the alternatives." (Guidelines, § 15126, subd. (d).) These alternatives must be discussed, "even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." UCSF's Draft EIR did not consider a reasonable range of alternatives and therefore the DEIR fails to comply with CEQA requirements. Of those alternatives considered, UCSF generally dismissed them as being inefficient or impeding project objectives. All of the alternatives below are "feasible project alternatives … considerably different from others previously analyzed [which] would clearly lessen the significant environmental impacts of the project", the standard under the CQEA guidelines for requiring an analysis of an alternative to a project.

10

Alternatives which should have been seriously considered include:

Reimagining Parnassus Heights. The CPHP envisions a hospital centric Parnassus Heights, dominated by a 16 story structure replacing the current four story Langley Porter Psychiatric Hospital and Clinics facility. Moving the proposed hospital to another more suitable location would enable UCSF to emphasize its education and research functions by building or converting spaces to classrooms and spaces appropriate for learning and research. In the process it would both enhance its ability attract high caliber students who would appreciate the rustic character of the existing neighborhood and avoid destroying those attributes that make Parnassus Heights special. The Moffit/Long hospital complex, planned to be upgraded to comply with seismic requirements, should be more than adequate to fulfill UCSF's collaboration objectives and its desire to maintain an emergency

11

room in the western portion of the city (several emergency rooms, as well as urgent care facilities which serve many of the same needs as those fulfilled by emergency rooms, already exist nearby).

11 cont.

The Shipyard at Hunters Point. There are hundreds of acres available for development at the Shipyard. UCSF could build an entire campus on the site. A new UCSF campus could be designed to accommodate all of the existing activities at Parnassus Heights, the expansion proposed in the CPHP, as well as future growth. UCSF could acquire enough space that future buildings could be constructed without demolishing existing structures as is required at Parnassus Heights. In order to finance a development at the Shipyard, all or a portion of the Parnassus campus could be sold. It is a desirable location for housing and would easily attract a buyer. The Shipyard is an easy commute via 3rd Street to UCSF's Mission Bay campus, facilitating collaboration between the various divisions at the two locations. Further, the Shipyard could easily accommodate a helicopter landing pad for emergency medical treatment and a ferry landing for visitor access to patients.

In addition, locating a UCSF campus at the Shipyard would provide a much-needed health care facility in that district. Current trends in health care emphasize providing long term preventative consultation, improving the overall health of a population thus both reducing the need for acute care and improving the economics of hospitals. Poor communities, such as those surrounding the Shipyard, have traditionally not had good access to preventative care. Locating the hospital and supporting outpatient facilities to the Shipyard has the potential of significantly improving the overall health of that population and reducing the need for acute interventions.

12

Locating a the hospital and perhaps other elements of UCSF's current Parnassus campus at the Shipyard would also help to economically revitalize the entire area. The Cleveland Clinic is a model for how an academic, research and patient care organization, similar in prestige and size to UCSF, revived an entire section of the city by locating most of its operations to a previously disadvantaged area.

Prior contamination at the Shipyard has been remediated and the only parcel which remains untreated would not interfere in any way with a new UCSF campus. Two former San Francisco Mayors support a UCSF development at the

Shipyard, one of whom, Mayor Art Agnos, made a serious proposal for UCSF to expand at the Shipyard to then Chancellor Julie Krevans 30 years ago. 12 cont.

Mount Zion. UCSF owns Mt. Zion, which was sitting empty until it was reopened in early 2020 to care for Covid-19 patients. The reopening demonstrates the usefulness of having two separate locations to provide continuity of care and revenue. It also demonstrates that two smaller hospitals are a superior alternative to one huge hospital. Mt. Zion occupies an entire city block and is easily accessible by public transportation as well as being surrounded by existing UCSF medical offices. UCSF did not make a detailed evaluation of this alternative citing, among other things, decreased efficiency for UCSF staff and students. (Mt. Zion is only 2.5 miles from the Parnassus Heights campus.) 13

The 2014 Long Range Development Plan. In 2014, only six years ago, UCSF adopted the 2014 LRDP which complies with the Space Ceiling and is currently in effect. Under the LRDP, Parnassus Heights was to remain UCSF's home for classroom instruction, the four schools, adult inpatient facilities, a variety of outpatient clinics, research, housing and support. However, as called for in the *1976 Regents Resolution* and the 1996 LRDP, the **decompression** of space at Parnassus Heights was proposed to continue. New buildings would be added only if old ones were demolished and programs not essential to the campus would be relocated to other sites. Since both the 2014 LRDP and the Space Ceiling are currently in effect and the local community has relied on them, UCSF should not be allowed to dramatically breach them as proposed in the CPHP. 14

Mission Bay. UCSF currently operates three hospitals at Mission Bay and has stated that it expected future expansion to take place at this location. UCSF's promotional literature extolls Mission Bay as bringing together leading physicians and scientists to accelerate the translation of laboratory discoveries into actual treatments and cures, the same rationale given for the new hospital's location at Parnassus Heights. Why would the addition of a large hospital at a location already dedicated to an integrated approach not more effectively accomplish this objective? 15

Seton Medical Center. UCSF does not own the Seton Medical Center but may be able to acquire it. It has 357 hospital beds and is located on Highway 280 with good access to both Parnassus Heights and Mission Bay. It serves an important 16

underserved community of color and would broaden the reach of UCSF beyond the city limits of San Francisco, one of UCSF's stated goals. 16 cont.

Inadequate Information and Analysis of Adverse Biological Impacts. Shawn Smallwood, PhD, has submitted comments, attached to those of Richard Drury, counsel for the Parnassus Neighborhood Coalition. Mr. Smallwood finds that the DEIR inadequately analyzes the potential impacts to wildlife. Of the 40 special-status species of birds in the Mt. Sutro Open Space Reserve documented by the Golden Gate Audubon Society and Mr. Smallwood, the EIR addresses only 6 of them. Mr. Smallwood also finds the DEIR deficient in that it fails to consider the cumulative impact of bird collisions of the project together with other buildings in San Francisco. The DEIR also omits any details about the design of the proposed new hospital which would permit an accurate assessment of the probable increase in bird fatalities resulting from collisions. 17

Inadequate Analysis of Aesthetic and Parking Impacts. The DEIR states at Section 4.0.3 that the impact on the environment of Aesthetics and Parking are not required to be considered under CEQA but that UCSF has included an analysis in the DEIR as the public and decision makers "may be interested" in such an analysis. The DEIR then goes on, without a complete analysis of the aesthetic impacts, to dismiss such impacts as insignificant and does not analyze parking impacts at all. However, the DEIR incorrectly relies on Section 21099 of the CEQA Guidelines which exempts "employment center projects" on an "infill" from the requirement to consider aesthetic and parking impacts. An employment center project is defined in Section 21099 as project on property zoned for commercial uses. The Parnassus campus in not zoned for commercial uses, the exemption does not apply and therefore the EIR must be revised to fully analyze the aesthetic and parking impacts and to correct the misinformation that the parking and aesthetic impacts need not be considered. 18

Perhaps because UCSF maintained it was not required to provide analysis meeting CEQA's full requirements, the analysis UCSF did supply is conclusory and does not take into account the full effect of its new hospital on the City of San Francisco and the neighborhoods surrounding the Parnassus campus. The new hospital encroaches on the Mt. Sutro Open Space Reserve across Medical Center Way. In 19

addition to physically intruding on the reserve, the proposed gigantic structure will be a complete obstruction of the public view of the western portion of City from the Farnsworth tailhead, a view which now extends all the way to the Pacific Ocean. On its website, UCSF describes the Parnassus area as an oasis in the city but the new hospital will transform the initial access to a popular hiking trail from an entry point to the natural world to an experience reminiscent to the view of the happily long ago demolished Embarcadero Freeway. The Draft EIR also shows, not surprisingly, that the new hospital will block a number of other public views, most importantly views of the Mt. Sutro Open Space Reserve from Lincoln Way. San Francisco's public views of land, water and open space provide its inhabitants and visitors a sense of serenity and distinguish San Francisco from most other important cities. UCSF's expansion plan undermines these precious qualities and unnecessarily contributes to the Manhattanization of the City.

19 cont.

The DEIR Fails to consider the Impact of Covid-19. The DEIR concedes that Covid-19 has implications for the project but avoids analyzing them because it would be "too speculative." However, the likely implications of Covid-19 are enormous, possibly dramatically reducing the need for office, classroom and clinical space. The CPHP has significant adverse effects on the environment of San Francisco and the neighborhoods near UCSF's Parnassus Heights campus. CEQA requires that these effects be weighed against the potential benefits of the project. This cannot be done without a thorough analysis of the impact of Covid-19.

20

For the foregoing reasons, I, and the PNC, believe that the Draft EIR is wholly inadequate. UCSF should prepare a revised DEIR to address the concerns raised in this letter and those of PNC's attorney, Richard Drury. Thank you for considering our comments.

21

Very truly yours,

Edward Leonard

Responses to Comments from Edward Leonard

I-Leonard-1 The commenter asserts that for the reasons set forth in the comment letter, that the Draft EIR is fundamentally and basically inadequate, and conclusory in nature, that meaningful public review and comment is precluded; and therefore, under Section 15088.5 of the CEQA Guidelines, UCSF must prepare and recirculate a new Draft EIR. As demonstrated in the individual responses provided to the comments raised, and further in Section 8.1.4 in this Comments and Responses document, none of the specific issues identified in the comments, or response to these comments, result in any of the conditions of Section 15088.5(a) being met. Thus, UCSF has determined that recirculation of the Draft EIR on the issues raised by the comments is not warranted.

I-Leonard-2 The commenter asserts that UCSF is barred from implementing the CPHP by virtue of the 1976 Regents' Resolution permanently limiting expansion of UCSF's Parnassus Heights campus site. Please refer to Master Response 4: Space Ceiling and Population.

I-Leonard-3 The commenter assert that the Draft EIR is attempting to create a hybrid EIR in an attempt to evade specific project description of elements of the CPHP, including the New Hospital.

As allowed under Section 15168 of the CEQA Guidelines, the CPHP EIR is a program EIR that establishes a framework for tiered or project level environmental documents that would be prepared in the future in accordance with the overall CPHP program. Accordingly, this EIR provides a program-level analysis of the environmental impacts that could result from the development of the entire space program under the CPHP – including the New Hospital - and identifies Plan-level mitigation measures to reduce potential significant effects of the CPHP.

In addition, this EIR includes project-level analysis for the following CPHP Initial Phase developments: Irving Street Arrival, RAB, and initial Aldea Housing Densification; and certain Initial Phase improvements (e.g., utility improvements, Parnassus Avenue Streetscape Plan, building renovations of existing buildings, and community investments). The analysis of these Initial Phase development projects and improvements at the project-level is intended to provide sufficient detail to permit project approval and implementation following certification of the CPHP Final EIR.

The commenter's assertion that UCSF has a high degree of definition of the details of the entire project is a mischaracterization. As noted in the Section 1.5 of the Draft EIR, UCSF has begun to plan the New Hospital at Parnassus Heights. Further details of the New Hospital are being developed, including the specific design. Those elements of the New Hospital will be the subject of a subsequent project-specific environmental review when more details become available. It is anticipated that sufficient detail will be available to publish a

project-level Draft EIR for the New Hospital in the summer of 2021. Details of the CPHP Future Phase projects are expected to be developed later, as those CPHP components are not intended to be developed until between 2030 and buildout of the CPHP in 2050. When details on CPHP Future Phase projects are known, each Future Phase project would be reviewed in light of the CPHP Final EIR to determine the appropriate level of additional environmental review, if any, needed before approval and implementation of the particular project.

I-Leonard-4 The commenter's claims that the Draft EIR does not discuss cumulative impacts is incorrect. The commenter is referred to Section 4.0, pages 4.0-7 to 4.0-8 in the Draft EIR for a description of the EIR's approach to its cumulative impact analysis. As explained there, each technical section in the Draft EIR includes a description of the cumulative analysis methodology and the geographic or temporal context in which the cumulative impact is analyzed. Consistent with CEQA Guidelines Section 15130(b), the cumulative impact analysis considers the CPHP's effects in combination with the projections contained within previously approved planning documents and forecasting models, regional planning documents, as well as applicable associated environmental review documents. In addition, consistent with CEQA Guidelines Section 15130(b), the cumulative impact analysis also considers other known or reasonably foreseeable projects that could combine with potential impacts from implementation of the CPHP within the pertinent geographic area. As with the programmatic and project-level impacts, mitigation is identified to mitigate cumulative impacts to the extent feasible.

Three separate analyses are included in all sections of the Draft EIR. The first analysis presents the environmental impacts that would result from campus site buildout under the CPHP. Impacts from the entire development program are analyzed at a program level– this program level analysis is the "cumulative analysis" requested by the commenter; it covers all potential development under the CPHP that would occur on the campus site, following CPHP approval through buildout in approximately 2050. The second analysis in the Draft EIR is a project-level analysis of three of the Initial Phase projects (Irving Street Arrival, RAB, and initial Aldea Densification project) and certain Initial Phase improvements. The third analysis in the Draft EIR analyzes the cumulative impacts of all of the CPHP development, when combined with other past, present and reasonably foreseeable future development in the pertinent project area.

The Draft EIR does not fail to disclose cumulative air quality impacts of the CPHP, including exposure to toxic air contaminant emissions. Please refer to Draft EIR page 4.2-69 for the discussion of cumulative air quality impacts with respect to regional emissions of criteria air pollutants. This impact is identified in the Draft EIR as significant and unavoidable. Please refer to Draft EIR pages 4.2-69 through 4.2-72 for the discussion of cumulative air quality impacts with respect to localized health impacts from the proposed CPHP. This impact is identified in the Draft EIR as less than significant with implementation of CPHP Mitigation Measures AIR-1a and AIR-1b.

I-Leonard-5 The commenter asserts that the Draft EIR contains no discussion of the environmental impacts of mitigation measures; no specific mitigation measures are cited in the comment. In fact, there are no mitigation measures identified in the Draft EIR which would result in one or more significant environmental effects in addition to those that would be caused by the project as proposed.

I-Leonard-6 The commenter asserts that the space ceiling prohibits the expansion envisioned by the CPHP, but UCSF ignores the space ceiling commitment. Please refer to Master Response 4: Space Ceiling and Population.

I-Leonard-7 This comment reiterates a comment included in Comment Letter I-Kessler with respect to health risk reductions resulting from implementation of CPHP Mitigation Measure AIR-1a, but then goes on to state that CEQA requires that the EIR have made a reasonable effort to discuss relevant specifics regarding the connection between two segments of information already contained in the EIR, the general health effects associated with a particular pollutant and the estimated amount of that pollutant the project will likely produce.

Please refer to the Response I-Kessler-14 for a discussion substantiating the health risk reductions resulting from implementation of CPHP Mitigation Measure AIR-1a in the Draft EIR.

Please refer to Response I-Kessler-17 with respect to the specific health effects (acute and chronic) related to the significant and unavoidable regional PM_{10} emissions impact identified in the Draft EIR.

As a part of the Draft EIR analysis, UCSF commissioned a Health Impact Assessment (HIA) to address concerns of the decision of the California Supreme Court in *Sierra Club v. County of Fresno*, (2018) 6 Cal.5th 502 ("Friant Ranch"). The results of the HIA are summarized on pages 4.2-37 through 4.2-42 of the Draft EIR and the full HIA is located in Appendix HIA of the Draft EIR. Please refer to these section with respect to the health effects of the significant and unavoidable air quality impact identified for the proposed CPHP.

I-Leonard-8 The commenter suggests that UCSF should find an alternative site if it requires a new hospital as big as the one proposed, questioning UCSF's motivation, and indicating that "there are several suitable, if not superior, alternatives to accomplishing UCSF's objectives" that do not require such a large hospital building. Please see Master Response 5: EIR Alternatives.

I-Leonard-9 The commenter questions the UCSF's population projections in light of COVID-19. Please see Master Response 3: COVID-19.

I-Leonard-10 The commenter asserts the Draft EIR did not include a reasonable range of alternatives. Please see Master Response 5: EIR Alternatives.

I-Leonard-11 The commenter asserts the New Hospital should be at a more suitable location. Please see Master Response 5: EIR Alternatives.

I-Leonard-12 The commenter indicates an alternative site involving the Shipyard at Hunters Point should be addressed in the EIR. Please see Master Response 5: EIR Alternatives.

I-Leonard-13 The commenter indicates an alternative site involving the Mount Zion campus site should be addressed in the EIR. Please see Master Response 5: EIR Alternatives.

I-Leonard-14 The commenter asserts that since both the 2014 LRDP and the Space Ceiling are currently in effect and the local community has relied on them, UCSF should not be allowed to dramatically breach them as proposed in the CPHP. Please refer to Master Response 4: Space Ceiling and Population.

I-Leonard-15 The commenter indicates an alternative site involving the Mission Bay campus site should be addressed in the EIR. Please see Master Response 5: EIR Alternatives.

I-Leonard-16 The commenter indicates an alternative site involving the Seton Medical Center should be addressed in the EIR. Please see Master Response 5: EIR Alternatives.

I-Leonard-17 The commenter refers to comments in Comment Letter O-LD2 regarding the number of species of special-status birds in the Open Space Reserve, and cumulative impacts of bird collisions with structures. Please see Response O-LD2–31.

The commenter also takes issue with the lack of detail of the design of the proposed New Hospital. Please see Response I-Leonard-3, above.

I-Leonard-18 The commenter asserts that the CPHP does not meet the definition in Section 21099 of being an employment center project, or being on an infill site. Please see Master Response 6: Public Resources Code 21099.

I-Leonard-19 The comment states that the Draft EIR's aesthetics analysis is inadequate and that the proposed New Hospital would substantially obstruct views. Please refer to Master Response 7: Aesthetic Impacts.

I-Leonard-20 The commenter asserts the Draft EIR fails to consider the impact of COVID-19. Please see Master Response 3: COVID-19.

I-Leonard-21 The commenter asserts that for the reasons identified in the comment letter, that the Draft EIR is wholly inadequate, and that UCSF should prepare a revised Draft EIR to address the concerns raised in this letter and those of Richard Drury's letter. Please see Response I-Leonard-1, above. For responses to the Richard Drury comment letters, please see the responses to Comment Letters O-LD1, O-LD2, and LD3.

Lori Liederman
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September 11, 2020

Ms. Diane Wong
UCSF Real Estate – Campus Planning
654 Minnesota Street
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Email: EIR@ucsf.edu

Re: Comments on DEIR for proposed UCSF Comprehensive Parnassus Heights Plan (CPHP)

Dear Ms. Wong:

I am submitting a few both general and specific comments on the DEIR.

In reviewing the document, two patterns struck me as broadly inadequate.

1. Several proposed mitigations under one CEQA category are likely to enhance problems under different CEQA categories. Example:

    - Section 4.15 Transportation: The CPHP discourages private one-person auto-use hoping to mitigate increases in air pollutants and impacts on circulation. However, it simultaneously anticipates and encourages an increase in TNC utilization, which will offset any improvements gained in those two categories from reduced personal vehicle use.

1

2. Several proposed mitigations appear to be voluntary or encouraged but easily ignored, either by UCSF or by some of the numerous contractors and workers on site.

    - Section 4.2 Air Quality: "Signs shall be posted stating "diesel trucks are prohibited from idling more than 5 minutes". *[This is unenforceable}*

    - Under Section 4.15 Transportation: "UCSF shall require the construction contractor to include in the Construction Traffic control Plan methods to **encourage** walking, bicycling, carpooling, and transit access to the campus site by construction workers." *[Emphasis added – also unenforceable]*

2

Specific CEQA categories are addressed as follows:

Population and Housing

Table 2-3: Summary of CPHP Impacts and Mitigation Measures
EIR Section 4.12 Population and Housing.

Under this heading the DEIR submits that

- No mitigation is required with respect to an increased demand for housing outside the market area and would not displace substantial numbers of existing people or housing. It further asserts that it would not result in a cumulatively considerable contribution to significant cumulative population and housing impacts.

3

The DEIR downplays impacts on population and housing. While stating that the project will generate a direct need for 2,030 units by the year 2025, the only planned housing units in the first phase of the project are for 142 additional units at the Aldea complex, hardly scraping the surface of the stated need. Even by the end of the 30-year construction period, the total number of projected units is considerably short of the stated need.

Page 3-12
"Currently across all UCSF sites there are 1,251 units of faculty and student/trainee housing. Based on a Housing Study conducted in 2015, the estimated demand in 2025 for student/trainee housing would be about 2,030 units. Estimated demand for faculty housing would be 345 units. The estimated demand far exceeds what is currently available across UCSF sites."

The DEIR claims to "address the needs of the Parnassus Hts community and to offset the pressures on San Francisco's existing inventory"

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In fact UCSF projects a direct need for a total increase of 1,124 new units by 2025, solely for student/trainees and faculty but only has plans to add 142 in phase 1 and a final total of 762, the great majority of these to be built in the later phases of the project, long after the 2025 projected need is likely to be eclipsed. (pp. 3-34: Total increase at Aldea = 332 units, plus 430 units along 4th Ave. extension)

Further, the stated need refers exclusively to projected student/trainees and faculty and fails to consider workforce housing for additional staff (many in low-paid jobs) or the secondary impacts of that increased population. It has been well established that every 100 market rate units generate a need for 30 affordable units, based on the types of services that are needed to support those residents. UCSF's calculations fail to take those secondary impacts into consideration. Simultaneously there is no recognition of the need for deeply affordable housing to accommodate the low to moderate-paid administrative and support staff who will be required to provide support services in the new hospital, labs, and schools. Relying on the City and private developers to build nearby housing that will be available to UCSF staff is unrealistic. San Francisco already faces a severe shortage of affordable housing for seniors, transitional age youth, families and low to middle income workers. The neighborhoods adjacent to the Parnassus campus have little to no available land for construction. Any

5

demolition would inevitably lead to displacement of current residents within these neighborhoods and if new construction is not deeply affordable it will contribute to further gentrification, which has been repeatedly shown to accelerate displacement. 5 cont.

In summary, the DEIR fails to reasonably address the impacts of the proposed CPHP on population and housing. 6

Transportation/Vehicle miles driven:

4.15-29: Daily peak hour external person trips are expected to increase by approximately 50 percent. While carrots and sticks are contemplated (incentives and costs) to discourage individuals from driving to the campus, the increase in population will add to total vehicle miles driven even if many of those vehicles are TNC's or private cars that park away from Parnassus Hts and then use public transit, "bike-share" or walk to reach the campus. This is already a common practice for many employees and students at large institutions in San Francisco who commute from out of the city, and it will doubtless increase among those working and studying at UCSF. Many of those using automobiles will be commuting from long distances due to the high cost of housing in the urban core and nearby communities. Reducing the immediate access to UCSF for private vehicles will not reduce the overall impact on the environment and specifically on air quality generated by the increased daily population and their use of all modes of transportation. 7

The CPHP anticipates incentives and restrictions in order to limit private single occupant automobile travel to the campus. Whether or not net reductions can be achieved given the substantial increase in daily population is doubtful, but if some percentage of reduction in private auto use is achieved, the net increase in dependence upon public transit will be significant. Commensurate financial support to MUNI is essential in order for the mass transit option to be viable not only for UCSF but also for the neighborhoods relying on affected lines. 8

Unlike the Mission Bay campus Parnassus is adjacent to well-established and already congested neighborhoods. Existing streets and public transit will not support a significant daily long-term increase in circulation. 9

The 30-year construction period will generate a continuous and dramatic increase to congestion not only in the adjacent streets but also on all major routes used to access the sites. This will be most challenging when diesel trucks are carrying out loads from demolition and returning empty for more loads throughout the day, and when vast quantities of construction materials are being supplied. 10

During the construction period vehicle miles driven by construction workers will be significant. The mitigations proposed in the DEIR are entirely voluntary and likely to provide only a slight constraint on single occupancy vehicles traveling to the worksite or other nearby locations. A shuttle service should be established for construction workers, possibly from Mission Bay or other location with easier access to BART, Cal Train, SamTrans, AC Transit and Golden Gate Transit. A parking area for those workers who do drive regularly or occasionally from out of San Francisco needs to be provided to reduce impacts on the immediate neighborhoods. This should be considered as a reasonable and necessary mitigation. 11

The wear and tear on both nearby streets and all major truck routes warrants substantial mitigation to maintain and repair damaged roadways during and after construction. 11 cont.

NOISE AND VIBRATION

While regular work hours are established in the DEIR, the project gives itself permission to violate those hours on a regular basis as long as neighbors receive prior notification. This is an utterly inadequate "mitigation". In fact it is no mitigation at all. 12

As more residents work from home and we increasingly see potential for temporary school closures due to an ever-lengthening annual fire-season, the hardships imposed on residents from near-constant significant noise will doubtless have adverse health impacts. 13

The site is surrounded on 3 sides by residential neighborhoods and on its 4th side by an open-space preserve, which is home to numerous bird and animal species. Constant noise is likely to interfere with animal behavior that relies heavily on sensitive hearing. Mt. Sutro is also an important recreational area, where workers and residents seek much needed respite from the intensities of an urban environment. This otherwise calm preserve will be substantially disturbed during the many extended periods of construction. 14

The Parnassus site is on a hill adding even greater impacts from vehicle noise as loaded trucks strain up the hill and empties barrel and bounce down. 15

All sensitive receptors will be adversely impacted by the continuous noise and frequent vibration generated during much of the construction period. 16

Additional more stringent mitigations must include but not be limited to: 17

- Regular construction hours strictly adhered to with no exceptions during periods that require frequent truck trips, heavy equipment use and other loud or frequent noise producing activities. Extended construction hours must be limited to quiet interior work.
- Advance notice required/provided even during regular working hours when heavy truck traffic and/or loud and/or vibration producing equipment use is scheduled so that adversely impacted residents and workers can attempt to schedule adjustments to their routines in advance.
- UCSF must be prepared to fully compensate nearby property owners for any and all damage attributable to construction-generated vibrations.

Please provide due consideration to these concerns and suggestions in your environmental review process. 18

Sincerely,
Lori Liederman

Responses to Comments from Lori Liederman

I-Liederman-1 The comment states that UCSF will continue to discourage drive-alone vehicle use as part of its robust TDM program (as described on pages 4.15-12 through 4.15-14 of the Draft EIR) while at the same time the transportation analysis forecasts increased used of taxi, TNC and drop off modes, which could lead to increases in vehicle trips with an increasing campus population. These phenomena are both accounted for in the Travel Demand Estimates subsection of the Draft EIR on pages 4.5-29 to 4.5-33 and the subsequent transportation impact analysis and findings included in the Draft EIR. Please also see Master Response 17: Mode Share Assumptions and Methodology.

I-Liederman-2 This comment states that one air quality mitigation measure and one transportation-related mitigation measure in the Draft EIR are not enforceable.

The air quality mitigation measure requires posting of signs at loading dock areas. Enforcement of this measure would be accomplished though implementation of the CPHP mitigation monitoring and reporting program.

CPHP Mitigation Measure TRANS-5 provides a list of measures for the University to implement that would be expected to reduce the construction-related transportation impacts. Given the difficulty in enforcing this specific aspect of the mitigation measure, this component is phrased such that UCSF shall require that the construction contractor shall include in the Construction Control Plan methods to encourage that walking, bicycling, carpooling and transit to be used to access the campus site by construction workers. Nevertheless, this measure, in conjunction with the required other measures identified in CPHP Mitigation Measure TRANS-5, are anticipated to effectively reduce the construction related transportation impacts to a less than significant level.

I-Liederman-3 The commenter states that the Draft EIR downplays the CPHP's impacts on population and housing, as the project would add more jobs and not enough housing.

Please refer to Master Response 14: Population and Housing Impacts, regarding the scope and approach to the analysis of population and housing impacts in the Draft EIR.

I-Liederman-4 The commenter states that the CPHP would result in a direct need for more housing for employees and students in the near term but that only a small number of units would be built during that time period.

Please refer to Master Response 14: Population and Housing Impacts, regarding the scope and approach to the analysis of population and housing impacts in the Draft EIR.

I-Liederman-5 The commenter states that the Draft EIR analysis does not take into account the housing demand associated with the additional staff that would be added to the campus site or the housing demand associated with the secondary (indirect and induced) jobs that would result from the increase in students and faculty at Parnassus Heights. The commenter also asserts that the CPHP would result in displacement of residents near the campus site and gentrification of the area.

Please refer to Master Response 14: Population and Housing Impacts, regarding the CPHP's impact on population and housing. The analysis of population impacts does take into account the increase in staff at the Parnassus Heights campus site. The effects of secondary jobs (indirect and induced) are appropriately addressed in Section 5.4, Growth Inducing Effects. Regarding indirect displacement and gentrification, please see Master Response 15: Indirect Displacement and Gentrification Impacts.

I-Liederman-6 The commenter makes a general summary statement that the Draft EIR fails to reasonably address the impacts of the proposed CPHP on population and housing. Please see Response I-Liederman-3 to I-Liederman-5, above.

I-Liederman-7 The comment asserts that due to the increase in population, the CPHP will increase VMT, regardless of what modes of travel people use to reach the campus. Master Response 16 discusses criteria to determine if the Project has a significant VMT impact. As noted therein, UCSF uses a per capita efficiency metric to evaluate the significance of transportation impacts due to VMT. However, the increase in total VMT resulting from the CPHP, including the increase due to increased campus population, is analyzed for its impacts on air quality and greenhouse emissions in the Air Quality and Greenhouse Gas Emissions sections of the Draft EIR.

I-Liederman-8 The comment asserts that any reductions in the single occupant vehicle trips due to incentives/disincentives by UCSF will result in a significant increase in Muni use, and that UCSF should provide financial support to Muni in response to increased transit demand from the CPHP. For the methodology used to develop the future mode split, please see Master Response 17. As discussed in Master Response 20, Muni operational costs are not a CEQA concern.

I-Liederman-9 The comment asserts that roadway and public transit capacity are not sufficient to support the increase in travel demand due to the CPHP. Master Response 19 presents a discussion about roadway capacity. For public transit impacts, please see Master Response 20.

I-Liederman-10 The comment asserts that the CPHP will increase vehicle congestion on surrounding streets and major routes used to access the campus site, and that construction-related trips will exacerbate this situation. As discussed in Master Response 16, a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA. As such, the potential

constrained capacity at and around the campus site is not a CEQA concern and transportation impacts based on congestion and vehicular delay are appropriately not analyzed in the Draft EIR. The effects of construction activity, including truck traffic, are analyzed in the Draft EIR under Impact TRANS-5, on pages 4-15.49 through 4-15.51. As noted under that impact, the Draft EIR analysis concluded that there would be a significant impact due to construction activities, which would be mitigated to a less-than-significant level with the implementation of CPHP Mitigation Measure TRANS-5.

I-Liederman-11 The comment asserts that the vehicle miles traveled by construction workers will have a significant impact on the surrounding area and proposes additional mitigation measures to discourage driving. As shown on Draft EIR page 4.15-27, the project's significance criterion with regard to construction impacts does not include the effect on vehicle miles traveled due to construction workers. Impact TRANS-5 on page 4.15-50-51 discusses the impact that construction activities would have on travel conditions along sidewalks and roadways serving the project site. As this impact is potentially significant, UCSF shall require its construction contractor to include methods in its Construction Traffic Control Plan to encourage construction workers to walk, bike, carpool, or use transit to access the site as a mitigation measure.

The comment asserts that UCSF should provide additional parking for construction workers to mitigate their parking impacts on the neighborhood. As noted on page 4.15-33 of the Draft EIR, parking is not a CEQA topic, and as such the Draft EIR does not include an assessment of parking impacts.

The comment asserts that UCSF should provide mitigation measures to account for roadway damage caused by construction trucks. Roadway damage is not an environmental impact under CEQA, and no mitigation is required.

I-Liederman-12 This comment objects to the potential for construction under the proposed CPHP to occur outside the hour restrictions identified in CPHP Mitigation Measure NOI-1b: Construction Hours.

As stated on Draft EIR page 4.11-19, in rare circumstances, work may need to occur outside of these work hour limits. In such cases, UCSF Community and Government Relations will receive advance notice from the project manager, at least one week in advance as feasible, and will engage the community to identify measures to minimize potential impacts. Although UCSF plans for construction to occur during normal daytime hours, certain time-specific construction activities, such as large concrete pours, may require earlier start or later finish times as, once started, such activities must continue to completion for effective curing. As stated in the mitigation measure, these occurrences would be rare. Please note that the construction noise impact is identified in the Draft EIR as significant and unavoidable.

I-Liederman-13 This comment raises concern that as more residents work from home and given an increased potential for temporary school closures due to lengthening of the annual fire season, the significant construction noise impact on nearby residents will have adverse health impacts.

This comment is noted. The construction noise impact is identified in the Draft EIR as significant and unavoidable even with the feasible measures identified in CPHP Mitigation Measure NOI-1a: Construction Noise Control Measures, CPHP Mitigation Measure NOI-1b: Construction Hours, and CPHP Mitigation Measure NOI-1c: Pile-Installation Noise-Reducing Techniques.

The potential health consequences of noise impacts associated with construction-related noise impacts on sensitive receptors are addressed on Draft EIR page 4.11-26 under the subheading Potential Health Effects of Significant CPHP Construction Noise Impacts.

I-Liederman-14 The commenter indicates that construction noise is likely to interfere with animal behavior that relies heavily on sensitive hearing. Please refer to Impact BIO-1 in the Draft EIR Section 4.3, Biological Resources. As discussed in Impact BIO-1, under the CPHP, the predominant potential impacts on biological resources within the Reserve from construction activities would be to nesting birds and to roosting bats. Impacts to nesting birds from construction activities include temporary loss of nesting habitat and disturbance to nearby nests from construction noise and activity. Noise and disturbance impacts would be mitigated to a less-than-significant level under CPHP Mitigation Measure BIO-1c, Protection of Nesting Birds. Construction activities could also directly impact roosting bats, and elevated sound levels from heavy construction equipment could cause adult bats to abandon maternity roosts. Noise and disturbance activities would be mitigated to a less-than-significant level with implementation of CPHP Mitigation Measure BIO-1d, Protection of Roosting Bats. Mitigation measures discussed in the Draft EIR, Section 4.11, Noise and Vibration, would further serve to minimize overall noise impacts, including to wildlife.

The commenter also asserts that there would be construction related impacts to workers and residents using the Reserve for recreation. Compliance with mitigation-measures and other construction-related regulatory requirements discussed in the Draft EIR, including Section 4.2, *Air Quality*; Section 4.3, *Biological Resources*; Section 4.11, *Noise and Vibration*; and Section 4.15, *Transportation,* would reduce construction-related effects to users of the Reserve to the extent feasible.

I-Liederman-15 This comment states that the Parnassus Heights campus site is on a hill adding even greater impacts from construction vehicle noise as loaded trucks strain up the hill and empties barrel and bounce down.

As stated on page 4.11-20 of the Draft EIR, the three Initial Phase projects (Irving Street Arrival, RAB, and initial Aldea Housing Densification) are evaluated at a project-level. While proposed New Hospital is also an Initial Phase and considered programmatically in this EIR operationally, given the anticipated concurrent construction of New Hospital its construction was considered at the project level. Construction haul trucks would be used to remove demolition debris and excavated soil. Haul trucks for demolition and construction of the Irving Street Arrival, the RAB and the Hospital would queue for loading on Irving Street and Parnassus Avenue and would proceed generally at a level grade along these established arterials to access 19th Avenue to off-haul materials. Thus, construction haul trucks would not be expected to encounter meaningful steep grades such as Medical Center Way (for which operational truck noise from the incline was considered on page 4.11-27 of the Draft EIR) that might exacerbate conventional operational engine noise. Construction trucks conducting demolition and excavation off-haul for the Aldea Housing Densification would access the site from the southern side of campus via Clarendon Avenue, and construction noise from these activities was analyzed on page 4.11-24 of the Draft EIR and was found to be less than significant.

I-Liederman-16 This comment asserts that all sensitive receptors will be adversely impacted by the continuous noise and frequent vibration generated during much of the construction period.

The construction noise impact is identified in the Draft EIR as significant and unavoidable even with the feasible measures identified in CPHP Mitigation Measure NOI-1a: Construction Noise Control Measures, CPHP Mitigation Measure NOI-1b: Construction Hours and CPHP Mitigation Measure NOI-1c: Pile-Installation Noise-Reducing Techniques. As a practical matter, only sensitive receptors within approximately 500 feet of construction would be exposed to a significant construction noise increase exceeding 10 decibels over ambient based on the lowest existing noise levels monitored in Table 4.11-2 of the Draft EIR.

Construction-related vibration impacts are assessed on Draft EIR pages 4.11-30 through 4.11-33. As indicated in Table 4.11-7, only receptors within 100 feet of vibratory compaction activities or 50 feet of other activities would exceed the applicable annoyance criterion of 0.04 inches per second peak particle velocity. However, none of the vibration inducing equipment would be operating during nighttime hours and annoyance human impacts are identified as less than significant.

I-Liederman-17 This comment recommends the consideration of three mitigation measures.

The first suggested measure is for strict adherence to regular construction hours with no exceptions during periods that require frequent truck trips, heavy equipment use and other loud or frequent noise producing activities and that extended construction hours must be limited to quiet interior work. As stated above in Response I-Liederman-12, although UCSF plans for construction to occur during normal daytime hours, certain time-specific construction activities, such as large concrete pours, may require earlier start or later finish times as, once started, such activities must continue to completion for effective curing. As stated in the mitigation measure, these occurrences would be rare. Therefore, the suggested changes to CPHP Mitigation Measure NOI-1b Construction Hours are not feasible.

The second suggested measure is for advance notice required/provided even during regular working hours when heavy truck traffic and/or loud and/or vibration producing equipment use is scheduled so that adversely impacted residents and workers can attempt to schedule adjustments to their routines in advance. Please note that as a general practice, UCSF updates its neighbors regularly on the status of construction, and advises them of any construction that may result in noticeable impacts (including noise, vibration, traffic, etc.). UCSF's website maintains a webpage dedicated to informing the public of available construction-related information for projects at https://constructionimpacts.ucsf.edu/. In addition, UCSF's Community Relations office sends out regular updates by email, and as feasible, holds community meetings to discuss the status of project construction. These current practices, which would continue to be implemented during the construction of projects under the CPHP, preclude the need for the measure suggested by the commenter.

The third suggested measure is for UCSF to be prepared to fully compensate nearby property owners for any and all damage attributable to construction-generated vibration. Most of the construction activities at the campus site would not produce substantial vibrations and would occur at considerable distances from nearby residences, as a result of which most of the construction would result in a less than significant vibration impact. However, certain construction activities that occur at sites close to the edges of the campus core would have the potential to result in off-site vibration, that could affect off-site receptors and structures. As demonstrated in the Draft EIR, CPHP Mitigation Measure NOI-3a would effectively reduce vibration levels by replacing vibration intensive equipment when compaction is required adjacent to historic or older structures. This measure, and other construction vibration mitigation included in the Draft EIR, would ensure all potential vibration-related impacts for CPHP development would be less than significant. No additional vibration mitigation is required.

I-Liederman-18 The commenter requests consideration of the concerns and suggestions raised above in the environmental review process. The comment is noted; please see responses to the specific comments raised above.

From:	Maury Zeff
To:	Campus Planning - EIR
Subject:	CPHP EIR
Date:	Friday, September 11, 2020 3:12:38 PM

Dear Ms. Wong,

I am submitting comments on the draft EIR from July 2020 related to the proposed massive expansion of UCSF's Parnassus campus. I have lived at 119 Edgewood Ave since 2018 and, as a member of the immediate community, I have multiple concerns about UCSF's plan. I will address the concerns point by point: 1

1. The impact of building a massive (19 stories?) hospital at the edge of campus adjacent to a residential neighborhood of 2-4 story homes can't be overstated. The EIR does not adequately address or suggest mitigations to the following 2

- Construction noise, debris, congestion, and disruption for many years to your neighbors and the community in general
- The pollutants that the construction will put into the air for years
- The pollutants that the building will put into the air once built

2. I am extremely concerned about the geological stability and structural integrity of our homes if UCSF proceeds with its proposal to cross Medical Center Way and excavate the hill on which our wood-framed houses have sat for nearly 120 years. It seems that even the best seismologist or geologist couldn't safely predict how each house in the neighborhood will perform structurally during this level of geological disruption. 3

3. In line with my last point, there is no way of knowing how the houses may be seismically compromised by the removal of a large part of the hill on which they sit. If there is a major earthquake in San Francisco in the years following this excavation and there is significant damage to our homes, the homeowners would be left to consider how that damage was maximized by UCSF's geological disruption of the hill. 4

4. The shadows this behemoth structure will be casting on our neighborhood and surrounding areas, depending upon time of day and of year, have been inadequately addressed by the EIR. Speaking for your Edgewood neighbors, our quality of life would be dramatically diminished by having a skyscraper that blocks out much of our western sunlight overlooking our homes. 5

5. The EIR does not adequately address the impact of an additional 8,000 people coming to UCSF's campus every day post-construction. As it is, Parnassus is already badly congested during normal business hours (when shelter-in-place is not in effect). Aside from the daily traffic jam this increase in campus population would turn Parnassus into, it would negatively impact the timely arrival of ambulances to the ER. 6

6. Speaking of the ER, your current plan calls for the emergency room to be on Medical Center Way, at the base of the hill on which our homes sit. The EIR doesn't address the noise disruption that this location will cause with arriving ambulances day and night. 7

7. On the subject of noise, I didn't see where the EIR addresses the significant noise pollution the new hospital will emit once completed. 8

8. As with the issue of campus congestion, your plan does not adequately address additional parking needs. In a post-covid world, it is quite likely that many more people will choose to drive rather than take public transportation. 9

9. Nor does your plan address the increased housing needs of a greatly expanded campus. My understanding is that the housing expansion--paltry as it is relative to the daily population increase--would take place over decades, being essentially meaningless to the dramatic growth UCSF Parnassus is proposing. 10

10. UCSF's proposal to remove forest and, if I read the EIR correctly, setting up an equivalent amount of greenspace elsewhere on campus seems to miss the point of having an area of unmolested forest in a major city. It's not about acreage of forest. It's about the fact that the woods east and south of Medical Center Way represent a jewel for the community, the city, and for UCSF that has miraculously avoided development to this day. There is no mitigation I can imagine for developing on this rare forested area. 11

11. The proposal and EIR don't at all take into account the uncertainty of a post-covid world. Many of the parking/transportation issues are supposed to be mitigated by MUNI expansion. We have no idea if or when people will be comfortable standing shoulder to shoulder again on buses. As you know, MUNI and BART are suffering considerably with its drastically diminished ridership. It is impossible to say how work, transit, telemedicine, working from home, and other interrelated issues will play out in an age in which we are faced with regularly recurring global pandemics. To plan a massive and massively expensive rebuild of your campus that will be immensely disruptive and detrimental to your neighbors without knowing what the world will look like in the years to come appears dangerously shortsighted and risky. 12

12. Similarly, I understand one of the reasons for building the hospital in the proposed site is to integrate the hospital, clinics, and labs into one big building. In a socially distanced world, would this plan make any sense going forward? Separating sick people from front line workers from other employees from the public would seem to be the priority, not bringing them together. The EIR doesn't address this issue at all. 13

13. The EIR does not adequately consider other geographical areas for UCSF to build its new hospital that would be so much less disruptive and transgressive for your neighbors. I understand that there are multiple alternative sites you could consider. 14

14. The EIR doesn't consider that building a massive building that dwarfs the rest of the campus and the entire neighborhood (pretty much every structure west of Van Ness Avenue) that sits at the edge of campus violates basic principles of urban design. My understanding is that institutional campuses adjacent to residential neighborhoods are supposed to taper out from the center, with buildings on the perimeter of the campus getting progressively lower in height as they approach people's homes. Aesthetically and functionally, the reasons for this principle seem clear as day. It's also a matter of having a harmonious relationship with your neighbors. 15

While I am grateful for the opportunity to share my comments about the EIR, I want to state that the "community input" portion of this process has felt quite superficial. My neighbors and I have been raising the same sets of concerns about this expansion plan since we became aware of the proposal early this year. Yet none of these issues seem to have been addressed in 16 17

your plans or the EIR. Our concerns have been dismissed with mitigations that appear woefully inadequate. And the meetings in which we were allowed to give input (the breakout meetings) corralled us into small groups that covered what felt like ancillary issues (e.g., additional bicycle parking) to our main concerns and also inhibited open dialogue around those main concerns. I hope you will take my and my neighbors' comments to heart. 17 cont. 18

Thank you for allowing me to comment.

Best regards,
Maury Zeff
119 Edgewood Avenue

Responses to Comments from Maury Zeff

I-Zeff-1 This introductory comment refers to multiple concerns about UCSF's CPHP that follow. Please see the following responses to the specific concerns raised by the commenter, below.

I-Zeff-2 This comment states that the EIR does not adequately address or suggest mitigations for construction noise, debris, congestion, and disruption impacts to neighbors and the community and is concerned about the pollutants that would be generated by construction and operation of the New Hospital.

Air quality impacts related to construction of the New Hospital are presented in Draft EIR pages 4.2-31 through 4.2-33 for criteria air pollutants, and on Draft EIR pages 4.2-47 through 4.2-58 for construction-related health risk impacts. Operational air quality impacts associated with the New Hospital are assessed at a programmatic level on Draft EIR pages 4.2- 33 through 4.2-42 for criteria air pollutants and on Draft EIR pages 4.2-45 through 4.2-47 for localized health risk impacts. Mitigation measures identified in the Draft EIR for construction impacts from the New Hospital include CPHP Mitigation Measures AIR-1a and AIR-1b. Mitigation measures identified in the Draft EIR for operational impacts from the New Hospital include CPHP Mitigation Measures AIR-2a and 2b for criteria air pollutants and CPHP Mitigation Measures AIR-3 for localized health risk impacts.

A project level analysis of construction noise impacts is provided for the Initial Phase projects, including the New Hospital, on pages 4.11-19 through 4.11-26 of the Draft EIR.

I-Zeff-3 The commenter expresses a general concern about the geological stability and structural integrity of homes on Edgewood Avenue if UCSF excavates the hill across Medical Center Way; and indicates it cannot be safely predicted how each house will perform structurally during the geological disruption.

The commenter is referred to Section 4.6, Geology and Soils, which addresses all potential geologic risks associated with development proposed under the CPHP, including risks from strong seismic groundshaking (Impact GEO-1); seismic-related ground failure (Impact GEO-2); potential landslides (Impact GEO-3), potential erosion (Impact GEO-4); and potential unstable geologic units or soil (Impact GEO-5). Section 4.6 relies on the several sources of information, including the regulatory framework that the CPHP would be subject to, and preliminary geologic studies conducted at the campus site that addressed landslides and slope stability risks.

As discussed in Section 4.6, in compliance with the California Building Code (CBC), all structural improvements and associated improvements that would occur under the CPHP would be subject to appropriate design-level geotechnical

evaluations prior to final design and construction. As discussed in Impact GEO-1, the final design-level geotechnical evaluation would include any necessary recommendations for site preparations and/or foundation systems necessary to reduce seismic-related hazards to less than significant. Impact GEO-2 notes that the geotechnical investigation would also determine the potential for liquefaction present on a site specific basis, and identify both site preparation measures and foundation design measures in a final design level geotechnical report, also reducing potential ground failure impacts to a less than significant level.

Furthermore, as discussed in Impact GEO-3, for any proposed development that might occur adjacent to or within the Reserve that coincides with areas mapped as susceptible to earthquake-induced landslides, construction would also require compliance with the Seismic Hazards Mapping Act and CGS SP 117A. The final design-level geotechnical evaluation would include any necessary recommendations for shoring and anchoring of sidewalls to ensure that the impact due to slope stability hazards is reduced to a less than significant level. Moreover, CPHP Mitigation Measure GEO-3 also identifies several geotechnical recommendations contained within UCSF geotechnical engineer consultant's 2019 report to further improve slope stability. Lastly, Impact GEO-5 notes that adherence to CBC requirements and the design-level geotechnical report recommendations for site preparation and foundation design would be sufficient to reduce lateral spreading and liquefaction hazards to less than significant levels.

Compliance with the regulatory requirements, implementation of geotechnical design recommendations required in geotechnical investigations prepared for each new development project under the CPHP, and implementation of mitigation measures identified in the CPHP EIR, would ensure that new construction at the campus site would not result in deleterious effects on geology and soils on- and off-campus.

I-Zeff-4 The commenter indicates there is no way of knowing how nearby houses may be seismically compromised by the removal of a large part of the hill on which they sit; and that if there is a major earthquake, the homeowners would be left to consider how that damage was maximized by geological disruption of the hill under the CPHP. Please see Response I-Zeff-3, above.

I-Zeff-5 The comment states that the Draft EIR does not adequately analyze shadow on neighborhoods surrounding the UCSF campus. Please refer to Master Response 9: Shadow Impacts.

I-Zeff-6 The comment asserts that the Draft EIR does not adequately address how the CPHP will impact vehicle congestion. As discussed in Master Response 16, a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA. As such, the potential constrained capacity

at and around the campus site is not a CEQA concern and transportation impacts based on congestion and vehicular delay are appropriately not analyzed in the Draft EIR.

The comment also asserts that emergency vehicle access to UCSF could be impacted by vehicle congestion. Refer to Master Response 21 for a response to this issue.

I-Zeff-7 This comment states that Draft EIR does not address the noise disruption that the proposed location of the emergency room in the New Hospital would cause with ambulances arriving day and night.

Noise impacts from ambulance operations associated with operation of the New Hospital were addressed as a program-level analysis. However, the level of detail is not available at this time for the New Hospital to make a reasonable estimate of the hospital emergency operations and associated potential increase in ambulance activity in the CPHP EIR. The project-level operational impacts of the New Hospital, including the noise impact from increases in ambulance activity, will be analyzed in a separate hospital-specific EIR that is forthcoming. Accordingly, the CPHP Draft EIR contained only a qualitative analysis of noise from emergency vehicle visitations. This quantitative analysis is supported by the text on page 4.11-28 of the Draft EIR which states that, given that existing campus operations already involve ambulance drop-offs, and that the New Hospital would be assumed to only marginally increase the potential frequency of emergency vehicle visits, the operational impact of additional ambulance activities at the campus site associated with the New Hospital would be less than significant.

I-Zeff-8 This comment states that the EIR does not address the significant noise pollution the New Hospital will result in, once completed. Operational noise impacts are addressed on pages 4.11-26 through 4.11-30 of the Draft EIR in Impact NOI-2, which addresses if implementation of the CPHP would generate substantial permanent increases in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

I-Zeff-9 The comment asserts that the CPHP does not provide adequate parking. The comment also asserts that the analysis is inadequate because it does not address the effects of the COVID-19 pandemic on travel behavior which will increase private vehicle use and decrease transit use. As stated on page 4.15-33 and Master Response 18, parking is not a CEQA topic, and additional discussion of parking supply and demand in the campus site vicinity is not required. The CPHP's proposed parking supply was, however, assessed and incorporated into estimates of project travel demand, as discussed in Master Response 17. For the effects of COVID-19 on travel behavior, please see Master Response 3: COVID-19.

I-Zeff-10 The commenter asserts that the CPHP does not addressed the increased housing needs of an expanded campus; and that the proposed housing expansion is small relative to the daily population increase. Please see Master Response 14: Population and Housing.

I-Zeff-11 The commenter opines that UCSF proposal to replace any area of the Reserve that is lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site misses the point, and that there is no mitigation for developing on this rare forested area. UCSF's proposal under the CPHP would provide permanent open space reserve protection that is not currently provided for this area adjacent to the Surge parking lot, and ensure there is no net loss in protected areas at the campus site. Nevertheless, the commenter's opinion is noted and will be forwarded to decision-makers.

I-Zeff-12 The commenter questions how public transit transportation mitigation will be affected in light of COVID-19, and questions how other interrelated issues will play out in the future in light of global pandemics. Please see Master Response 3: COVID-19.

I-Zeff-13 The commenter questions the proposed integration of the hospital, clinics and labs in one building in light of COVID-19. Please see Master Response 3: COVID-19.

I-Zeff-14 The commenter requests other geographical areas for UCSF to build its New Hospital be considered. Please see Master Response 5: EIR Alternatives.

I-Zeff-15 The commenter indicates that the proposed New Hospital violates basic principles of urban design, and indicates that buildings on the perimeter of the campus should get progressively lower in height as they approach peoples' homes. The comment is acknowledged, and to the extent the CPHP development, including the New Hospital, would result in environmental impacts to adjacent residences, they are adequately addressed in the Draft EIR. Please see Draft EIR Section 4.1, Aesthetics, Wind and Shadow; and Section 4.10, Land Use and Planning. Please also see Master Response 13: Land Use Impacts. In addition, please note that an approximate massing of the New Hospital was assumed for purposes of analysis in the Draft EIR. When a preliminary design of the New Hospital becomes available, it will be further analyzed in a project-level EIR.

I-Zeff-16 and I-Zeff-17: The comments are appreciated and will be shared with the CPHP planning team. The extensive community process for the CPHP began two years ago, and is ongoing. During the past two years, UCSF received feedback on the plan and incorporated desired concepts such as more open space, better access to the UCSF Mount Sutro Open Space Reserve, and consideration of other amenities that benefit neighborhood visitors. This feedback has helped to shape the plan. Additionally, through the community process, UCSF has identified community investment ideas such as public transit improvements and bike path

improvements in the public right-of-way that it further evaluates with the City and County of San Francisco. UCSF also continues to consider Transportation Demand Management measures to minimize vehicular trips to/from the campus. There will be further opportunities for public input as the community process continues.

In regard to the EIR, the analyses were conducted pursuant to the California Environmental Quality Act (CEQA) and the significance standards set forth in the CEQA Guidelines Appendix G. The Draft EIR identifies adequate mitigation measures for those impacts that would exceed the significance standards.

I-Zeff-18 Thank you for your comment. As discussed in Response I-Zeff-16, the community process began two years ago. Prior to the shelter-in-place and social distancing mandates when in-person community meetings occurred, there were opportunities for dialogue among the entire group, as well as in small breakout groups. The purpose of the small breakout groups was to encourage more dialogue and ensure a broad representation of ideas and concerns, as some community members may be reluctant to speak in front of a large group but may be comfortable speaking in small groups. Your comment will be shared with the UCSF community meeting organizers to consider as future community meetings are planned.

September 11, 2020

Sam Hawgood, Chancellor
Office of the Chancellor
513 Parnassus Avenue, MSB
San Francisco, California 94117

University of California Board of Regents
1111 Franklin Street, 12th Floor
Oakland, California 94607

Re: UCSF Comprehensive Parnassus Heights Plan and its Draft EIR – State Clearinghouse Number 2020010175

Dear Chancellor Hawgood and the U.C. Board of Regents,

We, the undersigned, are deeply alarmed by the University's expansion plan for its Parnassus Heights campus, a plan that threatens ten historic murals by the artist Bernard Zakheim. The murals, as you know, are showpieces of the New Deal era, rightly regarded as the "jewel of the University's art collection." They portray a rich tapestry of people at pivotal moments in California's history. Of particular significance is the fresco featuring Biddy Mason, a former slave turned nurse, philanthropist, and real estate entrepreneur. This work—the first known artistic representation of Mason—tells a vital and sadly overlooked story of Black empowerment. Such tributes to women of color from this era are extraordinarily rare, and deserve not only preservation, but celebration. 1 2

As such, we find the University's plan embarrassingly out of step with the national movement over race and representation. Leaders from across the country are demanding an honest reckoning with our past in an effort to forge a more just future. We urge you to be one of those leaders. Through these murals, you have the opportunity to honor historically marginalized people and to foster deeper understanding of America's long, fraught relationship with race. 3

We therefore implore you to preserve these irreplaceable works of art. Furthermore, we ask that you engage with specialists to ensure the murals are publicly accessible, so that future generations can draw inspiration from the empowering history they depict. As New Deal public works, they belong to us all. What you do here—or fail to do here—will be seen far beyond the halls of the University. 4

Honor your roles as stewards and educators. Preserve and display these emblems of our shared cultural heritage. ↑ 4 cont.

Respectfully,

Rachel Bauch, Director of Public Relations and Communication, Berggruen Institute
Susanna Cecilia Berger, Associate Professor, Art History, University of Southern California
Barbara Bernstein, Founder, New Deal Art Registry
Tyree Boyd-Pates, Associate Curator of Western History, Autry Museum of the American West
Gray Brechin, Ph.D., Living New Deal Project scholar
Kathleen Brown, Former Treasurer, State of California
Jackie Broxton, Director, Biddy Mason Charitable Foundation
Monte Buchsbaum, MD, University of California, San Francisco alumnus
Sean Carroll, Physicist, California Institute of Technology
Susan Cervantes, Founder, Precita Eyes Muralists Association
Mario Chiodo, Artist, "Remember Them: Champions for Humanity" Monument
Leslie Correll, Artist, Oakland, California
Carol Denney, Cartoonist and Musician, Berkeley, California
Lawrence Diller, MD, University of California, San Francisco alumnus
Marie-Jose Durquet, Art & Art History Teacher, San Francisco, California
Henry Elkus, CEO and Founder, Helena
Sarah Barringer Gordon, Arlin M. Adams Professor of Constitutional Law, University of Pennsylvania, and co-director of an NEH-funded grant on the life and times of Biddy Mason
Isidro González, Ph.D. student, University of California, Santa Barbara
Adam Bernard Gottstein, Grandson of the artist, Bernard Zakheim
Steven Hahn, Pulitzer Prize-winning historian
Antonia Hernández, President & Chief Executive Officer, California Community Foundation
Jack Heyman, Retired International Longshore & Warehouse Union Official
Isabel Hogan, Arts supporter, San Francisco, California
Alex Israel, Artist, Los Angeles, California
Josh Kun, Professor of Communication and Journalism and Chair of Cross-Cultural Communication, University of Southern California, Author, and MacArthur Fellow
Joanne Lafler, PhD, The Institute for Historical Study
Michael Lagios, MD, Chairman, Breast Treatment Panel, St. Mary's Medical Center, San Francisco, and University of California, San Francisco alumnus
Mia Lehrer, Founder, Studio-MLA
Scarlet Lisa LaRue, MD, University of California, San Francisco alumna
Rick Loverd, Director, The National Academy of Sciences, Sci-Ent Exchange
William Maynez, Historian, Diego Rivera Pan American Unity Mural

W. Caleb McDaniel, Professor of History, Rice University, and Pulitzer Prize-winning historian
Judith Offer, Poet and Playwright, Oakland, California
Edith L. Piness, Ph.D., Vice President, California Missions Foundation
Philippa Polskin, President, Polskin Arts & Communications Counselors
Richard Rothman, Photographer and Activist, San Francisco, California
John Rothmann, KGO Radio 810AM Talk Show Host, and President, George Washington **High School** (San Francisco) Alumni Association
Darryl Sapien, Artist, San Francisco, California
Michael Semler, Professor Emeritus of Political Science, Sacramento State University
Harvey Smith, President National New Deal Association
Susan Stauter, Artistic Director Emeritus, San Francisco Unified School District
Cheryl Uberman, APRN, N.P., CNS, PMHNP, University of California, San Francisco alumna
Lorri Ungaretti, Local Historian, San Francisco, California
Laura Voisin George, Ph.D. student, University of California, Santa Barbara
Kevin Waite, Assistant Professor of History, Durham University, and co-director of an NEH-funded grant on the life and times of Biddy Mason
Temi Washington, historian and activist
David Weiman, Lobbyist, Washington DC, and George Washington High School (San Francisco) Alumnus
Nancy Whitten-Zinn, University of California, San Francisco Librarian Emerita
Kulapat Yantrasast, Founder, wHY Architecture
Lope Yap, Jr., Filmmaker and Vice President, George Washington High School (San Francisco) Alumni Association
Steve Zeltzer, Director, Labortech and Work Week Labor Video Project

Responses to Comments from Laura Voisin George, et al.

I-George-1 The commenter expresses alarm that the CPHP will threaten the Zakheim murals. Please refer to Master Response 11: Toland Hall Murals.

I-George-2 This comment notes that the mural of Biddy Mason is unique and rare example of a tribute to a woman of color from this era. Please refer to Master Response 11: Toland Hall Murals.

I-George-3 This commenter states UCSF's plan is out-of-step with the current national movement regarding race and representation and that UCSF has the opportunity to honor historically marginalized people. Please refer to Master Response 11: Toland Hall Murals.

I-George-4 This comment asks that UCSF ensure the murals remain publicly accessible. Please refer to Master Response 11: Toland Hall Murals.

From: Frances Starn Campus
To: Planning - EIR
Subject: DEIR UCSF Comprehensive Parnassus Heights Plan
Date: Friday, September 11, 2020 3:50:31 PM

Regarding DEIR, UCSF Comprehensive Parnassus Heights Plan
State Clearinghouse Number 2020010175

Dear Chancellor Hawgood and UC Regents,

New alternatives need to be provided for preservation and public display of Bernard Zakheim's important frescoes of "The History of Medicine in California" in the auditorium of UC Hall, now slated for demolition. 1

Not only is the 1936 mural a significant example of San Francisco's New Deal public art projects, by an artist whose works appear in Coit Tower and other local landmarks.The social and historical content of the mural is even more important than its art.

Zakheim's frescoes show in one panel a former slave, Bridget (Biddy) Mason, ministering to a plague-stricken citizen. She stands elbow-to-elbow with various bearded white elders of the Gold Rush state.To the right is a laboratory table where they appear to be researching a vaccine or a cure. Biddy Mason, a former slave, was also a church founder, a philanthropist and real estate entrepreneur. True, she was active in Los Angeles, not San Francisco--but the topic is the history of medicine in California, where she, a Black woman, a midwife, and a healer remains uniquely important. 2

Rather than demolishing the frescoes, they should be carefully removed and integrated, even highlighted, within the new Parnassus Heights campus. Transfer is a simple enough process for conservationists with a working knowledge of fresco technique. The "History of Medicine in California" is meant for public display. 3

Particularly in this time of bitterness over racial inequities, including unequal health care, a work of public art honoring a former slave, a Black nurse and civic leader, can surely not be destroyed by a public university. 4

Sincerely yours,

Randolph Starn
Professor emeritus of History and Italian Studies
University of California, Berkeley

Frances Smith Starn

2619 Hillegass Avenue
Berkeley, CA 94704

Responses to Comments from Frances Starn

I-Starn-1 The commenter indicates that new alternatives need to be provided for preservation and public display of the Zakheim murals in the Toland Hall auditorium. Please refer to Master Response 11: Toland Hall Murals.

I-Starn-2 The commenter discusses that the murals are a significant example of San Francisco's New Deal public art projects, and that one of the frescoes depicts Biddy Mason. Please refer to Master Response 11: Toland Hall Murals.

I-Starn-3 The commenter indicates the Zakheim murals should be carefully removed and integrated within the Parnassus Heights campus site. Please refer to Master Response 11: Toland Hall Murals.

I-Starn-4 This comment suggests the mural depicting Biddy Mason should not be removed given the current context of the Black Lives Matter in the United States today. Please refer to Master Response 11: Toland Hall Murals.

From: Scott Lebus
To: Campus Planning - EIR
Subject: CPHP Draft EIR Comments
Date: Friday, September 11, 2020 3:58:35 PM

Notwithstanding that I am an alumnus and value the institution of UCSF, I have concerns about the scale and scope of the CPHP. 1

My concerns are as follows:

- Inadequate solutions to the traffic, parking, and public transport needed to bring 8,000 extra people onto campus. 2
- The population increases on campus, putting stress on the infrastructure of the neighborhood. And not providing adequate housing for new workers. 3
- EIR does not address any of the changes in healthcare that have resulted from COVID-19. Is the historical model of gathering patients together into one large building still safe and appropriate? 4
- Air quality degradation during construction and operations. 5
- Inadequate study of potential erosion of the back of Edgewood Avenue if UCSF digs into the hillside on the Eastern side of Medical Center Way, as planned. 6
- The aesthetic effect of blocking views south from the Golden Gate Park, and north from the trails in Sutro Forest. 7
- While the Parnassus campus can benefit from a “face lift,” has UCSF thoroughly explored alternative locations, such as Mt. Zion or elsewhere, for a gigantic hospital complex? 8

Thank you for your consideration of these concerns.

Sincerely,

Scott Lebus, DDS, MS
1543 Willard Street, San Francisco, CA 94117

Responses to Comments from Scott Lebus, DDS, MS

I-Lebus-1 The commenter indicates that new alternatives need to be provided for preservation and public display of the Zakheim murals in the Toland Hall auditorium. Please refer to Master Response 11: Toland Hall Murals.

I-Lebus-2 The comment expresses concern about the adequacy of the Draft EIR in analyzing the effects of the CPHP-related increase in population size on traffic, parking, and public transport. Refer to Master Response 18 and Master Response 19 for a response to this concern.

I-Lebus-3 The commenter states that the population increase at the campus site would place stress on the infrastructure of the neighborhood and the project would not provide enough housing for the new workers.

Please refer to Master Response 14: Population and Housing Impacts, regarding the CPHP's impact on population and housing. The impacts of the proposed CPHP on the infrastructure within and surrounding the campus site are analyzed in Section 4.15, Transportation, and Section 4.16, Utilities and Service Systems in the Draft EIR.

I-Lebus-4 The commenter asserts the Draft EIR does not address the changes in healthcare that have resulted from COVID-19. Please see Master Response 3: COVID-19.

I-Lebus-5 This comment expresses concern regarding air quality degradation during construction and operations.

Construction-related air quality impacts are assessed on pages 4.2-28 through 4.2-33 of the Draft EIR. Operational quality impacts are assessed o pages 4.2-33 through 4.2-45 of the Draft EIR. Localized construction-related health risk impacts are addressed on Draft EIR pages 4.2-45 through 4.2-58, while operational health risk impacts are addressed on Draft EIR pages 4.2-58 through 4.2-63.

I-Lebus-6 The commenter indicates that there has been inadequate study of potential erosion on the hillside adjacent to Edgewood Avenue associated with excavation for development of the New Hospital. Impact GEO-4 in the Draft EIR addresses the potential for construction associated with the CPHP, including the New Hospital, to result in erosion. The Draft EIR discusses that the proposed project would be required to file a Notice of Intent with the State Water Resources Control Board (SWRCB) to be covered under the National Pollution Discharge Elimination System (NPDES) Construction General Permit for discharges of stormwater associated with construction activity (also discussed further in Section 4.9, Hydrology and Water Quality). The Construction General Permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) which would include erosion control measures in the

form of best management practices (BMPs) that would be effective in reducing the potential for erosion during construction. BMPs would include, but would not be limited to, filtering runoff during construction, avoiding heavy grading and earthwork operations during the rainy season, and incorporating landscaping as early as possible. Once construction is completed for each element of the CPHP, the area of disturbance would be either covered by a structure, road or pathway, or landscaped such that the potential for erosion is minimized. Therefore, with adherence to existing regulatory requirements that would require implementation of erosion control BMPs during construction, the potential for erosion or loss of topsoil would be reduced to less than significant levels.

I-Lebus-7 The comment expresses concern that the proposed project would block views south from the Golden Gate Park and north from the trails in Sutro Forest. Please refer to Master Response 7: Aesthetic Impacts.

I-Lebus-8 The commenter inquires if UCSF has explored alternative locations, such Mount Zion campus site, for the New Hospital. Please see Master Response 5: EIR Alternatives.

From: tesw@aol.com
To: Campus Planning - EIR; Campus Planning - EIR
Subject: Comments to the CPHP Draft EIR
Date: Friday, September 11, 2020 4:39:46 PM

Dear Ms. Wong,

Please accept these comments regarding the EIR, attached and pasted in below.

EIR Comments Teresa Welborn

September 11, 2020

Section 4.15 TRANSPORTATION

REGIONAL AND LOCAL TRANSIT SERVICE

Due to Covid-19, all regional and local transit service has been decimated. Due to local and state balanced budget requirements, it is extremely unlikely that a return to even as much as 50% of prior service levels. This means that all reliance on public transit must be reconsidered. And that there will be increases in privately-owned vehicles, impacting roadways and parking, not reducing traffic. 1

UCSF has so far refused to pay its fair share of increasing MUNI services. 2

LOCAL ROADWAY NETWORK

These "consist[s] primarily two-lane roadways," and are already completely congested during weekday work hours. In particular, Parnassus is at saturation. Parnassus consists of two lanes, one in each direction. A vast medical center, near industrial use, as proposed, requires a minimum of a four-lane roadway.

Parnassus is also a major cross-town route.
Patients, construction workers, and hospital staff of all levels are unlikely to arrive by bicycle or on foot. This is particularly so, given that UCSF has offered to build a patently inadequate number of on-campus housing units. The few hundred offered are at Aldea, which is poorly served by a weekday only shuttle and privately-owned vehicles. 3

UCSF states that streets feeding into Parnassus are sometimes as large as four-lane; but fails to address that all mus still funnel into two-lane streets such as Parnassus and Kirkham.

UCSF TRANSPORTATION MANAGMENT PLAN [TDM]

The TDM, while in the past it has in many ways mitigated traffic impacts, is adequate to address a 50% increase in average daily campus population.
Even if UCSF shuttles were expanded to include some segment of the increased patient population, most current hospital patients arrive and leave by privately-owned vehicles. 4

EMERGENCY VEHICLE ACCESS

The emergency vehicle access refers only to SFFD. Ambulances and privately-owned vehicles can/are emergency vehicles. Even SFPD can be emergency vehicles. 5

Again, UCSF has failed to consider the impacts of various likely disaster scenarios. Presumably they do 6

not want to acknowledge their failings. A major fire on Mt. Sutro has already occurred once. Another major earthquake is expected in the greater San Francisco Bay area, as well as in the City of San Francisco. Displacement, injury and death of hundreds of thousands of people are forecast. UCSF has a duty to provide the City of San Francisco [at least] with disaster services. We have been extraordinarily fortunate that the Covid-19 cases in San Francisco have been low, and that UCSF has been able to provide a variety of services. Nevertheless, UCSF should rethink putting all of its “adult care” hospital services into one basket, on a mere two-lane road, which is likely to be blocked by a major fire or earthquake, gas explosion, etc.

6 cont.

IMPACT TRANSPORTATION- 2 MULTI-LEVEL SERVICE CORRIDOR

Proposals of how such a corridor could be constructed and serve both campus, staff, patients, and deliveries are non-existent. This means that the community is unable to evaluate such proposals.

7

IMPACT TRANSPORTATION- 3 Including Aldea Housing Densification

While adding some housing at Aldea may be of some value, doing so will result in more use of privately-owned vehicles. There are no nearby neighborhood services, such as grocers, pharmacy, restaurants, and other household shopping and service needs, conveniently accessible by transit, bike or foot. Current UCSF shuttle operate only on weekdays, during the day, as I found out one day, and had to do a long walk back to the Parnassus campus.

8

CUMMULATIVE IMPACTS

UCSF states that “there are no identified land use development projects within the vicinity of the Parnassus Heights campus, or population change projected, which will result in traffic growth and/or changing travel patterns...”

While true in the present sense, this statement ignores the past proposed development at Kirkham Heights, which may resurface, and recent local and Sacramento legislation that offer incentives for both future affordable and market-rate housing. Both categories are likely to particularly impact San Francisco's West Side, which UCSF has said that it serves [along with serving the Bay Area and areas further flung.

9

IN CONCLUSION

UCSF staff, in the recent Community Advisory Group [CAG] meeting, said that “UCSF wants to go where patients are.” Significant revision of the Parnassus Heights overly ambitious plan could assist in that goal.

10

Responses to Comments from Teresa Welborn

I-Welborn-1 The commenter indicates the reliance on public transit must be reconsidered in light of COVID-19. Please see Master Response 3: COVID-19.

I-Welborn-2 The comment asserts that UCSF has not contributed adequately to providing MUNI service. UCSF's historical funding of transportation services is not a CEQA concern, nor is it related to the CPHP analyzed in the Draft EIR. Please see Master Response 20. The comment is noted.

I-Welborn-3 The comment asserts that the Draft EIR does not adequately assess impacts due to constrained roadway capacity in the vicinity of the campus site. As discussed in Master Response 16, a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA. As such, the potential constrained capacity at and around the campus site is not a CEQA concern and transportation impacts based on congestion and vehicular delay are appropriately not analyzed in the Draft EIR. The comment also asserts that certain populations are unlikely to use certain modes, such as bicycle or walking, which are more likely to be used by populations that live in on-campus housing. The comment then states that the CPHP includes an inadequate number of net new on-campus housing units and that residents of the new housing units at the Aldea Housing complex are poorly served by UCSF shuttles and will be more likely to drive private vehicles. Mode assignment was estimated for individual populations, and produced separately for employees, students, and residents. As such, the comments concern about travel mode are accounted for in the analysis presented in the Draft EIR on pages 4.15-29 through 4.15-33 and in Table 4.15-9. Although some of the residents of the new units in the Aldea Housing complex would be required to travel via private vehicle and campus shuttle between their residences and work places in the campus core, as compared to new residents of the West Side housing who would be able to walk or bike to their work places, the distance that the Aldea residents would travel is not long and would not result in a substantial increase in VMT or greenhouse gas emissions due to this intra-campus travel.

I-Welborn-4 The comment asserts that despite the existing UCSF Transportation Demand Management program which may influence the travel behavior of some of the patients traveling to the campus site, patients and visitors will continue to rely on private vehicles. As shown in Table 4.15-8 of the Draft EIR (page 4.15-30) currently 73 percent of patient/visitor trips occur in private- or for-hire vehicles such as taxi or TNC. In the future, as shown in Table 4.15-9 of the Draft EIR (page 4.15-32), 75 percent of patient/visitor trips are forecast to occur in private- or for-hire vehicles. The methodology used to estimate future modes of travel is described on pages 4-15-30 and 4.15-31 of the Draft EIR and discussed in further detail in Master Response 17.

I-Welborn-5 The comment asserts that the Emergency Access section did not adequately account for vehicles other than those operated by the San Francisco Fire Department. This is incorrect, as discussed in Master Response 21.

I-Welborn-6 The commenter asserts that various disaster scenarios were not considered in the Draft EIR, including major fires, earthquake or gas explosion. The commenter indicated a major fire has already occurred once on Mount Sutro; and that UCSF should rethink putting all of its adult care hospital services in one location, on a two lane road.

As explained in the Draft EIR Appendix A, Initial Study, under topic IX, Hazards and Hazardous Materials, checklist item f), and repeated in Draft EIR Section 4.8, Hazards and Hazardous Materials, page 4.8-13, all projects and improvements would be designed to ensure appropriate emergency access to and egress from all areas. Additionally, all project-specific designs, including private internal circulation and building site plans, would be subject to review and approval by the State Fire Marshall for emergency response and evacuation concerns. UCSF design criteria and existing emergency response requirements are sufficient to ensure that the potential health and safety effects resulting from possible impairment or interference with any emergency response or evacuation plans would remain less than significant.

In addition, as explained in the Draft EIR Appendix A, Initial Study, under topic IX, Hazards and Hazardous Materials, checklist item g), and repeated in Draft EIR Section 4.8, Hazards and Hazardous Materials, page 4.8-13, implementation of UCSF's Mount Sutro Open Space Vegetative Management Plan would change fire hazards and fire behavior within the Reserve, and fire hazards within the Reserve would generally decrease as a result of vegetation management activities, such as creating defensible space, removing diseased and/or dead trees, and increasing the diversity of tree types. The remainder of the Parnassus Heights campus site is not located within a fire hazard severity zone. Continued implementation of the Vegetation Management Plan, in conjunction with compliance with all California Fire Code requirements, would mitigate the wildfire risk to new development under the CPHP, and consequently, the impact associated with the exposure of people or structures developed under the proposed CPHP, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires would be less than significant.

I-Welborn-7 The commenter asserts that the details of how the proposed service corridor would serve campus, staff, patients and deliveries do not exist. The CPHP indicates (page 107) that the goals of the proposed service corridor are to: 1) create a long-term design for the corridor to address connectivity, emergency vehicle access, maintenance access, delivery, logistics, and phasing for implementation, and 2) manage risks of service interruptions through creation of a utility loop to support overall stability of campus service as a whole. Available

details of the proposed service corridor are described on pages 3-29 to 3-30 of the Draft EIR, including its purpose, conceptual alignment, and which utilities would be extended within the corridor. Regardless, all potential impacts of this improvement adequately are addressed and mitigated to the extent feasible. Please note, however, that when the proposed service corridor project is advanced in terms of design, it would be evaluated to determine what additional environmental review, if any, is needed prior to approval.

I-Welborn-8 The comment asserts that the Draft EIR does not adequately account for the Aldea Housing Densification project's distance to transit and other locations in determining the project's travel demand. As discussed on page 4.15-33 of the Draft EIR, analysis of new travel associated with the Aldea Housing complex was based on travel surveys of existing residents. Because existing residents have similar access issues to those anticipated for future residents, they represent an accurate source of travel data for use in future projects. Therefore, the analysis presented in the Draft EIR is adequate, fact-based, and accounts for the issues raised in the comment. See Master Response 17 for more information on how travel behavior survey data that UCSF routinely collects is incorporated into mode share assignments.

I-Welborn-9 The commenter asserts that Draft EIR ignores certain cumulative projects, including past proposed development at Kirkham Heights that could resurface, and recent local and State legislation that offer incentives for future affordable and market-rate housing.

With respect to specific projects, no application has been submitted to the City for a potential resurfaced Kirkham Heights proposal, and a result, the inclusion of it as a cumulative project in the Draft EIR would be speculative. With respect to legislation for incentives for future affordable and market-rate housing, to the extent that this housing is anticipated by the applicable planning agency, it is included their respective approved planning document and/or forecasting models.

I-Welborn-10 The commenter makes a concluding statement that significant revision of the CPHP could assist in UCSF goals that "UCSF wants to go where patients are." This comment does not address the adequacy of the Draft EIR; consequently, no response is required. However, the comment has been noted and will be forwarded to decision-makers.

From:	Nancy Wuerfel
To:	Campus Planning - EIR
Subject:	Wuerfel DEIR comments in email body
Date:	Friday, September 11, 2020 5:01:15 PM

September 11, 2020

TO: Diane Wong UCSF EIR@ucsf.edu.

FROM: Nancy Wuerfel, 2516 23rd Avenue, San Francisco, CA 94116

RE: Draft EIR for UCSF Comprehensive Parnassus Heights Plan

Please include this email in the Public Comments for the Draft Environmental Impact Report (DEIR) for the CPHP. The following comments are arranged to correspond with the sections of the California Public Resources Code, Division 13, CEQA as amended in 2019. The issues I raise are in response to the findings and declarations of the Legislature for some of the code sections.

Sec. 21001.1 - Use of Environmental Impact Reports (EIR); Policy
(a) "The purpose of an EIR is to identify the significant effects on the environment..."
(e) "To provide more meaningful public disclosure, reduce the time and cost required to prepare an EIR, and focus on potentially significant effects on the environment of a proposed project..."

COMMENT - EIRs must include accurate information in the analysis of existing conditions and the potential changes to the environment of a new project. Significant effects cannot be properly evaluated if the basis for the decision is flawed or inadequate. The DEIR contains numerous examples of misleading or wrong information that I can provide to reviewers if requested to do so. The EIR reports live forever and are relied on by the public as a source of accurate information. Unfortunately, this trust is misplaced if the DEIR is not corrected before it becomes final. 1

Sec. 21003 - Planning and Environmental Review Procedures etc
(b) "Documents prepared pursuant to his division be organized and written in a manner that will be meaningful and useful to decision makers and to the public"
(d) "Information developed in individual EIRs be incorporated into a data base which can be used to reduce delay and duplication in preparation of subsequent EIRs"
(e) "... which may be used to make subsequent or supplemental environmental determinations."

COMMENT - Again, EIRs with insufficient analysis or lack of substantial evidence does not benefit the project or the public's understanding of the potential environmental risks. Putting inaccurate information from an EIR that then becomes part of a data base is wrong and must not be allowed to happen. There needs to be a 2

check and balance on the data going into a data base. 2 cont.

Sec. 21003.1 - Environmental Effects of Projects; Comments from Public ...
(a) "Comments from the public and public agencies on the environmental effects of a project shall be made to lead agencies as soon as possible in the review of environmental documents ... in order to allow the lead agencies to identify, at the earliest possible time in the environmental review process, potential significant effects of a project..."

COMMENT - The Scoping and Initial Study public comments were recorded but were not addressed in the DEIR such as: "take into account that high winds can turn "moderate risk" into "disaster" [fires]" "study how slope, normal winds, and high winds can spread fires" "study potential slides and impacts of broken water mains." "The San Francisco Fire Marshal did an audit in 2015 found that the situation in a drought on Mount Sutro was considered extra hazardous and made some recommendations." These comments were made in a timely fashion, but were not acknowledged in the DEIR. 3

The following comments are arranged to correspond with the sections in the DEIR, with page numbers.

1.1 Purpose of the CPHP EIR
pg 1-2 -- To inform the general public ...of the nature of the CPHP and potential environmental effects... -- To serve as a reference document...
--"This EIR is an informational document..."

COMMENT - To be a reference document, EIRs must include accurate information in the analysis of existing conditions and the potential changes to the environment of a new project. The EIR reports live forever and are relied on by the public as a source of accurate information. Unfortunately, this trust is misplaced if the DEIR is not corrected before it becomes final. 4

pg 1-4 --This EIR analyzes the potential significant environmental impacts that could result if the LRDP FEIR amendment is approved ... some information from the 2014 LRDP FEIR is still relevant and has been used to characterize existing conditions and inform the impact analysis...

COMMENT - There are no citations that alert the reader as to what information is "still relevant" and currently "used to characterize existing conditions". Therefore, in case the reader wants to challenge the characterization because the information is out of date, the EIR should clearly indicate what information is from 2014. 5

1.3.1 Notice of Preparation and Public Scoping
pg 1-4 -- The NOP public comment period ended on February 21, 2020. The NOP and Initial Study announcement was published on January 14, 2020.

COMMENT - Six months ***before*** the NOP and IS were announced, the San Francisco 2018-2019 Civil Grand Jury (CGJ) published their report on July 17, 2019 entitled: ACT NOW BEFORE IT IS TOO LATE: AGGRESSIVELY EXPAND AND ENHANCE OUR HIGH-PRESSURE EMERGENCY FIREFIGHTING WATER SYSTEM. 6

The DEIR makes no mention of the 63 page CGJ report or its findings and recommendations that are directly relevant to discussions *for informational purposes (not for mitigation purposes)* of the potential risks in the following EIR sections:

4.6 Geology and Soils - potential seismic occurrence risks that include fires following earthquakes affecting people and structures. 7

4.13 Public Services - need for expansion of the auxiliary water supply system (AWSS) "AWSS is designed to provide water at higher pressures than the [domestic] potable water system, allowing firefighters to use water from the AWSS hydrants without requiring a fire engine." 8

4.16 Utilities and Service Systems - need to distinguish between the domestic low- pressure pipeline and hydrant system using potable water, and the AWSS high-pressure pipeline and hydrant system using non-potable from Twin Peaks Reservoir and saltwater pumped from the bay. In assessing existing Use and Infrastructure services, accuracy is needed to characterize where the low pressure domestic mains are and where the multiple AWSS pipeline locations are. Also, the additional demand for CPHP water supply is mischaracterized and understated in the West and Yost report appendix B since the volume of water needed for Utilities and Infrastructure for the entire project is not stated, and listed as N/A. The volume of water for fight post-earthquake fires must be estimated.

1) The CGJ makes the following recommendations, among others which are more fully discussed herein: " Recommendation R1. A detailed plan to ensure the City is well prepared to fight fires *in all parts* of San Francisco in the event of a 1906 magnitude (7.8) earthquake" and "The City should aggressively develop a high-pressure, multi- sourced, seismically safe emergency water supply for those parts of the City that don't currently have one, with a targe completion date of no later than 2034." 9

2) The CGJ states in the section on Background and Problem Statement: "Fire Following Earthquake is a Major Risk to The City" and "San Francisco will sustain major damage from fires following future earthquakes, in addition to the damage caused by the shaking." "San Francisco is highly vulnerable to fire after an earthquake more than any other city in the country." "Water supply is critical to firefighting."

Citations for this statement include:

Applied Technology Council (ACT) ACT 52-1 (Potential Earthquake Impacts report) for the Community Action Plan for Seismic Safety (CAPSS) project 2010, prepared for the Department of Building Inspection.

Scawthorn, C., O'Rourke, T.D. & Blackburn, F. *The 1906 San Francisco Earthquake and Fire -- Enduring Lessons for Fire Protection and Water Supply*, Earthquake Spectra, Volume 22, S135-S158 (2006).

9 cont.

Thank you for considering my comments.

s/

Nancy Wuerfel
-->

Responses to Comments from Nancy Wuerfel

I-Wuerfel-1 The commenter makes a general statement that the Draft EIR contains numerous examples of misleading or wrong information that the commenter can provide to reviewers if requested to do so. The comment is noted; however, in the absence of any specific comment in this matter as it relates to the CPHP Draft EIR, no direct response can be provided. Please see Master Response 2: General Comments on EIR and Environmental Topics.

I-Wuerfel-2 The commenter makes a general statement that EIRs with insufficient analysis or lack of substantial evidence does not benefit the project or the public's understanding of the potential environmental risks; that putting inaccurate information from an EIR that then becomes part of a data base is wrong and must not be allowed to happen; and that there needs to be a check and balance on the data going into a data base. The comment is noted; however, in the absence of any specific comment in this matter as it relates to the CPHP Draft EIR, no direct response can be provided. Please see Master Response 2: General Comments on EIR and Environmental Topics.

I-Wuerfel-3 The commenter indicates that the Draft EIR should take into account high winds that can turn moderate risk into disaster fires; study how slope, normal winds and high winds can spread fires; study potential slides and impacts of broken water mains; and that San Francisco Fire Marshall did an audit in 2015 and found that conditions in a drought on Mount Sutro were considered extra hazardous and made recommendations.

Please refer to Draft EIR Section 4.8, Hazards and Hazardous Materials, pages 4.8-6 to 4.8-7 under the topic Wildland Fire. In September 2018, UCSF began implementing the Mount Sutro Open Space Reserve Vegetation Management Plan, a 20-year phased plan to improve ecosystem health, regenerate the forest, maintain and ensure public access to the Reserve, and minimize fire risk. In accordance with UCSF's established risk-reduction program, the Vegetation Management Plan is intended to protect the safety of Reserve users and adjacent structures with vegetation management to reduce the risk of both tree failure and fire. Under the Vegetation Management Plan, vegetation management is conducted in accordance with guidelines established by the San Francisco Fire Department and Cal Fire to create and maintain defensible space between vegetation and buildings.

The Draft EIR also notes that UCSF Facilities Services conducts ongoing, regular maintenance in the Reserve including: removal of storm debris, downed trees or branches, hazardous trees, trash, campsites; managing overgrown vegetation, including near roads, trails, parking areas, walkways, stairs, and buildings; scheduled tree pruning every two years or as necessary. This serves to keep buildings, roads and pathways safe, and further reduce fire risks.

In addition, as explained in the Draft EIR Appendix A, Initial Study, under topic IX, Hazards and Hazardous Materials, checklist item g), and repeated in Draft EIR Section 4.8, page 4.8-13, implementation of UCSF's Mount Sutro Open Space Vegetative Management Plan would change fire hazards and fire behavior within the Reserve, and fire hazards within the Reserve would generally decrease as a result of vegetation management activities, such as creating defensible space, removing diseased and/or dead trees, and increasing the diversity of tree types. The remainder of the Parnassus Heights campus site is not located within a fire hazard severity zone. Continued implementation of the Vegetation Management Plan, in conjunction with compliance with all California Fire Code requirements, would mitigate the wildfire risk to new development under the CPHP, and consequently, the impact associated with the exposure of people or structures developed under the proposed CPHP, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires would be less than significant.

With respect to landslides, please also refer to Draft EIR Section 4.6, Geology and Soils, for how the Draft EIR addresses the potential impact of the CPHP on landslide potential. Impact GEO-3 reports the results of slope stability risk assessments conducted by UCSF, which indicate the presence of small slope stability hazards on the campus site. Impact GEO-3 demonstrates that with the inclusion of recommendations in the 2019 slope stability report, as incorporated in CPHP Mitigation Measure GEO-3, the impact associated with landslide hazards would be reduced to a less than significant level.

With respect to the comment about broken water mains, as described in the Draft EIR Chapter 3, Project Description, page 3-31, fire water lines and systems within the campus site would be replaced in order to serve the new development envisioned under the proposed CPHP. This includes, but not limited, two new 180,000-gallon emergency water tanks (replacing two existing 20,000 gallon tanks) to serve the western portion of the campus core; and a new 110,000-gallon tank to provide emergency and domestic water storage for the existing hospitals and proposed New Hospital.

I-Wuerfel-4 The commenter makes a general statement that the EIRs must include accurate information in the analysis of existing conditions and the potential changes to the environment of a new project; that EIR reports live forever and are relied on by the public as a source of accurate information; and that this trust is misplaced if the Draft EIR is not corrected before it becomes final. The comment is noted; however, in the absence of any specific comment in this matter as it relates to the CPHP Draft EIR, no direct response can be provided. Please see Master Response 2: General Comments on EIR and Environmental Topics.

I-Wuerfel-5 The commenter indicates there are no citations that alert the reader as to what information from the 2014 LRDP Final EIR is still relevant and currently used to characterize existing conditions.

First, it should be noted that the CPHP Draft EIR contains a substantial amount of new information to update the baseline conditions from 2014 from the 2014 LRDP Final EIR to 2020 for the CPHP EIR, and in a majority of instances, new information is presented when characterizing baseline conditions for the CPHP EIR. Also, as indicated in Chapter 1, Introduction page 1-4, the CPHP EIR will replace in full the program-level impact analysis for the Parnassus Heights campus site contained in the 2014 LRDP FEIR. However, there are instances where the CPHP Draft EIR cites the 2014 LRDP Final EIR for background information that still may be appropriate for either representing baseline conditions, or otherwise for presentation of relevant background information. Section 4.1, Aesthetics, Wind and Shadow cites the 2014 LRDP Final EIR with respect to relevant historical wind conditions in San Francisco (page 4.1-11); and Section 4.11, Noise and Vibration acknowledges where certain baseline noise measurement data from the 2014 LRDP Final EIR was used. In addition, Chapter 3, Project Description describes where certain demolition projects at the campus site were previously analyzed in the 2014 LRDP Final EIR (page 3-37).

In addition, the Draft EIR notes where 2014 LRDP Final EIR-specific significance thresholds are also being used in the CPHP EIR (see 2014 LRDP Final EIR thresholds for toxic air contaminant emissions in Section 4.2, Air Quality on page 4.2-19 of the Draft EIR; 2014 LRDP Final EIR standard for damage or removal of heritage trees or native oaks in Section 4.3, Biological Resources on page 4.3-13; 2014 LRDP Final EIR standard for exposure of people to structural hazards in Section page 4.5, Geology and Soils on page 4.6-14; 2014 LRDP Final EIR standard for conflicts with local land use regulations in Section 4.10, Land Use and Planning on page 4.10-8; 2014 LRDP Final EIR standard for increases in average daily noise levels at property lines in Section 4.11, Noise and Vibration, page 4.11-13; and 2014 LRDP Final EIR standard for creating a demand for housing outside the market area in Section 4.12, Population and Housing on page 4.12-6.

I-Wuerfel-6 The commenter indicates the Draft EIR makes no mention of the 2019 San Francisco Civil Grand Jury report. This report identified that areas of the City, including in the western and southern districts, were not adequately covered by the City's Auxiliary Water Supply System (AWSS).

As described in the Draft EIR, Section 4.16 Utilities and Service Systems, pages 4.16-4 to 4.16-5, City AWSS facilities currently serve the Parnassus Heights campus site vicinity, including a 12-inch AWSS fire main in Parnassus Avenue that serves the AWSS hydrants on the south side of Parnassus Avenue. The AWSS fire main is fed by the Ashbury Street tank that has a direct

connection to the Twin Peaks Reservoir. Aside from the City's AWSS system, there are also City domestic water lines that serve hydrants in the campus vicinity. This includes 8-inch domestic water mains that serve fire hydrants along Parnassus and Fifth Avenues, and Kirkham Street; a 30-inch water transmission main along Parnassus Avenue that serves a hydrant on the east side of the campus site; and a 12-inch high pressure domestic water line along Clarendon Avenue that supplies water to fire hydrants in the Aldea Housing complex, on Medical Center Way.

Please note the SFPUC, in collaboration with the San Francisco Fire Department and San Francisco Public Works, have completed a number of AWSS construction projects within the City to improve the reliability of the AWSS following an earthquake or other disaster. These improvements, which utilize Earthquake Safety and Emergency Response Bond funds, have included repairs to existing cisterns and installation of new cisterns to improve coverage throughout the City; seismic strengthening of core facilities, and repair and expansion of pipelines and tunnel components.[6]

In addition, as described in Response I-Wuerfel-3, above, under the CPHP, a number of UCSF fire water lines and emergency water tanks within the campus site would be replaced to serve the campus core.

When considering the existing City AWSS and domestic water systems in the campus site vicinity, UCSF's on-campus emergency water system, ongoing improvements being implemented by the City for its AWSS system, and emergency water supply and distribution improvements proposed by UCSF at the campus site under the CPHP, it is not anticipated that there would be any notable deficiencies in emergency water systems serving the campus site under the CPHP.

I-Wuerfel-7 The commenter indicates the potential for seismic occurrence risks that include fires following earthquakes, affecting people and structures. As discussed under Approach to Analysis in Section 4.6, Geology and Soils, CEQA does not generally require analysis of impacts of the existing environment on the future residents or users of a project, including seismic impacts, unless the project were to exacerbate such condition. Nevertheless, Section 4.6 included a discussion of the potential for increased exposure of people or structures to risks associated with seismic occurrences for informational purposes. Impacts GEO-1 and GEO-2 in the Draft EIR demonstrate that with compliance with the regulatory requirements and the implementation of geotechnical design recommendations consistent with seismic design criteria, impacts relative to seismic shaking associated with earthquakes that may occur over the course of the CPHP would

6 San Francisco Public Utilities Commission website, Emergency Firefighting Water System Projects, https://sfwater.org/index.aspx?page=468, accessed October 26, 2020.

be less than significant. Correspondingly, potential secondary effects of earthquakes would also be less than significant.

I-Wuerfel-8 The commenter asserts a need for expansion of the City AWSS system. Please refer to Response I-Wuerfel-6, above.

I-Wuerfel-9 The commenter indicates the City's domestic low pressure water system needs to be distinguished from the City's AWSS high pressure water system. A discussion of each of these City water systems in the campus site vicinity was included in Draft EIR Section 4.16, Utilities and Service Systems; please see Response I-Wuerfel-6, above, as well.

The commenter asserts the CPHP water demand is mischaracterized and understated because the Water Supply Evaluation (WSE) completed in support of the EIR indicated that the water demand associated with water needed for Utilities and Infrastructure is listed as N/A. As documented in Section 4.16 Utilities and Service Systems in the Draft EIR, page 4.16-22, The Initial Phase improvements include certain potable water conveyance improvements, heating and chilled water conveyance improvements, and new water tanks to better accommodate water demands of CPHP development, but the Initial Phase improvements are not in and of themselves a notable source of water demand. Consequently, the Initial Phase improvements would not result in a significant impact with respect to water supply, and the impact would be less than significant. Correspondingly, the WSE similarly documented that this element of the CPHP would not generate a notable water demand.

It is acknowledged that water would be required to help suppress fires, including those that could be a result of earthquakes. As indicated in Response I-Wuerfel-7, above, effects of hazards such as earthquakes and related effects on the CPHP would not be a result of the CPHP itself. Similarly, any water demand associated with suppressing fires associated with earthquakes would not be a water demand of the CPHP. Please also see Response I-Wuerfel-6, above.

From: Rick Hodgkins Campus
To: Planning - EIR
Subject: The revitalization of the Parnassus Heights campus:
Date: Friday, September 11, 2020 5:03:53 PM

To whom this may concern.

While I live in stinking stupid Sacramento County of California, I have been a patient at UCSF ever since I was an infant. And I have known since last year about the universities ambitions to revitalize UCSF main campus at Parnassus Heights. Besides that is definitely the only campus that I have ever been to. I better mention that pretty soon I will be visiting their satellite campus at Berkeley, that which is one of their many different satellite campuses. I have two suggestions but one question. My first suggestion has to do with the Langley porter psychiatric clinics and hospital. With regards to the department of psychiatry, I feel as a person with a developmental disability that perhaps general psychiatry auto be held in its own building. In other words all of the general psychiatry clinics dealing solely with patients with mental illness like bipolar, depression and schizophrenia, that who don't have any conquering disabilities including the forensic population. Those clinics should be housed in one building. When it comes to those doctors that see patients for both family medicine, OB/GYN, that which stands for obstetrics and gynecology and perhaps psychiatry, because there are doctors that are Crosstrained in either family medicine and psychiatry or family medicine, OB/GYN and psychiatry, then those doctors perhaps odyssey patients that fit all those criteria in family medicine. And then you have psychiatrists that deal with patients like myself who are developmentally disabled and those would be your neuropsychiatrists, who can diagnose both adults and children with developmental disabilities including autism. And speaking of children, pediatric psychiatry also known as child psychiatry oddity within the department of pediatrics. And the rest of neuropsychiatry audit be within the department of neurology. As far as Langley Porter Hospital, shouldn't that be part of the main hospital? And finally, being blind and visually impaired, I would like to see as far as wayfinding around campus, I would like to see along with print labels on signs, what about braille labels on signs and doors not only signs around campus, but doors so that a blind person no matter if they're a faculty member, a staff, a visitor or a patient find their way around. Those are my questions and suggestions. Thank you very much. 1

Respectfully yours,

Richard/Rick Hodgkins: patient of Dr.Lewis Blevins: Nuro endocrinologist, Dr. Craig Hoyt: Nuro ophthalmologist hopefully Dr. Jonathan Carter bariatric surgeon and Dr. Melissa Neuwelt: Soon to be retinal specialist.

Sent from my iPhone

Responses to Comments from Rick Hodgkins

I-Hodgkins-1 The commenter makes a number of suggestions to improve psychiatry services at UCSF. This comment does not address the adequacy of the Draft EIR; consequently, no response is required. However, the comment has been noted and will be forwarded to decision-makers.

The commenter also requests improved wayfinding around campus, and suggests braille labels on signs and doors for the visually impaired. The comment is appreciated. As discussed in the Draft EIR, one of the Urban Design objectives of the CPHP is to improve the campus's functional organization and foster intuitive wayfinding; and the CPHP includes circulation improvements to facilitate intuitive wayfinding and easy navigation between buildings, including better pedestrian connections and addition of wayfinding signage. The suggestion from the commenter has been noted and will be forwarded to decision-makers.

TO: Diane Wong, Environmental Coordinator, UCSF Campus Planning

CC: Francesca Vega, Vice Chancellor, Community and Government Relations, Brian Newman, Senior Associate Vice Chancellor, Real Estate,

FROM: Susan Maerki.

IN RE: Comments UCSF Comprehensive Parnassus Heights Plan, Environmental Impact Report Prepared July 13, 2020

DATE: September 11, 2020

VIA EMAIL: EIR@ucsf.edu

Background

These comments are not based on a comprehensive review of the UCSF Comprehensive Parnassus Heights Draft Environmental Impact Report (Draft EIR), but rather reflect comments on specific sections of the Draft EIR that 1) did not fully respond to requests comments submitted for the Notice of Preparation or 2) seem insufficient or incomplete in the Draft EIR. 1

Items Requested But Not Fully Addressed

1. **CPHP Environmental Impact Report must include a UCSF commitment to more project specific scoping over the CPHP time period.**

The Draft EIR is supposed to be a document to guide Parnassus Heights development over the next 30 years and attempts the difficult task of making some projections to 2050. It focuses on the near-term Phase 1 projects expected to be completed by 2030, but provides no provision for additional project specific analysis or any expectation that the 2020 assumptions will be reviewed and rebased as the University completes Phase 1 and 2

- The draft EIR proposes project level analysis for the projects in the Initial Phase – Irving Street entrance, Research Academic Building, and Aldea Housing– but only commits to "determine the appropriate level of additional review, *if any (emphasis added*), needed" for additional projects.
- The new hospital is the only project that the draft scoping document identifies for a project specific EIR.
- The proposal for the 420 units of housing on the Fourth Avenue extension appears to warrant a project specific EIR.
- The excavation and potential undergrounding of the service road to connect Medical Center Way and Koret Way is likely another candidate for separate subproject evaluation.

- I request a UCSF commitment to additional project specific review that will provide touchpoints to reassess changes to "baseline" conditions over the timeframe and permit identification of cumulative effects.

2 cont.

2. CPHP impact timeline must be clarified to quantify the expected "front loading" and the overlap or concurrent demolition/construction impacts.

A large proportion of the population and transportation growth is expected within the Initial phase. While it is acknowledged that approximately 75% of the impact will occur during between 2020-2030, through the completion of the Moffitt Hospital replacement

- Include timeline of proposed demolitions and replacement buildings. This should include discussion of changes relative to the 2014 LRDP.

  o For example, the 2014 LRDP proposed demolition of Woods and Surge in the 2014-2019 timeframe and demolition of Proctor and Langley Porter in the 2020 - 2024 timeframe. Obviously, the Surge and Woods buildings are still standing. How will the demolition and construction timelines differ?

- Incorporate timeline of expected concurrent renovations/upgrades to buildings included in the 2014 LRDP but not addressed in CPHP.

  o For example, the 2014 LRDP proposed renovation of the Faculty Alumni House and Moffitt Hospital, as well as smaller projects (medical gas storage tanks, retaining wall) by 2035. Where will these occur in the CHCP timeline?

3

3. The Space Needs Assessment Appendix and presentations to the CHCP Community Advisory Group do not provide sufficient detail and justification for the hospital replacement with a 200 inpatient bed increase and large increase in square foot assumptions.

For example, the Draft EIR indicates that UCSF has had to refuse an increasing number of requested transfers. Based on numbers on Page 3-11, accommodating all medically necessary transfers by 2030, assuming the acceptance drops to 50%, with 6-day ALOS and 80% occupancy would require approximately 75 more inpatient beds. Also, the 2019 numbers on this page are nearly 3x higher than the 2019 medically necessary transfers turned away included in the June 12, 2020 presentation included in the Space Needs Assessment Appendix.

- In addition to the inpatient bed detail, provide current assumptions regarding the number of Emergency Department bays. Observation beds, number and size of intensive care units and operating rooms. Some of this information was provided to the members of the UC Regents Finance and Capital Strategies Committee in the meeting on March 18, 2020, but was not included in presentations to the CHCP Advisory Group or included in the Draft EIR. (See attachment)

4

- Provide more detailed information on the specific regulations and best practices regarding factors that increase the hospital size, such as ceiling height, operating room size, and radiology, laboratory and other ancillary support services.
- Provide assumptions regarding staffing (relative to licensed) and planned occupancy of inpatient services at the Parnassus campus
- Clarify how the proposed expansion of specialty service clinics and ambulatory surgery capacity at Mission Bay (Block 34) offsets space needs and proposed size of the replacement hospital. Again, some of this information has been provided to the Regents, but has not been shared with the CHCP Advisory Group or included as part of Mission Bay expansion in the Draft EIR. (see attachment)

4 cont.

Items Not Sufficiently Addressed

1. **Although there are frequent references to requesting an amendment to the 1976 Regents Resolution regarding the space ceiling, the proposed CPHP also would break commitments under the Community Planning Principles – specifically those with regard to height and building density.**

5

While some of the proposed building heights are within the current zoning height and density guidelines, most are not. Based on Figure 3-9 (page 3-21) new construction would be 25% to 250% higher than current buildings. The replacement hospital, at 16 stories would be nearly 50% higher and the Westside housing would be approximately 200% to 300% greater than the 40 foot zoning height for the surrounding residential neighborhood.

2. **The transportation analysis is insufficient and shows significant project impact. The EIR should develop enhancements to the Transportation Demand Management programs to mitigate these impacts.**
    - The near-term analysis does not include a traffic count of 6th Avenue between the turn from 7th at Lawton to Irving, a major commute route from the South to the Campus.
    - Because the pedestrian counts required people to use the crosswalk, it does not include counts of passengers boarding the N Judah inbound.
    - Shuttle trips and volume do not include frequency of operation – some which run three to four times an hour and add to congestion on Parnassus. Please add that detail for Parnassus Avenue trips.
    - The Noise Analysis (appendix page 2) shows 35%to over 50% increases in peak hour vehicle traffic on blocks of Kirkham, Judah, 7th Avenue and Stanyan.
    - It does not incorporate an analysis of traffic impacts expected from the opening of 4th Avenue and the westside housing. This is another reason to require the University to conduct a separate EIR for subprojects of the CPHP.
    - Future campus mode split (Table 4.25-9, page 4.15-32) projects a *decrease* in use of public transportation, car pool and shuttle. It assumes a paltry 2% will telecommute.

6

- Despite these projections, the EIR concludes that No Mitigation is required and there are no comments re possible changes in the Transportation Demand Management plan.

6 cont.

3. **The Draft EIR does not attempt to comment on the recent and ongoing lessons of clinical services delivery and workforce strategy that are emerging from the experience of preparation and ongoing management of the COVID-19 pandemic. It glosses over this issue as a matter of uncertainty or assumes that it means only increased clinical capacity and the need for larger facilities.**
    - The University has developed a committee to examine this issue. Preliminary findings should be included in the revised Draft EIR.
    - Address alternative workforce schedules, including partial and near full time telecommute options for segments of the workforce
    - Comment on further infrastructure development and projections for use of telehealth for patient visits, physician referrals and consultations, and other remote/distance applications.
    - Comment on how increasing telecommuting and telehealth capabilities may offset proposed office, administrative, research (dry lab), parking or other space needs.

7

4. **The Draft EIR has a limited discussion of possible components of a revised Memorandum of Understanding with the City and County of San Francisco and has taken a limited view of possible mitigation and community benefits. I expect that the MOU will be finalized before the CPHP EIR is presented to the UC Regents and must be incorporated in the final EIR document.**
    - For example, the 2019 Anchor Institution Report commits the University to be an employer of low income and people of color. What commitments will the University make regarding "local hire" for the demolition, construction and renovation projects proposed in the CPHP?
    - What commitments will the University make that new staff hires associated with the hospital and space expansion will be San Francisco residents, from low income neighborhoods and are people of color?
    - The members of the SF Planning Commission have asked staff to develop a report that would identify mitigation measures that the city would request if the CPHP was a proposal from a private non-profit or for-profit organization. The University should review the terms of the final agreement with Sutter for the Van Ness replacement hospital and the terms between the City of Palo Alto and Stanford University Hospital. (see attachment)

8

Attachments:
UC Regents Presentation March 2020 – UC Hospital
UC Regents Presentation Dec 2019 – Mission Bay Block 34
Summary Terms – City of Palo Alto and Stanford University

Responses to Comments from Susan Maerki

I-Maerki-1 The commenter provides an introductory statement that specific sections of the Draft EIR did not fully respond to requests and comments submitted for the Notice of Preparation or seem insufficient or incomplete in the Draft EIR. Please refer to responses provided below to specific comments raised by commenter.

I-Maerki-2 The commenter requests specificity as to the level of environmental review that would be required for each project under the CPHP, and cites as examples that the proposed CPHP's proposed West Side Housing appears to warrant a project-specific EIR; and that excavation and potential undergrounding of the service corridor also appears to require a separate evaluation.

As noted on Draft EIR Introduction, Section 1.5, page 1-8, when details on CPHP Future Phase projects are known, each Future Phase project (including the proposed West Side Housing and service corridor) would be reviewed in light of the CPHP Final EIR to determine the appropriate level of additional environmental review, if any, needed before approval and implementation of the particular project.

The process for determining the specific level of later environmental review for Future Phase projects is addressed in Section 15168 of the CEQA Guidelines. Per Section 15168(c)(1), if a Future Phase project would have effects that were not examined in the CPHP EIR, an Initial Study would be prepared leading to either an EIR or a Negative Declaration; and such analysis may tier from the program EIR as provided in Section 15152 of the CEQA Guidelines. Per Section 15168(c)(2), if the University finds that this later analysis shows that any following criteria pursuant to Section 15162 would be met, then a subsequent EIR would be required:

- Substantial changes are proposed in the project, or substantial changes occur with respect to the circumstances under which the project is undertaken, which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete shows any of the following:
  - The project will have one or more significant effects not discussed in the previous EIR;
  - Significant effects previously examined will be substantially more severe than shown in the previous EIR;
  - Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, or which are considerably different from those analyzed in the previous EIR, would substantially reduce one or more

significant effects of the project, but the University declines to adopt the mitigation measure or alternative.

If, however, the University finds that pursuant to Section 15162, no subsequent EIR would be required, then the UC decision-makers can approve the activity as being within the scope of the project covered by the CPHP EIR, and no new environmental document would be required.

The commenter also requests that additional project-specific review will provide touchpoints to reassess changes to baseline conditions over the timeframe and permit identification of cumulative effects. The process for considering the specific level of later environmental review for Future Phase projects would take into account any new information of substantial importance that may have since arisen, including related to baseline or cumulative conditions.

I-Maerki-3 The commenter requests specific timelines of proposed demolitions and replacement buildings, relative to the 2014 LRDP.

Available details, to the extent known, on demolition, new construction and renovations under the CPHP are presented in the Draft EIR Chapter 3, Project Description on pages 3-36 to 3-37. This includes specific timelines for the Irving Street Arrival, RAB, New Hospital (including proposed bridge and tunnel), and the initial Aldea Housing Densification.

Since demolition of the LPPI is required prior to construction of the New Hospital, demolition of that building is anticipated in 2022. Renovation of Moffitt Hospital is anticipated to occur in conjunction with the construction of the New Hospital.

Specific timelines for other CPHP components are not yet defined, other than that renovation of buildings would be on-going, and construction of Future Phase projects would occur between 2030 and 2050. Similarly, specific timelines for other buildings authorized under the 2014 LRDP to be demolished or renovated, including demolition of the Proctor building, and renovation of the Faculty Alumni House, and smaller projects are anticipated to be prior to 2030.

I-Maerki-4 The commenter asserts that the Space Needs Appendix and presentations to the CHCP Community Advisory Group do not provide sufficient detail and justification for the hospital replacement with a 200 inpatient bed increase and large increase in square foot assumptions. Please refer to Master Response 4: Space Ceiling and Population.

I-Maerki-5 The commenter indicates that although there are frequent references to requesting an amendment to the 1976 Regents' Resolution regarding the space ceiling, the proposed CPHP also would break commitments under the Community Planning Principles – specifically those with regard to height and building density. Please refer to Master Response 4: Space Ceiling and Population.

I-Maerki-6 The comment makes several observations about the content and analysis methodologies used in Section 4.15 Transportation of the Draft EIR, requests an expansion of the geographic scope and revision of analysis methodologies to said sections, and observes that with the exception of CPHP Mitigation Measure TRANS-5 Construction Coordination and Monitoring Measures, mitigations were not identified in Section 4.15 of the Draft EIR.

The analysis of CPHP transportation impacts follows past accepted practices, is thorough, and is appropriate for a program-level EIR. The transportation impacts of the Initial Phase projects are also adequately analyzed and disclosed in the Draft EIR. The effects of the Fourth Avenue Extension and Westside housing are evaluated as part of full implementation of the CPHP. Additional analysis, as required by CEQA, would occur as part of future project-level study of individual projects, including the Westside housing development, as and when it is proposed.

With the exception of a significant impact from construction activities under the CPHP for which mitigation is set forth in the Draft EIR, all transportation impacts of the CPHP would be less than significant, and no mitigation is required. Note that further improvements to UCSF's TDM program are required under CPHP Mitigation Measure AIR-2b to reduce average daily vehicle trips to the campus site and mitigate significant air quality impacts of the CPHP.

I-Maerki-7 The commenter asserts that the Draft EIR did not consider clinical services delivery and workforce strategy as a result of COVID-19. Please see Master Response 3: COVID-19.

I-Maerki-8 The commenter inquires about hiring practices related to construction personnel for demolition, construction and renovation activities under the CPHP. These comments are not related to the adequacy of the Draft EIR; no response is required. However, the comments have been noted and will be forwarded to decision-makers.

Please note Comment Letter I-Maerki contained several attachments which did not comment directly on the Draft EIR. These attachments are included in Appendix I-Maerki in this Comments and Responses document.

From:	Eleanor Kaplan
To:	Campus Planning - EIR
Subject:	Draft of latest EIR submitted by UCSF8
Date:	Friday, September 11, 2020 5:10:18 PM

As a resident of a neighboring community for the past 40 years and prior employment at Region 9 of EPA in the Air Division, my responsibility, as an Environmental Specialist ,Was to review Implementation plans for areas that were seeking to move from nonattainment to attainment for various pollutants. I looked forward to seeing what this EIR contained. I was very disappointed because:

The Eir does not put ay enough attention to the importance Of maintaining Air quality In planning future activities that may have serious consequences for the areas covered in the Plan and in other areas as well. The EIR is meticulous in proving visual aids but does not provide projections showing the effects of inadequate planning on areas hat could be impacted . Control measures that have been on the books for years are not updated to reflect more advanced technology. The E IR in my opinion seems to be a static document rather than one that looks to the future in a rapidly changing world. 1

Sent from my iPad latest yment

Responses to Comments from Eleanor Kaplan

I-Kaplan-1 This comment opines that the Draft EIR does not address the importance of maintaining air quality in its analysis and air quality planning for the region. The commenter feels that the Draft EIR does not provide projections showing the effects of inadequate planning on areas that could be impacted and that control measures that have been on the books for years are not updated to reflect more advanced technology.

The Draft EIR addresses all potential environmental impacts associated with the proposed CPHP, including air quality. The impact of whether the proposed CPHP could conflict with or obstruct implementation of the *2017 Clean Air Plan* are addressed on Draft EIR pages 4.2-63 through 4.2-68.

Comments on UCSF Comprehensive Parnassus Heights Plan (CPHP) Draft EIR

I would like to express my views after reviewing the CPHP draft EIR. I am a resident of Cole Valley, an extensive user of the Sutro open space, and a UCSF patient.

In my view, none of the plans discussed in the draft EIR are appropriate. Though multiple plans are discussed, they essentially still present a bit of a "Hobson's Choice." The CPHP and the alternative plans that contemplate a substantial increase in the space ceiling and a massive new hospital building on the eastern end of campus have unacceptably detrimental environmental effects on the campus itself, the open space reserve, and neighboring areas. But UCSF is not a viable, modern, 22nd century hospital and research campus under the no development, or possibly even the reduced development, plans. The UC Regents should reject all the plans discussed in the draft EIR. UCSF should be required to go back and rethink the reduced and phased options to figure out how to enhance the campus in line with UCSF long-term goals, without the dire environmental impacts of the CPHP, and particularly the CPHP New Hospital Plan or the 19 story New Hospital plan. 1 2

It is not appropriate for UCSF to simply toss away the 1976 agreement about the space ceiling and then slowly and steadily increase the gross square footage of this proposed plan over the last 2 years of the planning process, so that it now is almost double the prior space ceiling. The CPHP appears to be a recipe for litigation along the lines of the years of litigation that preceded the 1976 agreement. 3

It is not appropriate for UCSF to intrude **anywhere** into the habitat of the existing open space reserve boundary. The implemented plan should remain within a footprint that does not do so, and it is not sufficient mitigation to simply make a vague promise of replacing the open space somewhere else on campus. "Mitigation" is meaningless to the current animal and bird denizens in those sections of the open space boundary. 4

It is not appropriate for UCSF to blithely assume that creating man-made scenic view areas in other parts of the campus compensates for or mitigates putting a hospital building of such massive scale and footprint on the east end of campus. How can that not dramatically affect the Sutro forest, not just from a view perspective but also, more importantly, as a result of increased shadows, light illumination, and noise? Noise not just from construction, but from the ongoing operation of the New Hospital and the rest of the sizably expanded campus (the existing campus already produces substantial ambient noise). 5 6

There seems to have been an intense concern about the views from Grandview Park, maybe because of NIMBY participation on the advisory committees or in community meetings. The more immediate neighborhoods will have dramatically impacted views related to the increased height and density of the new campus buildings, particularly the new hospital building. I am not talking about looking down from above, but rather looking up from below. The surrounding neighborhoods are not currently dominated by buildings of such a massive height and scale. The images of the CPHP plan reveal a change in the landscape that will be felt and seen all the way across the Sunset and the neighborhoods east and north of UCSF. From Golden Gate Park or the surrounding neighborhoods, we will look up at the hulking presence of UCSF, and in particular a building that is substantially wider and 100 feet taller than any other building currently on the campus. Buildings (particularly the proposed New Hospital) that will cast extensive and widespread new shadows, and even eviscerate views of the Sutro Tower landmark. 7

It is not appropriate for UCSF to contemplate tearing down the UC Hall without a plan for paying for and attempting to achieve safe removal of the historically and artistically significant Zakheim murals. The 8

mitigation plan, which contemplates simply creating a virtual, digital representation of those murals, is woefully inadequate. Digital representations simply cannot capture the artistic essence of fresco murals. 8 cont.

The ultimate UCSF plan should not contemplate removing a single Redwood tree from the hospital campus or any trees from within the current open space boundary, without **adequate** environmental impact mitigation. For every removed tree, UCSF should be required to bear the cost of replacement with equivalent new trees elsewhere on the campus or in the Sutro open space and bear the cost of tending those new trees into adult growth stages. 9

The housing plans are inadequate. They do not produce enough housing for the added influx of staff and students to the campus, and they are overly reliant on putting higher, more dense buildings in the Aldea Housing project which will inevitably affect the Sutro open space reserve. Higher, denser housing structures should be placed elsewhere on or off campus, not in Aldea, within the Sutro forest. 10

Are there any real plans to mitigate the transportation impacts of the CPHP? 11

Shadows, wind tunnels, noise, air quality, construction-stage pollutants, potential seismic issues from underground tunnels, landslide risk, etc. etc. From all aspects, the CPHP is a brain-dead plan that does not "get" the city we live in during the climate change era (hope this plan is being prepared with a projection of the force of 2050 winds). 12

I read with interest the transcript of the EIR Scoping Meeting held on February 10, 2020 (beginning on page 993 of the draft EIR), where I can see that many of my concerns were already raised by members of the community. And yet, we have all received this draft EIR. I laughed at some of the comments (e.g., Hilary Gitelman, Kevin Siegel, and others) telling people to be patient and wait to read the 2000+ pages of the EIR and somehow that would make a big difference in how we regular humans who live in the surrounding neighborhoods feel about UCSF's plan. 13

This actually seems to be a ridiculous process, with seemingly inadequate checks and balances. UCSF simply negotiates within itself and pushes out a plan that the UC Board of Regents apparently can approve and it does not seem that any other government agency is able to stop it. Therefore, the report is able, in multiple places, to blithely assume that there is less than significant (LTS, LTS, LTS) impact from things that obviously have significant impact on the forest creatures, the surrounding neighborhoods, and the city overall. 14

Lastly, so many of the neighbor comments in those meeting notes resonate with me. I'm not a NIMBY, I don't care about the CPHP because of personal, real property interests. I care about the effects on the overall environment in the surrounding neighborhoods and I intensely care about preservation of the habitat in the Sutro open space. Suggested mitigations may (or may not) meet the letter of environmental law, but this EIR draft does not capture the true impacts of this plan on those environments. It leaves out all the best mitigations, which would be to stick closer to the agreed space ceiling, stay outside the existing reserve boundary, work around the existing (particularly redwood) trees, reduce the height and footprint of the largest buildings, and please figure out a way to save the Zakheim murals!! 15

Sincerely,

Pat Scatena
Cole Valley, San Francisco
September 11, 2020

Responses to Comments from Pat Scatena

I-Scatena-1 The commenter makes general statements, including that the CPHP and alternative plans discussed in the Draft EIR are not appropriate, and the substantial increase in the space ceiling and the New Hospital would have deleterious environmental effects on the campus, the Reserve, and neighboring areas. Given the lack of specificity in the comment, no direct response is possible; see Master Response 2: General Comments on EIR and Environmental Topics. See also responses to specific comments raised below.

I-Scatena-2 The commenter asserts that the UC Regents should reject all the plans discussed in the draft EIR; and that UCSF should revise its plans to enhance the campus in line with UCSF long-term goals, without the dire environmental impacts of the CPHP, and particularly the CPHP New Hospital Plan or the 19 story New Hospital plan. These comments are on the merits of the proposed CPHP, and not on the adequacy of the Draft EIR. Please see Master Response 1: Non-CEQA Comments.

I-Scatena-3 The commenter asserts that it is not appropriate to toss away the 1976 agreement about the space ceiling and then increase the space of this proposed plan over the last 2 years of the planning process. Please refer to Master Response 4: Space Ceiling and Population.

I-Scatena-4 The commenter objects to the potential encroachment into the Reserve under the CPHP. This comment does not address the adequacy of the Draft EIR. However, the comment has been noted and will be forwarded to decision-makers.

The commenter also asserts that the proposed open space swap is a vague promise for replacing open space on campus. As part of the project approvals for the CPHP, the proposed LRDP Amendment will include revisions to functional zones, include the adjustment to the Reserve boundary, and the proposed open space swap. Accordingly, the CPHP would provide permanent open space reserve protection that is not currently provided for this area.

I-Scatena-5 The comment states that the proposed New Hospital would block views from Sutro Forest and would also increase shading and lighting in the forest. Please refer to Master Response 7: Aesthetic Impacts.

I-Scatena-6 This comment suggests that there would be potential significant noise impacts to the Sutro Forest.

With respect to the construction impact of the CPHP on biological resources, including those within the Reserve, please refer to Impact BIO-1 in the Draft EIR Section 4.3, Biological Resources. As discussed in Impact BIO-1, under the CPHP, the predominant potential impacts on biological resources within the Reserve from construction activities would be to nesting birds and to roosting

bats. Impacts to nesting birds from construction activities include temporary loss of nesting habitat and disturbance to nearby nests from construction noise and activity. Noise and disturbance impacts would be mitigated to a less-than-significant level under CPHP Mitigation Measure BIO-1c, Protection of Nesting Birds. Construction activities could also directly impact roosting bats, and elevated sound levels from heavy construction equipment could cause adult bats to abandon maternity roosts. Noise and disturbance activities would be mitigated to a less-than-significant level with implementation of CPHP Mitigation Measure BIO-1d, Protection of Roosting Bats. Mitigation measures discussed in the Draft EIR, Section 4.11, Noise and Vibration, would further serve to minimize overall noise impacts, including to wildlife.

With respect to construction-related impacts to users of the Reserve for recreation, compliance with mitigation-measures and other construction-related regulatory requirements discussed in the Draft EIR, including Section 4.2, *Air Quality*; Section 4.3, *Biological Resources*; Section 4.11, *Noise and Vibration*; and Section 4.15, *Transportation,* would reduce construction-related effects to users of the Reserve to the extent feasible.

There are no adverse noise impacts identified in the Draft EIR with respect to operations of the CPHP development. As under existing conditions, the majority of new development under the CPHP would be located within either the previously disturbed areas within the campus core or Aldea Housing complex.

I-Scatena-7 The comment states that neighborhoods proximate to the campus, and particularly those close to the proposed New Hospital, would see dramatically altered views as a result of the proposed project. Please refer to Master Response 7: Aesthetic Impacts.

I-Scatena-8 The commenter states it is not appropriate for UCSF to demolish UC Hall without a plan to preserve the murals, and that creating a digital representation of the murals is inadequate. Please refer to Master Response 11: Toland Hall Murals.

I-Scatena-9 The commenter indicates that no redwood trees from the New Hospital site, or any trees within the open space boundary, should be removed under the CPHP, without adequate mitigation; and suggests UCSF bear the costs of replacement with equivalent new trees elsewhere on the campus or Sutro open space, and tending those new tree into adult growth stages.

The Draft EIR Chapter 3, Project Description, page 3-38 acknowledges certain tree removal would be required under the CPHP including areas within the Reserve, elsewhere within the campus site (including the redwood grove along Parnassus Avenue west of UC Hall), and off-site (e.g., street trees along Parnassus Avenue and/or Irving Street). Impacts to trees under the CPHP was addressed in Impact BIO-3 in Draft EIR Section 4.3, Biological Resources,

page 4.3-22 to 4.3-23. Pursuant to the University of California's constitutional autonomy, on university-controlled property used in furtherance of the University's educational mission, UCSF is not subject to local policies protecting biological resources. However, UCSF will avoid removal of trees that would be considered significant or protected to the maximum extent feasible. Any trees within the public right-of-way that may be removed during the course of off-site construction under the CPHP would conform to the City ordinance governing tree protection. Thus, this impact would be less than significant. Please note UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP, including the New Hospital, when detailed designs become available.

I-Scatena-10 The commenter asserts that the proposed housing plan is inadequate, and does not provide enough housing for the estimated increase in staff and students at the campus site. Please see Master Response 14: Population and Housing Impacts.

The commenter also makes a general assertion that higher, more dense buildings in the Aldea Housing complex would affect the Reserve. The new Aldea Housing structures would be developed in generally the same building footprints as the existing Aldea Housing buildings, and consequently, this project development would not extend into the Reserve. Regardless, all potential environmental impacts of the Aldea Housing Densification project are adequately addressed in the Draft EIR, and mitigated to the extent feasible.

I-Scatena-11 The comment asks about what mitigation measures are proposed for transportation impacts. The CPHP's transportation impacts are discussed in detail in the Draft EIR, beginning on page 4.15-37 and continuing through page 4.15-52. As discussed in that section, the CPHP would not result in any significant impacts to transportation that require mitigation, with the exception of Impact TRANS-5. Impact TRANS-5, discussed on pages 4.15-49 through 4.15-51, relates to impacts due to construction activities under the CPHP. This impact is potentially significant, and as such the Draft EIR identifies CPHP Mitigation Measure TRANS-5 to reduce the impact to a less-than-significant level. Please see Master Response 16 for a further explanation of the basis of the transportation significance criteria used in this Draft EIR.

I-Scatena-12 The commenter makes a general reference to several environmental topics, including shadows, air quality and noise. These topics are adequately addressed in Draft EIR Sections 4.1, Aesthetics, Wind and Shadow; Section 4.3, Air Quality; and Section 4.11, Noise and Vibration, respectively. The commenter also makes a general reference to "construction pollutants," which are adequately addressed in several Draft EIR Sections, including Section 4.3, Air Quality, Section 4.8, Hazards and Hazardous Materials; and Section 4.9, Hydrology and Water Quality.

The commenter also makes a general reference to wind tunnels. Wind tunnel testing is discussed in the Draft EIR in CPHP Mitigation Measure AES-4, which would be required to assess new development under the CPHP (80 feet or taller) to determine if the proposed building(s) would result in new exceedances of the 26-mph pedestrian wind hazard criterion.

Lastly, the commenter makes reference to potential seismic issues from underground tunnels, and landslide risk. Draft EIR Section 4.6, Geology and Soils adequately addresses all potential seismic issues associated with new CPHP development, including tunnels; and potential landslides risks. Please refer to Impacts GEO-1, GEO-2, GEO-3 and GEO-5.

I-Scatena-13 The commenter opines about the EIR scoping meeting that was held. These comments do not specifically address the adequacy of the Draft EIR; consequently, no response is required. Please also see Response I-Scatena-14, below.

I-Scatena-14 The commenter makes a number of assertions, including that UCSF negotiates within itself and pushes out a plan the UC Board of Regents can approve and that it seems no other government agency can stop it.

Chapter 1, Introduction, in the Draft EIR, includes a detailed discussion of the role of the Lead Agency for the project, the CEQA environmental review process, uses of the EIR, and approvals required. Under CEQA, the lead agency is the California government agency that has the principal responsibility for carrying out or approving the project, and therefore, has the principal responsibility for preparing the CEQA document. As such, the lead agency is responsible for the preparation and adequacy of the CEQA document, and has the ultimate discretion for significance conclusions and appropriateness of mitigation measures identified in the EIR. In the case of the CPHP, the UC Board of Regents (Regents) is the lead agency that will be responsible for approving the CPHP, and UCSF is preparing the CPHP EIR on behalf of the UC Regents. The EIR Introduction, on pages 1-8 to 1-9, also discusses applicable Responsible agencies and other agencies with jurisdiction by law that have certain approval actions, including the Bay Area Air Quality Management District (for stationary source permits for diesel generators), the California Office of Statewide Health Planning and Development (for building permit approval and construction oversight for clinical facilities), and the City of San Francisco (for various approvals of CPHP off-site improvements). As discussed in the Introduction, relevant public agencies are included in the agency/public review process for the EIR, have been solicited for their input on scoping of the Draft EIR, and have given the opportunity to comment on the adequacy of the Draft EIR as well.

I-Scatena-15 The commenter expresses general concern about the effects on the overall environment in the surrounding neighborhood, and preservation of habitat in the

Reserve. Due to lack of specificity in the comment, no direct response is possible; please see Master Response 2: General Comments on EIR and Environmental Topics.

The commenter questions if the suggested mitigation meet the letter of the environmental law. All mitigation measures identified in the Draft EIR have been prepared pursuant to the requirements of CEQA. The Draft EIR mitigation measures are considered feasible; avoid, minimize, rectify, or compensate for the significant environmental effects of the proposed CPHP; and measurable in their effectiveness.

The commenter asserts that the Draft EIR does not capture the true impact. Due to lack of specificity in the comment, no direct response is possible; please see Master Response 2: General Comments on EIR and Environmental Topics.

The commenter suggests staying outside the Reserve boundary, work around existing trees, reduce the height and footprint of the largest buildings save the Zakheim murals. These comments have been noted and will be forwarded to decision-makers. Please also refer to Master Response 11: Toland Hall Murals.

Comment Letter I-Brown1

From: Tish Brown
To: Campus Planning - EIR
Subject: CPHP EIR
Date: Friday, September 11, 2020 9:39:41 PM

The north easternmost building in the new plans is drastically out of scale. It is far too large. It must be reduced in size by 30 - 50 percent. That bulk could be sacrificed or distributed among the rest of the project. 1

Tish Brown

Sent from my iPhone

Responses to Comments from Tish Brown

I-Brown1-1 The commenter alludes to the New Hospital being too large and out of scale; and should be reduced be 30 to 50 percent, and distributed among the rest of the project. Please see Master Response 5: EIR Alternatives.

From: Tish Brown
To: Campus Planning - EIR
Subject: CPHP EIR
Date: Saturday, September 12, 2020 10:17:20 AM

This is addendum to my previous response to the EIR: the Plan to destroy the depression-era murals is shoddy, overly cheap, and overlooks a potential benefit.
The opposite approach is a collaboration of the FAMSF and the Asian Art Museum resulted in the Piazzoni Murals Room at the de Young Museum, a jewel. It's conserved murals moved and saved from the Central Branch of the Library.
Tish Brown

1

Sent from my iPhone

Responses to Comments from Tish Brown

I-Brown2-1 The commenter points to an approach taken by the de Young Museum in San Francisco as an example for proper preservation and relocation of historic murals. Please refer to Master Response 11: Toland Hall Murals.

From:	julie long gallegos
To:	Campus Planning - EIR
Subject:	Tree destruction for the Aldea Student Dorms
Date:	Friday, September 11, 2020 9:55:09 PM

Dear Sir/Madam,

I'm a third generation San Franciscan who is appalled and angered at the wanton destruction of the well-loved Sutro Forest, at the whim of UCSF. I currently reside in Glen Park but spent my teen years on Edgewood Avenue, where the adjacent forest is slated to be destroyed for the Aldea Student Housing. 1

The public was shocked and sickened by the tree felling on Clarendon when photos were posted on social media.

90-foot tall skyscrapers in a 40-foot zone? Is UCSF insane? 2

San Francisco has the lowest green canopy of any major U.S. city and it's shrinking all the time, and you are responsible for the loss. In addition to the eucalyptus tree cutting, you're also curing the redwood grove on Parnassus. Why?

With all the resources UCSF has at its disposal, the continued and relentless tree cutting of Sutro Forest is impossible to understand or justify. We think UCSF can and should come up with something more forest-friendly. 3

Cutting down our trees contributes to the ill health of the citizens of San Francisco. The citizens see UCSF's priorities and they don't include the well-being of the citizens of San Francisco.

Needless to say, UCSF will never see any of my health care dollars.

Julie Long Gallegos
652 Congo St.
San Francisco, CA 94131
(415) 794-1204

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Thank you!

Julie Long Gallegos
julierl@pacbell.net
gaslightoriginalbeadwork@gmail.com

Responses to Comments from Julie Long Gallegos

I-Gallegos-1 The commenter makes a general assertion about UCSF destruction of Sutro Forest, including from the proposed housing in the Aldea Housing complex. The new Aldea Housing structures would be developed in generally the same building footprints as the existing Aldea Housing buildings, and consequently, this project development would not extend into the Reserve. Regardless, all potential environmental impacts of the Aldea Housing Densification project are adequately addressed in the Draft EIR, and mitigated to the extent feasible.

The commenter also references past tree removal activities on Clarendon Avenue. These activities were not associated with the proposed CPHP, but rather, related to implementation of UCSF's Vegetation Management Plan. Consequently, no response is required.

I-Gallegos-2 The commenter expresses concern with building heights exceeding the 40-foot zone. This comment does not address the adequacy of the Draft EIR; consequently, no response is required. However, please see Master Response 7: Aesthetic Impacts and Master Response 13: Land Use Impacts.

I-Gallegos-3 The commenter expresses concern about the removal of eucalyptus and redwood trees in Sutro Forest. To the extent that the CPHP will impact trees, those impacts was addressed in Impact BIO-3 in Draft EIR Section 4.3, Biological Resources, page 4.3-22 to 4.3-23. Pursuant to the University of California's constitutional autonomy, on university-controlled property used in furtherance of the University's educational mission, UCSF is not subject to local policies protecting biological resources. However, UCSF will avoid removal of trees that would be considered significant or protected to the maximum extent feasible. Any trees within the public right-of-way that may be removed during the course of off-site construction under the CPHP would conform to the City ordinance governing tree protection. Thus, this impact would be less than significant. Please note UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP when detailed designs become available.

From: Sam Siegel
To: Campus Planning - EIR
Subject: CPHP EIR - Save UC Hall
Date: Friday, September 11, 2020 11:04:36 PM
Attachments: TolandAud.jpg
HobartRender.jpg
Lobby.jpg

To Whom It May Concern,

In 2014 UCSF proposed to rehabilitate UC Hall, the original 1917 UC Hospital, into student housing that is much needed in the increasingly unaffordable San Francisco area. 1

In 2019, UCSF's updated Comprehensive Plan for the Parnassus Heights campus upended this proposal in favor of UC Hall's demolition and construction of a replacement facility that, in its currently anticipated form, would not include any housing. 2

The 210+ signers of the "Save UC Hall" petition listed at https://change.org/SaveUCHall, including myself, object to the updated 2019 proposal, and demand that the historic structure be restored and rehabilitated as outlined in 2014. Delivery of these signatures and accompanying messages of support to the offices of key individuals involved with the CPHP is being arranged at the present time. 3

The historic and architectural significance of UC Hall is summarized on pages 38 and 39 of the 2014 UCSF Long Range Development Plan as follows: 4

> Built in 1917, UC Hall is the oldest building on the Parnassus Heights campus site. It has been determined to be potentially eligible for the CRHR and the NRHP under criteria A/1 and C/3 (Carey & Co., 2003). A review of this building by ESA in 2014 found that it is unchanged since its original evaluation, and as such, its historic status would remain unchanged. This seven-story building is in the west end of the campus site on Parnassus Avenue. It contains approximately 147,000 gsf. UC Hall was slated for demolition in the 1996 LRDP. UCSF now proposes to retain, seismically retrofit, renovate and reuse UC Hall by 2019. The top three floors would be used as housing, with up to 134 beds in 105 units. Initially, the three full floors below the housing would be used as faculty offices; these floors would be converted to housing (up to 78 beds in 64 units) after Moffitt Hospital is decommissioned and renovated and is available for other uses including the offices displaced from these three floors of UC Hall.
>
> In the westernmost courtyard of UC Hall, is the single-story, semicircular Toland Hall auditorium structure. Within Toland Hall are series of Depression-era murals painted by Bernard Zakheim, a student of Diego Rivera, in 1938. These murals depict the history of medicine in California. Original skylights also remain in the auditorium, and the two surviving original interior stairwells feature marble treads and steel balustrades topped by a clear varnished wood handrail. Although UC Hall's interior has been extensively modified, Toland Hall and its corresponding murals remain intact and are considered to be a significant resource (UCSF, 2005). As described in Mitigation Measure 3.3-3 in UCSF's LRDP #2 – Hospital Replacement EIR, UCSF would have been required to remove and conserve these murals at an appropriate facility prior to the demolition of UC Hall (UCSF, 2005). This measure would no longer apply, as the proposed project would retain UC Hall, including the Zakheim Murals in Toland Hall.

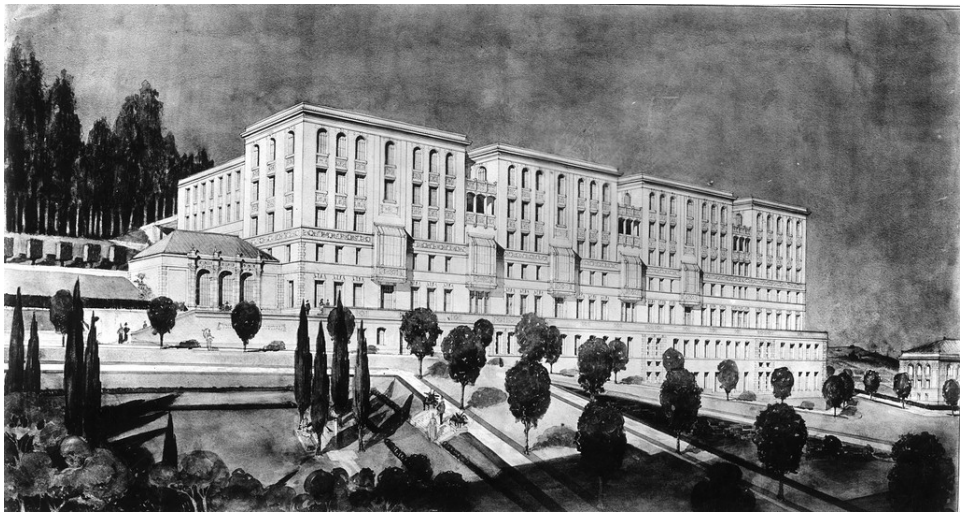
UCSF retained the firm of Page & Turnbull to make preliminary recommendations regarding alterations to the exterior of UC Hall that would be consistent with the Secretary of the Interior's Standards for Rehabilitation (Page & Turnbull, 2011). Recommendations were also made regarding the preservation of the Zakheim Murals within Toland Hall. As indicated in Chapter 3, Project Description, UCSF would follow those recommendations to ensure that, in carrying out the renovation project, the Secretary of the Interior's Standards for Rehabilitation are met. Generally, under CEQA, projects that comply with the Secretary of the Interior's Standards are considered to have a less-than-significant impact on the environment. As UCSF intends to follow the Standards for Rehabilitation when renovating UC Hall, no significant impacts to this historic resource would occur.

UCSF completed HABS photo-documentation of UC Hall in 2005 (Page & Turnbull, 2005). Although not required as part of mitigation for the renovation for this building, this effort provides a documentary record of the building in its existing condition, and documents the significant interior and exterior features of the building.

4 cont.

The generations of memories of UC Hall belonging to the faculty, students, staff, patients and alumni of UCSF are architectural, cultural and historic assets that deserve to be cherished through the restoration and revitalization of UC Hall, rather than its erasure and replacement.

UC Hall is more than an exemplary pre-war Beaux-Arts structure designed by master architect Lewis Hobart: it is an enduring symbol of our state and of the University of California's commitments to the advancement of the medical sciences and the standards of patient care.



This long history of scientific achievements deserves to be memorialized by UCSF and the University of California community at large, and shared with others as part of the current, nationwide movement to recognize and celebrate the uplifting accomplishments of our past.

5

A comprehensive study to examine the preservation, restoration and adaptive re-use of UC Hall, and to determine the present day requirements for doing so, rather than its demolition and replacement, is the appropriate next step in this process.

6

The lobby of UC Hall as it originally appeared, circa 1920s—an exquisite interior space and excellent candidate for reconstruction as part of a restoration and adaptive re-use effort.

Preserving UC Hall's Zakhiem murals, physically or by photogrammetry, without preserving the original architectural context for which they were created, would be a gesture of superficial homage to these unique works, one that is aesthetically insufficient as well as technologically and financially inefficient.

A restored UC Hall could once again become the face of UCSF—akin to the Campanile at UC Berkeley and Royce Hall at UCLA—continuing to grace the Parnassus Heights campus for decades to come.

The short-sighted proposal to demolish UC Hall is comparable to recommending the amputation of an atrophied limb when physical therapy and proper medical care could readily return it to healthy function.

As student housing, a refurbished UC Hall could foster a newfound sense of live-work-study community at the Parnassus Heights campus, with plenty of space for amenities, including but not limited to study/maker lounges, dining, exercise and laundry facilities, a store, a cafe, and perhaps most importantly, a small, publicly accessible museum dedicated to the history of medicine at UCSF and throughout the state of California, to capitalize upon UC Hall's iconic status and its unique role in that history.

A refurbished Toland Hall Auditorium, replete with its grandiose skylights, woodwork, and its New Deal-era Zakheim murals, would easily become one of the most iconic event venues at any of the UC campuses, providing an intimate setting for academic and extracurricular speakers and programs.

6 cont.

The stated reasons for rejecting the 2014 proposal—primarily seismic stability issues and difficulties with adaptive re-use—have been exaggerated and by no means present insurmountable financial or operational barriers to the continued existence of UC Hall. They are merely challenges that UCSF and the University of California can and should overcome.

The University of California was founded to serve as a "Great Light of the Pacific." Succumbing to such petty obstacles would doom UC Hall to the wrecking ball and constitute a triumph of the darkness: an unnecessary destruction of irreplaceable art and architecture, an erasure of history and historical context, a rejection of environmental sustainability, and a betrayal of the values of the University of California and the public mission it exists to serve.

The residents of this city, this state, this country and this planet deserve better than that. Please, save UC Hall.

6 cont.

Regards,
Sam Siegel

NOTE: The petition to preserve UC Hall is ongoing, and will continue to solicit support and advocate for the preservation of UC Hall until either the collective goal of rehabilitation is met or the University sadly places itself on the wrong side of history and demolishes UC Hall against the best interests of all Californians.

7

Samuel P. Siegel
310-367-4458
UCLA Luskin School, Class of 2020
UC Berkeley, Sesquicentennial Class of 2018

Responses to Comments from Sam Siegel

I-Siegel1-1 The commenter statement that the 2014 LRDP included the rehabilitation of UC Hall. This comment does not address the analysis of the CPHP Draft EIR. No response is required.

I-Siegel1-2 The commenter notes the change in the proposed action between 2014 and the present with regards to UC Hall from rehabilitation (2014 LRDP) to the proposed demolition (2019 CPHP). The comment does not address the analysis in the Draft EIR. No response is required.

I-Siegel1-3 The commenter notes the existence of a petition that objects to the demolition of UC Hall. The comment does not address the analysis in the Draft EIR. No response is required.

I-Siegel1-4 The commenter includes a block quote from pages 38 and 39 of the 2014 LRDP that summarize the significance of UC Hall including the Zakheim Murals in Toland Hall. The comments do not address the analysis in the CPHP Draft EIR. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals.

I-Siegel1-5 The commenter advocates for the "restoration and revitalization of UC Hall." The comment does not address the analysis in the CPHP Draft EIR. No response is required.

I-Siegel1-6 The commenter advocates for preserving the Zakheim murals in place in a restored UC Hall that would be converted to student housing. Additionally, the commenter claims that the seismic stability issues and challenges to adaptive re-use have been exaggerated. The comments do not address the analysis in the CPHP Draft EIR. Please see Master Response 11: Toland Hall Murals for responses to comments regarding the Zakheim Murals.

I-Siegel1-7 The commenter notes the existence of a petition that supports the preservation of UC Hall. The comment does not address the analysis in the CPHP Draft EIR. No response is required.

From:	Sam Siegel
To:	Campus Planning - EIR
Subject:	CPHP EIR - Langley Porter Psychiatric Institute Building
Date:	Friday, September 11, 2020 11:59:46 PM Cornerstone
Attachments:	contents.jpg

To Whom It May Concern,

The Langley Porter Psychiatric Institute building, while not eligible for CRHR or NRHP as stated on Page 36 of Chapter 6 of the 2014 UCSF Long Range Development Plan, has nonetheless played a rather significant role in the history of psychiatric research in California.

Built in 1941 as a collaboration between the UCSF Medical School and the California Department of Institutions, the Langley Porter Clinic (later renamed the Langley Porter Psychiatric Institute) was the original home of the UCSF Psychiatry Department, and the first modern neuropsychiatric institute in the state.

Donna Graves, a Berkeley-based historian and urban planner, while leading a team examining the social history of the LPPI, identified a unique link between the building and California's LGBTQ history amid sexuality and gender research undertaken there in the late 1940s and early 1950s:

> In 1949, LPPI Director Dr. Karl Bowman led a comprehensive statewide investigation into "sex crimes and sex deviants," initiated and funded by the California State Legislature. The resulting reports, coauthored by Bowman and UCSF research associate Bernice Engle, represented a newly liberalized attitude meant to shape future legislation and therapeutic recommendations.
>
> Another of Bowman's key collaborators was Louise Lawrence, who had been living

1

full-time as a transgender woman since 1942. Lawrence lectured on transgender topics at UCSF and created an expansive international network of transgender people. She, along with Virginia Prince and others, published the first incarnation of *Transvestia*, a pioneering transgender publication, in 1952. Lawrence's address book provided the initial subscription list and she was instrumental in connecting transgender people to pioneering sex researchers such as Alfred Kinsey and Harry Benjamin.

Furthermore, the actual cornerstone of the building contains a historically significant 5 April 1941 time capsule dedicated by California Governor Culbert Olson, UC President Robert Sprout, and UC Medical School Dean Emeritus Robert Langley Porter, containing a number of historic artifacts, listed here:

AARON J. ROSANOFF, M. D.
Director Of Institutions

CULBERT L. OLSON
Governor Of California

STATE OF CALIFORNIA
DEPARTMENT OF INSTITUTIONS
SACRAMENTO

April 5, 1941.

CONTENTS OF CORNERSTONE OF THE LANGLEY PORTER CLINIC

Photostatic Copy of Deed for land from University of California to the State.

Page from 1939 Governor's Budget requesting appropriation for Clinic.

Copy of 1939 Legislative Budget Bill making appropriation for the Clinic.

Photostatic Copy of Allocation of additional funds for the Clinic from 1937 appropriations.

Small-scale floor plans and elevations of building.

Copies of San Francisco Call-Bulletin, San Francisco Chronicle, San Francisco Examiner, and San Francisco News of April 5, 1941.

Autographed photographs of:
Hon. Culbert L. Olson, Governor of California.
Dr. Aaron J. Rosanoff, Director of Institutions.
Dr. Robert Gordon Sproul, President, University of California.
Dr. Langley Porter.

American Flag.

Copies of Senate Bills 559 and 560, 1941 Legislative Session, defining purposes of The Langley Porter Clinic.

Imprints of Seals of the Department of Institutions and the University of California.

Program of Ceremonies, Laying of Cornerstone, The Langley Porter Clinic.

Copy of Address of Governor Olson at Cornerstone Laying Ceremonies.

Copy of Address of Dr. Langley Porter at Cornerstone Laying Ceremonies.

1 cont.

While it may not be as practical to preserve the building in its entirety as is the case for UC Hall, it may be worthwhile to **study the incorporation of all or part of the LPPI's extant Parnassus Avenue facade into the new UCSF Hospital facility as a means of paying respect to the original home of the institution and its associated histories.**

2

Such incorporation of existing building materials would allow the updated Parnassus Heights campus to retain a tangible link to the early modernist medical facility design of the original LPPI and the history of UCSF without compromising the size and general massing of the new hospital facility set to be built on the site.

This will help transform the new hospital facility from merely another 21st century medical building into a unique architectural statement and showcase for an expanding and modernizing Parnassus Heights campus that remembers its past while always striving forward to the future.

2 cont.

It could serve as a bold eastern "bookend" to the campus, with the restored UC Hall as its western counterpart; both structures presenting different aspects of preservation to all those who enter the campus grounds. Such a physical presence would cement UCSF as an institution that is both grounded in history, tradition, and longstanding commitments, but forever working towards change and innovation—an ideal that every university strives to achieve.

Regards,
Sam Siegel

Samuel P. Siegel
310-367-4458
UCLA Luskin School, Class of 2020
UC Berkeley, Sesquicentennial Class of 2018

Responses to Comments from Sam Siegel

I-Siegel2-1 The commenter states that the LPPI Building is not eligible for the CRHR or the NRHP, but then states a number of reasons for its significance. The comment is incorrect in this eligibility statement. As noted in Table 4.4-1 on page 4.4-5 of the Draft EIR, and in Draft EIR Table CUL-1 on page CUL-3 of Appendix CUL, the LPPI Building was determined eligible for both the National and California registers in the 2019 report prepared by Graves. As stated on page 4.4-11 of the Draft EIR:

> As discussed in Section 4.0 [of the CPHP Draft EIR], Introduction to Environmental Analysis, several demolition projects at the Parnassus Heights campus site were previously approved under the 2014 LRDP that have not yet been implemented, including demolition of the LPPI. However, since the LPPI was recently determined to be individually eligible for the National Register and California Register (Graves, 2019a), this EIR addresses the potential effect of demolition of the LPPI on historic resources as part of the CPHP.

The demolition of the LPPI was determined to be a significant and unavoidable impact even after the implementation of CPHP Mitigation Measures CUL-1a, CUL-1b, and CUL-1c (page 4.4-18 to 4.4-19).

I-Siegel2-2 The commenter requests that UCSF study the possibility of incorporating "all or part of the LPPI's extant Parnassus Avenue façade into the new UCSF Hospital facility…" The comment does not address the analysis in the CPHP Draft EIR. No response is required.

From: Letitia Yang
To: Campus Planning - EIR
Subject: Preserve UCSF"s Bernard Zackheim Murals
Date: Monday, September 14, 2020 11:43:46 AM

To whom it may concern,

I'm writing to support the preservation of Bernard Zackheim's "History of Medicine in California" murals. These works of art are an important part of not only UCSF's history, but also have national importance. As such, I strongly urge you to reconsider efforts to preserve these murals, which have been landmarked by the San Francisco Historic Preservation Commission. If UCSF can not take responsibility for the preservation of the murals, at the very least, it should allow for more time so that the artist's family and general public can come up with a feasible plan. 1

To loosely quote a friend who has spent his entire medical career at UCSF starting as a medical student through his long tenure as an attending physician, "I've spent years in lectures in that hall, and there are great stories in those paintings." They are an invaluable treasure and every effort should be made to preserve them.

Kind regards,

Letitia Yang
1769 Green St.
San Francisco, CA 94123

Responses to Comments from Letitia Yang

I-Yang-1 The commenter urges UCSF to preserve the murals, or allow the artists' family and general public to come up with a plan for preservation. Please refer to Master Response 11: Toland Hall Murals.

From: roz arbel
To: Campus Planning - EIR
Subject: Public comment relating to the Parnassus Heights EIR
Date: Monday, September 14, 2020 11:44:11 AM

Hi there,

I hope that I have not missed the deadline for Public Comment.

I understand that you've had this plan in the works for quite some time, but I wanted to add comment in regards to the environmental impact of your plan, specifically the tree removal.

I was quite literally stunned to read section 5.2 of the UCSF Comprehensive Parnassus Heights Plan:
" As discussed in checklist item “d,” above, UCSF proposes to replace any area of the Reserve that is lost, including forest land, due to new development under the CPHP by designating new Reserve acreage elsewhere on the campus site in an amount equal or greater to that area lost. ***Consequently, the impact resulting from conversion of forest land would be less than significant, and this topic will not be evaluated further in the CPHP EIR."***
Yet when you read the EIR, it's talking about removing four acres of trees, in addition to chopping down an entire redwood grove!!! 1

I grew up in San Francisco, in Ashbury Heights, at Masonic and Java. Our back room had a sweeping view from the Marin Headlands to Mount Sutro. My bus to Hoover Jr High and McAteer went past the UCSF campus every day. Even now, my kitchen window looks towards the UCSF Parnassus Heights campus, and I delight in the sight of the lush green of the hill. 2

Reading the EIR, I'm baffled. How is it possible that in this age of climate DISASTER that you can possibly rationalize the removal of more trees from San Francisco's already meager urban canopy? We have the worst urban canopy of any large city in the US, despite the fact we have some green corners. One of these remaining green corners is Parnassus Heights. 3

The EIR barely has any information about tree removal, and literally nothing about environmentally sensitive design. How could you, in good conscience, rubber stamp a plan that intends to destroy so much of our natural environment? 4

Just a few days ago we had temperatures of 90F. The next day we had what can only be described as an seemingly-apocalyptic event of orange skies and darkness. Then an AQI of 209. It's pure insanity to remove more trees when we're already suffering. 5

There's no information in the EIR about what will happen to the space where trees will be felled. Will they be replaced? Will there just be grass, or concrete?
If you're planning on replacing trees, what will they be replaced with? Saplings?
Wouldn't medical staff and patients prefer to walk and relax amongst mature trees, rather than small replacement saplings? A sapling cannot sequester even half of the Co2 that a mature tree can. 6

I'm sure you can find a way to include already existing nature into UCSF's renovation. It's the responsible thing to do. Remember that we are here at nature's behest, not the other way

around.

6 cont.

As John Muir said:
"God has cared for these trees, saved them from drought, disease, avalanches, and a thousand tempests and floods. But he cannot save them from fools."

7

Please devote more time finding a way to incorporate the existing nature into your plans. Future generations of San Franciscans will thank you for that.

Sincerely,
Roz Arbel

Responses to Comments from Rox Arbel

I-Arbel-1 The commenter references the Initial Study's discussion of impacts to forestry resources. The Initial Study acknowledges under Section 5.2, checklist item d), there is the potential for certain new development under the CPHP, including the proposed New Hospital and associated widening of Medical Center Way adjacent to the New Hospital, to result in the need to modify the Reserve boundary, and therefore, may result in a loss and conversion of forest land within the Reserve to a non-forest use. As the commenter notes, UCSF proposes to replace any area of the Reserve that is lost, including forest land, due to new development under the CPHP by designating new Reserve area elsewhere on the campus site in an amount equal or greater to that area lost. On this basis, the Initial Study concluded the impact to loss or conversion of forest land would be less than significant, and therefore, this topic did not require further evaluation in the CPHP EIR.

The commenter then asserts the Draft EIR discusses removing four acres of trees, including the redwood grove. Please note the Draft EIR acknowledges in Chapter 3, Project Description, page 3-38, that certain tree removal tree removal would be required under the CPHP; however, the Draft EIR does not reference a removal of 4 acres of trees. Please also note that Draft EIR indicates that the redwood grove along Parnassus Avenue that would be removed is not located within the Reserve. UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP when detailed designs become available.

I-Arbel-2 The commenter expresses personal experiences that do not relate to the adequacy of the Draft EIR; consequently, no response is required. Please refer to Master Response 1: Non-CEQA Comments.

I-Arbel-3 The commenter does not address on the adequacy of the Draft EIR; consequently, no response is required. Please refer to Master Response 1: Non-CEQA Comments.

I-Arbel-4 The commenter indicates the Draft EIR barely has any information about tree removal. Please see Impact BIO-3, Section 5.3, Biological Resources, in the Draft EIR, which addresses the impact of tree removal under the CPHP, and determines the impact to be less than significant. Please see also Response I-Arbel-1, above.

I-Arbel-5 The commenter expresses concern about removing trees. The commenter does not address on the adequacy of the Draft EIR; consequently, no response is required. See also Response I-Arbel-4, above.

I-Arbel-6 The commenter indicates there is no information in the Draft EIR about what will happen to the space where trees will be removed. No detailed development or landscaping plans are presently available for CPHP projects. However, UCSF will consider replanting trees in the landscaping plans for each specific project under the CPHP when detailed designs become available.

The commenter also expresses some opinions about the CPHP, which do not address the adequacy of the Draft EIR; consequently, no response is required. Please refer to Master Response 1: Non-CEQA Comments.

I-Arbel-7 The commenter quotes John Muir, and then requests UCSF to devote more time to incorporate the existing nature within its plans. The comment has been noted and will be forwarded to decision-makers.

From: Pinky Kushner Campus
To: Planning - EIR
Subject: Re: Comments for the EIR for the Parnassus Heights plan-please acknowledge receipt
Date: Monday, September 14, 2020 6:13:32 PM

Ms. Wong,

I am quite aware that the deadline for comments for the EIR is now past. I do want you to be aware of the new article at the NPR website about how Covid will change building design.

https://www.npr.org/sections/health-shots/2020/09/14/909805060/redesigning-the-office-to-maximize-health

1

Design pre-Covid is certainly different from what is called for today.

Pinky

On Sep 11, 2020, at 1:37 PM, Pinky Kushner <pinkykushner@me.com> wrote:

Greetings Ms. Wong,

Attached is my letter of comments. Please acknowledge receipt by return email.

Thank you,

Pinky Kushner

510 459-459-8289

<Comments on the EIR of the Parnassus Plan.pdf>

Responses to Comments from Pinky Kushner

I-Kushner2-1 The commenter indicates how COVID-19 is resulting in changes in building design. Please see Master Response 3: COVID-19.

From:	Calvin Welch
To:	Campus Planning - EIR
Subject:	DEIR comments
Date:	Tuesday, September 15, 2020 12:47:21 PM
Attachments:	WELCH DEIR comment.docx

To: Ms. Diane Wong, UCSF Campus Planning

From: Calvin Welch, member, Advisory Committee for the Future of UCSF Parnassus Heights

RE: Comments on the DEIR , UCSF Comprehensive Parnassus Heights Plan (SCH 2020010175)

September
via Email 15 2020

DEIR Fails to offer complete analysis on housing and transit impacts and possible mitigations of those impacts

While the DEIR on page 4.12-1 posits that the project will increase daily campus population by 5,200 students, faculty and staff, with an estimated additional 3,420 jobs in indirect impacts the report fails to address how the demand for housing created by that increase will be fully met and or mitigated.

Specifically, the DEIR fails to discuss an existing UCSF report, done in 2019, "Advancing Health Equity in San Francisco" which commits UCSF to using "place based economic power...to better the long term health and welfare of San Francisco's most under-resourced communities" (page x) 1

Specifically the report commits UCSF to " the institution strategies of workforce development...and community investment" (pg.2). It adopts recommendations to "increase UCSF capacity to train hire and promote under-resourced populations" (pg. 3).

This plan and these commitments need to be discussed and analyzed in reference to the project under review. A local hire program, if aggressively pursued as proposed by the 2019 report, would significantly reduce the housing and transit impacts of the project since for each exiting resident of San Franciscan no new housing unit and no new transit capacity would be required.
The failure of the DEIR to describe, discuss and analyze this current UCSF policy and how it might be applied to the project renders it incomplete and inaccurate.

Responses to Comments from Calvin Welch

I-Welch-1 The commenter asserts that the Draft EIR does not provide a complete analysis of the project's effects on housing. The project would provide more jobs than housing. But the EIR does not explain how the housing need would be met or mitigated. The commenter also references a UCSF report about the University's commitments related to workforce development and a local hire program.

Please refer to Master Response 14: Population and Housing Impacts, regarding the CPHP's impact on population and housing as well as the project's growth inducing effects.

As explained in that master response, the analysis in Section 4.12 of the Draft EIR is focused on the effects of the direct population increase from the implementation of the proposed CPHP. This increase includes the approximately 504 students and 4,680 faculty and staff for a total of 5,184 persons that would be added to the campus site by 2050. This analysis is conservative in that it assumes that all of the 5,184 additional students and employees would be "new" to the 5-county study area and does not deduct from this number the students and employees who would be already living in the study area at the time that they first enroll at UCSF as students or are hired by UCSF to fill the new jobs. The commenter is correct in stating that the population and transit impacts of the CPHP would be lower if some of the new jobs at the Parnassus Heights campus site are filled by local hires.

With respect to the approximately 3,420 indirect and induced jobs that are mentioned by the commenter, please note that indirect employment effects are appropriately addressed in Draft EIR Chapter 5.0, CEQA Statutory Sections, in Section 5.4, Growth Inducing Effects. As stated in that section, the residence locations of people that would work in indirect and induced jobs is unknown, and it would be speculative to state where such workers would reside or be employed in the Bay Area (or beyond), or to determine any associated environmental effects. The Draft EIR therefore describes the potential effect of the indirect and induced jobs in general terms, and acknowledges that growth induced directly and indirectly by the proposed CPHP would likely affect the greater Bay Area region, and would likely increase overall demand in the region for housing, commercial and industrial space, and associated infrastructure.

From: Denise Louie <denise_louie_sf@yahoo.com>
Sent: Friday, October 2, 2020 11:37 AM
To: Campus Planning - EIR
Subject: Draft Environmental Impact Report for the Comprehensive Parnassus Heights Plan -- comments

Ms. Diane Wong, Environmental Coordinator
UCSF Campus Planning
Box 0286
San Francisco, CA 9414
EIR@ucsf.edu
Re: Draft Environmental Impact Report for the Comprehensive Parnassus Heights Plan

Dear Ms. Wong,
I urge UCSF to abandon plans to encroach upon the Open Space Reserve and to plant San Francisco native plants. 1

As an educational institution, UCSF ought to be educating its students, employees and medical professionals about the need to enhance native habitat, the very environment that supports our lives. Greta Thunberg has it right; we are in the midst of a climate crisis as well as an environmental crisis. Bees, butterflies and birds have been on a steep decline in recent decades, due to human activities, loss/degradation/fragmentation of habitat and climate change. Wildlife provide free ecosystem services, including pollination, which is responsible for 1/3rd of the food on our plates. 2

Audubon reports, “more than 1 in 4 birds...have disappeared from the landscape in a mere half a century.”* This is due to loss of habitat and human activities, exacerbated by climate change. The biology of birds is that they eat insects for protein. And the biology of insects is that they do not have the stomach enzymes to defeat the natural defenses of non-native plants. Non-native plants are like empty bird feeders.

We are in the final year of the United Nations Decade on Biodiversity. Next year begins the UN Decade on Habitat Restoration. Habitat restoration on Mt. Sutro is a good thing, but not construction. The California Biodiversity Initiative also encourages people to recognize the importance of protecting and enhancing native habitat, as does the SF Board of Supervisors’ Biodiversity Resolution. 3

Planting local native plants does help support local fauna. SF State University’s study found that where SF parks are surrounded by gardens with native plants, there are more pollinator species in those parks and a greater abundance of pollinators. Scientists tell us that planting local native plants must occur widely on both public and private property in order to save bees, butterflies and birds. 4

My specific suggestions include the following.
1. Prohibit planting of invasive plants. Nurseries still sell them. Landscapers still design for them. 5

2. Follow CalFire guidelines for tree spacing and choosing fire-safe landscape vegetation. See https://www.readyforwildfire.org/prepare-for-wildfire/get-ready/defensible-space/. 6

3. Require protocols to mitigate the unintentional introduction of weed seeds and pathogens like phytophthora by landscapers and construction equipment. 7

4. Make the most of plants from the Sutro Stewards Nursery. Greg Gaar also gives away SF native plants at the nearby community garden, the former HANC site. LEJ propagates SF native plants for specific projects. 8

5. Educate the entire UCSF community about the bigger biological-ecological picture. Demonstrate the significance and ease of planting local native plants for wildlife that evolved with them. Highlight the fact that California is a biodiversity hotspot; our state is blessed with an abundance of species, many of which occur nowhere else in the world, and many of which we humans have brought to the brink of extinction. Explain that wildlife provide free ecosystem services; without them, we'd be missing 1/3 of the food on our plates. Connect the UCSF community with volunteer opportunities at Sutro Stewards Nursery and in the Open Space Reserve. 9

Thank you. Please let me know whether you'll incorporate my comments into the UCSF Comprehensive Parnassus Heights Plan.

Sincerely,
Denise Louie
Native and resident of San Francisco
Member, Center for Biological Diversity

*North America Has Lost More Than 1 in 4 Birds in Last 50 Years, New Study Says

Last 50 Years, New Stud...

For the first time, researchers have estimated the volume of total avian loss in the Western Hemisphere—and it's...

Responses to Comments from Denise Louie

I-Louie-1 The commenter urges UCSF to abandon plans to encroach upon the Open Space Reserve. The comment does not address the adequacy of the Draft EIR; consequently, no response is required. The comment has been noted and will be forwarded to decision-makers.

The commenter requests UCSF plant San Francisco native plants. The comment does not address the adequacy of the Draft EIR, but is noted. Please see also responses below regarding native plants.

I-Louie-2 The commenter notes the benefits of wildlife. The comment does not address the adequacy of the Draft EIR, but is noted.

I-Louie-3 The commenter notes the benefits habitat restoration on Mount Sutro. The comment does not address the adequacy of the Draft EIR, but is noted.

I-Louie-4 The commenter notes the benefits of planting local plants. The comment does not address the adequacy of the Draft EIR, but is noted. Please see also responses below regarding native plants.

I-Louie-5 The commenter suggests prohibiting the use of invasive plants on the campus site to improve habitat for native plants and wildlife. This comment does not address the adequacy of the Draft EIR. Nonetheless, UCSF appreciates the input and will consider the suggestion in landscaping decisions. While native plants are used for restoration and replanting in the Open Space Reserve, in landscaped ornamental areas of campus, non-native plants may continue to be used.

I-Louie-6 The commenter recommends that UCSF follow Cal Fire guidelines for tree spacing and choose fire-safe landscape vegetation. As discussed in Section 4.8, Hazards and Hazardous Materials, page 4.8-7, UCSF plans for fire prevention in accordance with guidelines established by the San Francisco Fire Department and Cal Fire to create and maintain defensible space between vegetation and buildings.

I-Louie-7 The commenter recommends that the potential for unintentional introduction of invasive weeds and pathogens like phytophthora during construction and landscaping be mitigated in the Draft EIR. Although these impacts are likely to be minor in an urban setting, it can be instructive for construction workers to be trained to minimize the potential spread of invasive weeds and pathogens. Accordingly, CPHP Mitigation Measure BIO-1e is revised to include avoidance of weed and pathogen spread as part of the worker education measure. Please refer to Section 8.5 of this Comments and Responses document for the proposed revision.

I-Louie-8 and I-Louie-9: The commenter requests that plants for replanting be obtained from the Sutro Stewards Nursery which grows native plants, and that UCSF use the open spaces on campus and pathways on the Reserve to educate the campus community and visitors about the use of local native plants and benefits for wildlife that evolved with them, the ecosystem services provided by plants and wildlife, and the opportunities to volunteer at the Sutro Stewards Nursery and in the Open Space Reserve. The comment does address the adequacy of the Draft EIR; however, UCSF appreciates the suggestions and will consider incorporating them in landscape design.

8.4.2.4 Draft EIR Public Hearing Transcript

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PUBLIC HEARING ON THE
DRAFT ENVIRONMENTAL IMPACT REPORT
FOR THE PROPOSED
COMPREHENSIVE PARNASSUS HEIGHTS PLAN

WEDNESDAY, AUGUST 26, 2020
VIA ZOOM WEB CONFERENCING PLATFORM

---o0o---

REPORTED BY: DEBORAH FUQUA, CSR #12948
CERTIFIED STENOGRAPHIC REPORTER

APPEARANCES

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FRANCESCA VEGA, Vice Chancellor - Community and Government Relations

ALICIA MURASAKI, Assistant Vice Chancellor - Campus Planning

DIANE WONG, UCSF Principal Planner, Environmental Quality Act Coordinator

LILY WONG, UCSF Associate Director, Community Relations

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P R O C E E I N G S

LILY WONG: As a reminder, tonight is the public hearing for the Draft Environmental Impact Report for the proposed Comprehensive Parnassus Heights Plan. I think we're just going to wait maybe one more minute. Still some people -- looks like they're coming in.

While we're waiting for folks to come in, if you could click the next slide. Next slide. Thank you.

So what you see on the screen right now is the Zoom meeting housekeeping.

So just to emphasize, tonight our court reporter is present to take a transcription of the proceedings. We are going to record it but only in case of blackout or if something else happens. So we just want to make sure that we're encapsulating everybody's comments.

For those who are on the phone, please note that you can hit star-9 to raise your virtual hand. And we are going to be using the virtual hand function. So on the bottom of your screen, you'll see a raised-hand function. If you click that, you'll be in the queue to speak. And we're just going to go in order. So whoever raises their hands first, your hand

is going to be up there. If you lower your hand, you will be bumped back off to the bottom of the queue. It's going to be very hard for us to track where you were.

So if you just -- if you have your hand up, you should just keep raising your hand.

We are recommending that folks join by audio on your computer and put the Zoom in full-screen mode so that it's easier to see the slides and adjust the presentation to fit the window. And I believe that that's pretty much it.

So I will pass it on to my colleague Alicia to go over the next slide.

ALICIA MURASAKI: Thank you, Lily.

Next slide, please. Great. Thank you.

So just a quick reminder. I know many of you have been -- we've been talking to and you've been attending meetings for quite some time. But I wanted to just remind those of you who are newer to the process that tonight we're talking about the Comprehensive Parnassus Heights Plan.

This plan was brought about because the average age of our buildings at Parnassus Heights is 50 years old, and we must meet our seismic compliance requirements by the year 2030.

So we took this opportunity to take a comprehensive look at all of our needs and the campus design, which was the result -- which resulted in the Comprehensive Parnassus Heights Plan. So we want Parnassus to continue to be the home of our professional schools and continue to meet our mission: clinical care, research, and education.

And on top of that, we want it to be a place we can all be proud of.

Next slide, please. Thank you.

So as I said, we've been talking for quite a while. We started in October of 2018 with our first public meetings about the Comprehensive Parnassus Heights Plan. And if you look down to the orange highlighted, that's today, August 2020. And this is our public hearing on the Draft EIR.

So if you want to know what's next, you can see that, whatever your comments are, we're going to be preparing responses. And we anticipate going to the Board of Regents to request the Final EIR certification and the plan to be approved in early 2021.

So next slide, please.

Now, the specific purpose of tonight is to receive your comments on our Draft EIR. So we won't have a dialog or answer questions tonight. We're

really going to focus on receiving your comments, and they will be addressed in writing in the Final EIR.

Next slide, please.

Okay. So here's the nitty-gritty. So as Lily said, we are going to make sure we can have -- give everyone a chance to make a comment by using the virtual raised hand. And because we have -- I think we've hit a hundred people RSVPing for the meeting tonight, we are going to have to limit each speaker's comments to two minutes. So please remember that is to allow everyone who is attending to have time to make a public comment.

But the public comment period does not end tonight. You will be able to give us comments up until 5:00 p.m. on September 11th in writing.

Next slide, please.

And this is the information if you want to send written comments in and also where you can find the Draft EIR in an electronic version. And don't worry; we will put this information up a little bit later as well. But let's give you a -- just a few seconds to jot that down if you'd like.

Okay. I think we can go to the next slide.

I'd like to introduce my colleague Francesca Vega.

Francesca, over to you.

FRANCESCA VEGA: Thank you, Alicia.

And good evening, everyone. Thank you for your participation this evening.

I just want to take a moment to acknowledge and emphasize one of Alicia's points, and that's today -- tonight's legal process does not present an opportunity to engage in dialog with UCSF on this plan.

I also wanted to take a moment to share with you two upcoming opportunities where we're hoping that you will be involved. One is a community meeting with the City and County of San Francisco. And we will be talking through some of the alignment and partnership collaboration opportunities relevant to this project.

I know many of you that are on this call have been involved in various discussions and know that this was something that was part of our ongoing engagement with the City and addressing mutual challenges as well as opportunities.

So we will be confirming a date for that meeting shortly.

Also, I wanted to alert you all, in early 2021, we will begin the formal design process for the new hospital at Parnassus Heights. And, again, there will be an opportunity for your voice to be heard and

for engagement on that part, aspect of the project, to keep informed when these meetings are scheduled and to make sure that you received -- receive the dates of these gatherings.

Please don't hesitate to e-mail community.cgr@ucsf.edu. And that's to sign up for our LISTSERV so you'll be aware of all these engagement opportunities.

Also, if you have general questions or comments that you would like to share, please don't hesitate to contact Lily Wong, our associate director of community relations. And you can see her e-mail and phone number, contact information is listed there.

So, again, on behalf of the Office of Community and Government Relations, thank you for your participation.

ALICIA MURASAKI: Thank you, Francesca.

So now we're going to get to the heart of the public hearing tonight, which is the public comments. We're going to open it up for public comments now.

So you'll see on your screen just a reminder, please raise your hand virtually. And if you're on the phone, it is star-9 to raise your virtual hand. And my colleague Diane Wong will call out groups of names in order of people raising their hands so you can get

ready to speak.

So I will hand it over to Diane and just, in the last second here, remind you to please keep your comments to two minutes to allow everyone a chance to speak tonight.

DIANE WONG: Thank you, Alicia.

So I see two hands raised only. So remember to raise your virtual hand if you want to speak tonight and have your comments become part of the official public record.

When I call out your name, please state your name very clearly for the court reporter.

So the first five people that I see, Whitney Grover, Ariane Eroy, Harvey Smith, Jeanette Quick, and Janice E. Cohen.

LILY WONG: Whitney, you are unmuted, and your two minutes begin now.

WHITNEY GROVER: So my name is Whitney Grover, and I am the chair of the Golden Gate Audubon Conservation Committee in San Francisco as well as a board member for Golden Gate Audubon.

And I just wanted to say that I'm happy to see a lot of our serious concerns were addressed in the EIR, including collisions due to glass structures for birds, permanent lighting as well as the construction

PH-Grover-1

lighting, and then vegetation disturbance during nesting season. So thank you for including those things.

I'd like to point out that several of the birds who nest on the reserve are ground-nesting birds. So any disturbance to vegetation, including in the under-story during nesting season would be a serious disturbance.

So the other -- my other point about the EIR is, in Section 5.3, it says UCSF would replace any reserve area that is lost by designating new reserve area elsewhere on the campus site.

But I just want to say that the benefits when you reserve for wildlife depend on its continuity and connectedness, like the cohesive space. So there's no mention in the EIR of any kind of displaced reserve space. And basically, if the space is added to the campus somewhere that's not continuous to the reserve, it will be less beneficial to wildlife, including birds. Thank you.

LILY WONG: All right. For the next person is Ariane Eroy.

You are unmuted, and your two minutes begins when you start speaking.

ARIANE EROY: I'm in this hearing. We're

PH-Grover-1 cont.

PH-Grover-2

PH-Grover-3

PH-Eroy-4

living in a time of catastrophic climate change, and yet the University plans on reducing the size and density of Mount Sutro Forest, which they call a reserve, by 70 percent of its trees, by increasing the radius around trees between 30 to 60 feet.

This is totally untenable for the viability of this forest. It will decimate the forest. And maybe that's exactly what the University wants so that it can denigrate and thereby develop the forest over time.

The University's already encroaching seriously on its land by increasing the dormitory space threefold when it had plenty of space on Laurel Heights, except it relinquished that with the Board of Regents instead of putting dorm space there.

There's no commitment to preserving this forest. This is our largest urban forest in San Francisco. It belongs to all people. It's part of the Commons. And it's a travesty that the University continues to do clear-cutting at a time of catastrophic climate change.

When will the University be true purveyors and stewards of the forest instead of seeing it as a plot of land on which they can capitalize and expand into? This land can never be replaced. The trees are living beings; they have rights. And we all need them

PH-Eroy-4 cont.

desperately now. Those trees fight for us and fight for the planet every day of our lives. They promote love and generosity. They're our neighbors, and they show us what it means to be a real citizen of the planet, working towards preserving and sharing and promoting goodness. And yet the University clear-cuts.

PH-Eroy-4 cont.

LILY WONG: The next person is Harvey Smith, Harvey, you are unmuted -- or requested to. And your two minutes will begin when you start speaking.

Seems to be a little bit of technical difficulty.

HARVEY SMITH: I asked to unmute.

LILY WONG: So, Harvey, you're going to need to accept unmute in order to begin speaking.

HARVEY SMITH: Okay. My name is Harvey Smith, and my concern is percent for art in this project. My understanding, it's a multi-billion-dollar project, but in communication with staff at UCSF, there's no policy for art in this massive project. This is very much in contrast to the project at Mission Bay.

I understand the chancellor there put a priority on that, and they have a very robust and vibrant display of contemporary art within that project.

PH-Smith-5

I know that the University is not bound by this. In fact, the State of California does not have a percent for art program, but the City of San Francisco does, like 23 other states and many cities in California and throughout the country.

So I would -- would suggest that this be implemented because it's unthinkable that a major public project like this does not have any provision for artworks. This has become pretty much a standard throughout the country. And as I mentioned, many states and cities make this a matter of policy.

I -- I just can't understand why the University of California can't recognize that and include that within the project.

Mission Bay, as I said, has a program. And many people will say that art, particularly in a medical facility or in a university, adds to the climate for either study or for healing. So, again, this should be policy and part of the project.

PH-Smith-5 cont.

LILY WONG: Thank you for your comments.

The next person is Jeanette Quick. I've requested for you to unmute, and your two minutes will begin when you start speaking.

JEANETTE QUICK: Oh, hi. Did you call on Jeanette Quick?

LILY WONG: Yes, Jeanette. We can hear you.

JEANETTE QUICK: Yeah. Sorry about that.

So I am commenting today to oppose the part of the Draft EIR that has to do with the Zakheim murals. In Sections 4.4.4, there is a -- there is stated an intention to demolish the murals, and there are no adequate alternatives that are provided that would actually keep the murals in sufficient condition to be -- to exist in the world.

I believe that new alternatives need to be developed before the Final EIR to preserve these murals and ensure that they can be displayed for the public. These are very important murals that are important to the history of so much in our country, including Black history, Jewish history, art history, history of medicine. And these are really a national treasure that should not be destroyed without any plan.

PH-Quick-6

You know, I know that separately that UCSF has created an RFP, but I think that RFP also is not a sufficient plan to preserve the murals. And then, you know, the RFP says one thing, and this draft EIR is very explicit about the fact that these murals will be destroyed.

So there's a clear conflict in UCSF's approach between the EIR and RFP. And I believe this needs to

PH-Quick-7

be addressed and that the -- what the EIR has listed as far as their plan for preserving this important historical work is insufficient, and I oppose that part of the EIR. Thank you.

PH-Quick-7 cont.

LILY WONG: Thank you for your comment.

The next person is Janice Cohen.

I have requested for you to unmute, and your two minutes will begin when you start speaking.

Janice?

JANICE COHEN: Hello? Can you hear me?

LILY WONG: Yes. Yes, we can hear you.

JANICE COHEN: I'm concerned and in opposition to the extension of Fourth Avenue. I live on Fourth Avenue near Parnassus. And for many years -- I've been living here since '89, and I'm an alumni of UCSF Medical School. I feel like attention to the impact of UCSF traffic, debris, management of Fourth Avenue has been really significant.

I've dealt with hospital debris in front of my house and with gloves, masks, even medical records, syringes. I've dealt with people blocking my driveway going up to the University. I've dealt with many people coming down here to smoke and leaving cigarette butts all over my -- my little area around my tree and on the streets.

PH-Cohen-8

And every time I've gone to UCSF for help, I've been told we're not part of the campus, so they're not really going to monitor any of these things.

The other thing is that Fourth Avenue is now used as a major route for the shuttle, coming and going. And we've already had a lot of accidents and a lot of problems because we never had a traffic-calming program implemented on our street, for different reasons, when it was done all over the rest of the neighborhood.

And I feel that there has to be an impact study on what the extension of Fourth Avenue is going to be on my street and to be considered -- if it is done, to be part of the UCSF campus so that there's some accountability about issues that you have not addressed to date.

PH-Cohen-8 cont.

LILY WONG: Thank you for your comment.

DIANE WONG: Okay. I see four additional speakers. So I'll call you out: Jeff Cole, Lorri Ungaretti, Richard Rothman, Lope Yap, and Lisa Kessler is the fifth one.

So, Jeff Cole.

LILY WONG: So, Jeff, I've requested that you're unmuted, and your two minutes will begin when you start speaking.

JEFF COLE: Hi, my name's Jeff Cole. I live on Edgewood Avenue, and my property --

LILY WONG: Jeff? We lost you for a second. Unmute yourself, Jeff.

JEFF COLE: Can you hear me now? I've unmuted.

LILY WONG: Yes, you're unmuted now.

JEFF COLE: Okay, good.

LILY WONG: Just restart the timer.

JEFF COLE: Yes. My name is Jeff Cole. I live on Edgewood Avenue, and my property backs up to UCSF's property near the surge parking lot. I have four points I'd like to make about the Draft EIR in no particular order.

The first relates to the representation that any open space that's lost by excavation of the hillside crossing Medical Center Way where the proposed new hospital would go on the north side near Parnassus will be made up by additional open space reserve being added elsewhere.

As far as I can tell, there is no place in the EIR that gives any indication of were this would be. But there is a section of the report that's misleading because it represents that land between the woods and the surge parking lot will be redesignated from support

PH-Cole-9

to open space reserve. But anybody who would walk there would be -- it would be obvious that it's already open space reserve; it's already forest land. So it cannot be counted as any addition to the reserve.

My second point relates to the construction noise components of the Draft EIR. It looks as though existing noise levels were measured from various places including an area near the back of the houses on Edgewood Avenue, at Figure 4.11-1, Figure ST5 or Location ST5. It's important that measurements be done at that location during the construction, and it's also important that construction noise be measured not just at Parnassus and Irving but also up on Edgewood, and that the mitigation hours and things apply there as well.

Is my time up?

LILY WONG: Yes. Thank you so much for your comments, Jeff.

JEFF COHEN: All right.

LILY WONG: And you can submit additional written comments to --

JEFF COHEN: Okay.

LILY WONG: -- to us by e-mail.

The next person is Lorri Ungaretti.

I'm going to request an unmute, and your two

PH-Cole-9 cont.

PH-Cole-10

minutes will start when you begin speaking.

LORRI UNGARETTI: Can you hear me?

LILY WONG: Yes.

LORRI UNGARETTI: My name is Lorri Ungaretti, and I'm a local historian. Mostly I research the western side of the city. I'm also a city guide, and for many years, I would take walkers on my Inner Sunset tour into Toland Hall to look at the Zakheim murals. And fortunately, I had a guy that gave me some information about what Mr. Zakheim was portraying in the murals. And people universally said that was the best part of the entire tour.

It is a -- one of the things that I want to say is one of those panels is all about medicine in San Francisco; it's not just about California. But even if it were just about California, these murals should really be preserved. And I just want to add my voice to the people who are saying that. Thank you.

PH-Ungaretti-11

LILY WONG: Thank you very much for your comment.

The next person is Richard Rothman.

I'm sending a request for you to speak, and your two minutes will begin when you start speaking.

RICHARD ROTHMAN: Hi. My name is Richard Rothman, and I'm interested in saving murals.

PH-Rothman-12

And I just want to -- in strongest possible language that these murals be protected. And Lillian has let me come in and seen the murals a number of times. And I was always told, up until January, that, while construction was going on, that these -- that Toland Hall would remain in place and built around. So I was really shocked to hear that now Toland Hall would not be there.

PH-Rothman-12 cont.

And I don't think these murals need to be moved until UCS [sic] comes up with a plan of where to put the murals. Just look what happened -- what is happening to the Covarrubias murals that have been in storage for a number of years and the City has no place to put them. Before they're moved, there should be a place of where they're going to put them.

Moving murals is very dangerous, even if you get a, you know, well-regarded company to move the murals. And I don't see why they can't build around the building. It doesn't to have meet the hospital seismic standards because this part is only going to be for research here. And I just think that these are too important to be moved and put in storage.

And I think the University needs to come up with a plan, before they move them, of where they're going to put them, or leave them there. And they don't

PH-Rothman-13

even have plans for the new buildings, I understand. They just want to tear these buildings down.

So thank you for letting me speak.

LILY WONG: Thank you for your comment, Richard.

The next person is Lope Yap, Jr.

I sent you a request to unmute. Your two minutes will begin when you start speaking.

LOPE YAP, JR.: Can you hear me?

LILY WONG: Yes.

LOPE YAP, JR.: Good evening. My name is Lope Yap, Jr. I'm vice president of the George Washington High School Alumni Association. And I'm one of the principal persons in protecting New Deal art at our high school from people who want to whitewash or permanently remove or permanently cover the murals.

From this experience, this issue has been brought up to me. And I'm here to mention that I'm understanding there is no master plan yet, not a master architect to design this future plan. And my suggestion is -- first and foremost, is to preserve Toland Hall Zakheim murals ideally in the same environment somewhere, even if it's not seismic -- satisfies the seismic issues for medical buildings.

And I believe there's no studies on the

PH-Rothman-13 cont.

PH-Yap-14

PH-Yap-15

possibilities of doing that, leaving it on the campus. The worst thing would be to remove these murals for safekeeping and not have a permanent place for public access, a predetermined place, if you had to move them for construction purposes.

PH-Yap-15 cont.

I also remind everyone that, through the CEQA process, all options should be considered, must be considered, whether it's doing nothing, preserving them in place, to destruction. That's part of the CEQA process. And I'm not informed or I haven't seen or haven't heard anyone talking about preserving, protecting, curating until that permanent established place has been defined. And that should be done before anything happens to these murals. Thank you very much.

PH-Yap-16

LILY WONG: Thank you for your comment, Lope.

The next person is Lisa Kessler.

And you will be the last in this group of five. I sent you a request to unmute, and your two minutes will begin when you start speaking.

LISA KESSLER: Can you hear me?

LILY WONG: Yes.

LISA KESSLER: I would like to call attention to Part 4 of the Draft EIR, specifically the aesthetics. In the impact analysis, the Draft EIR says that the CPHP would not have adverse effect on a public

PH-Kessler-17

scenic vista. So I'd like to call anyone who's listening and everyone's attention to Figure 4.1-14, which is Viewpoint 6, which is a representation of the view from Lincoln Way and Arguello Boulevard, which is down in the park.

It shows the new hospital so large that it not only blocks Mt. Sutro but actually blocks the full height of the Sutro Tower from view, from the public view. This is an iconic San Francisco structure, and it will be completely obscured for anyone enjoying this view from Golden Gate Park.

The EIR doesn't address the aesthetic effects of this massive building on the public. To be specific, they categorize it as, quote, "criteria not analyzed," because it, quote, "does not substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway."

So that viewpoint includes a section of Lincoln that is actually part of the Scenic 49-Mile Drive and isn't addressed at all in the Draft EIR. And I would say that blocking the entirety of Mt. Sutro including the beloved local landmark red tower certainly qualifies as damaging a scenic resource -- to scenic resource.

PH-Kessler-17 cont.

PH-Kessler-18

So for a plan that keeps talking about its "park to peak," quote, design, the only people who are going to be able to enjoy the view are the people -- is people inside the new giant hospital tower. The public viewpoint from the park will have the peak entirely blocked by the proposed massive new structure.

Thank you.

LILY WONG: Thank you, Lisa.

DIANE WONG: The next group of five: Jonathan Manzo, Cathy Cohn, Adam Gottstein, Michael Semler, and Patrice Scatena.

LILY WONG: So, Jonathan Manzo, I've requested an unmute. Your two minutes will start when you begin speaking.

JONATHAN MANZO: Hi, there. I -- I'm not sure if this is the right forum.

But where in -- can someone let me know where in the EIR the parking impacts to the adjacent neighborhoods is noted? Specifically I'm concerned about Midtown Terrace, as we have a fair amount of [unintelligible] here. And I'd also -- if possible, can you direct me to where the phasing plan for the Aldea Housing is noted? And that's it.

LILY WONG: Thank you for your comment.

The next person is Cathy Cohn.

PH-Kessler-18 cont.

PH-Manzo-19

PH-Manzo-20

I've requested that you are unmuted, and your two minutes will start when you start speaking.

CATHY COHN: Okay. Very good. Thank you.

I appreciate the opportunity for us to make comments. And environmental impact reports seem to be very curious things because I have to say they somehow always really serve the interests who funded it. True environmental impact needs to be evaluated from a real 360 angle. PH-Cohn-21

And from my point of view -- and I really appreciate the first speaker talking about how precious the forest is. We will never get that back. Whereas UCSF could make modifications to this plan where they can get what they need without destroying something that at -- especially at this time in our existence should not -- has to be -- has to be preserved. PH-Cohn-22

But my main point is about the literal environmental toxicity of this process. There are many details missing from the implementation. I'm curious how this is going to be done, what the standards -- you know, whose standards these are about allowable air pollution. Will the air be tested and monitored during this process? How and where? Do we know what the noted particulate that was mentioned in the report, what it's made of, what it's a combination of? It does PH-Cohn-23

mention there will be liberation of asbestos during construction.

Then there's another issue of noise pollution. We don't know how many total trips there will be of the trucks coming back and forth.

And we need real solutions that take into account the whole neighborhood and residents who lived through this decade-long process and not just what's most expedient for UCSF.

I'm hoping we can actually get our questions answered instead of these just being comments. And I have many more questions. I would hope that UCSF is prepared to modify its scope to place less burden on the neighborhood's infrastructure and traffic. Thank you.

LILY WONG: Thank you, Cathy, for your comment.

The next person is Adam Gottstein.

Your two minutes will begin when you start speaking.

ADAM GOTTSTEIN: Thank you very much. My name is Adam Gottstein. Am the grandson of Bernard Zakheim, the artist of the murals in question at Toland Hall. I represent members of our family that would include my mother, Ruth Gottstein, who is 98 years old. She is

PH-Cohn-23 cont.

PH-Cohn-24

PH-Cohn-25

PH-Gottstein-26

the oldest daughter of Bernard Zakheim.

And collectively, I just want to be on record as saying that the family is aggrieved at the initial way UCSF approached us to attempt to save these murals at our expense, the family's expense.

With the amount of money that's being used, huge donations being made for the expansion of UCSF and the new building, it seems to me that the amount of money that would be required to safely conserve, remove, store, and then eventually reinstall these murals is within a budget, if that's what is decided by the Regents.

I encourage the Regents and the decision-makers at UCSF to seriously consider preserving these murals in the manner in which they should be preserved. Thank you very much.

LILY WONG: Thank you, Adam.

The next person is Michael Semler.

I've requested for you to speak, and your two minutes will begin when you start speaking.

MICHAEL SEMLER: Good evening, and thank you much for this opportunity.

First, I would like to thank the University for engaging in work to deal with this pandemic. Its role in public health and public protection for a long

PH-Gottstein-26 cont.

PH-Gottstein-27

PH-Semler-28

time has been of value and especially at the current time.

Consequently, it seems to be somewhat beyond the scope of rational and reasonableness to remove a piece of art from the University which commemorates the activities of a wide variety of Californians, including the first African-American nurse -- or one of the first African-American nurses in California to engage in prevent -- in public health measures in California's history.

The Zakheim murals, as illustrative of the work of this activity, should be preserved. Your environmental document does not -- seems to be contradictory. On one level, you describe in the document a potential to preserve and protect the murals through a digital process; whereas, at the same time you suggest -- that earlier you suggest that there should be a comprehensive review.

Either you have prejudged this activity and decided that this review is superfluous and not necessary -- and, therefore, you have prejudiced the document in a manner that I think is unconscionable. Thank you very much.

LILY WONG: All right. Thank you, Michael, for your comment.

PH-Semler-28 cont.

PH-Semler-29

PH-Semler-30

PH-Semler-31

The next person is Patrice Scatena. I apologize for mispronunciation.

You have two minutes, and it begins when you start speaking.

PATRICE SCATENA: Hi, my name is Patrice Scatena, and I'm very concerned about the intrusion of the new hospital tower into the open space west of Edgewood. I strongly feel that will UCSF should stay within its original footprint wherever it is encroaching on the Sutro open space.

The footprint of the hospital appears to eliminate access to the forest from Parnassus at Medical Center Way. It appears UCSF intends to create a new trail access to the forest on the east side of the campus as part of the parked peak, and with impact on the green space and animal and bird habitat in that area. PH-Scatena-32

Also, the shadow studies in the EIR appear to be inadequate to show the impacts of the new hospital tower on the surrounding neighborhood, including my location in Cole Valley between Stanyon and Clayton.

I would like to request that UCSF separately have its architects provide the community with video animation of the shadow study rather than simply still shots so that we can then -- we the neighbors can PH-Scatena-33

actually see the shadow impacts of putting the Salesforce Tower in Cole Valley and the Inner Sunset.

I am continuing to study the report, and I will be able -- I am hoping to be able to submit more detailed written comments before September 11th.

I did notice the figure that shows the hospital tower blocks the full-height Sutro Tower from Golden Gate Park. And I echo the comments of that speaker.

That is what I have to say today, and thank you very much.

DIANE WONG: Is there anyone else who like to speak? I see no hands raised.

(No response)

DIANE WONG: Okay. I think there is -- so I saw for a second there was one raised, but it disappeared. Okay.

So we have one more speaker, Nathan Zakheim.

LILY WONG: Nathan, I've just requested for you to unmute, and your two minutes will begin when you start speaking.

NATHAN ZAKHEIM: Let me know when to start. Can I begin?

LILY WONG: Yes, you may begin.

NATHAN ZAKHEIM: Can you hear me?

PH-Scatena-33 cont.

PH-Scatena-34

PH-Scatena-35

LILY WONG: Yes.

NATHAN ZAKHEIM: Okay. Thank you so much.

I would just like to mention that, in 1965 when I was in my 20s, I removed two frescoes from the Cole Hall. They were taken out using a very inventive -- I invented it -- method of consolidating the mural with conservation resins and then putting a steel frame on the back. They are now at HSW-2, and they've been there since 1965 without any damage, any need for further conservation, et cetera.

PH-Zakeim-36

I would like to say that the -- somehow or other, the plan that has been forward, the RFP, is designed to damage or even destroy the murals. And I will say that from the fact that I have removed nine murals and reinstalled nine murals, myself, over my 55 years of working at it and that it can easily be avoided if the consolidation or adding resins to soak into the material of the mural is done. Then you can drop it five feet and it won't break or chip.

I would like that to be reconsidered. I think the RFP should be discontinued until that issue is resolved because, at this present moment, anyone who bids on that, according to the RFP, will guarantee the destruction or the severe damage of the mural.

And I'll explain why in my last breath here.

PH-Zakeim-37

And that is, fresco plaster is thin white plaster, an eighth of an inch thick, mixed with marble dust, lime dust or marble dust. It's not at all compatible with the plaster underneath it. Then again, people don't normally go shaking murals around.

The -- it is -- when I worked on Orozco's Prometheus at Pomona College, I found whole sections that had pushed away from the layer. If that mural had been moved, we would have lost a third of Orozco's Prometheus. I was able to inject it with resins so that now it's as stable as you can get.

So I recommend that that --

LILY WONG: If you can wrap up.

THE WITNESS: -- and no other. Thank you.

LILY WONG: Thank you very much for your comment.

DIANE WONG: So is there anyone who has not spoken yet who would like to speak?

(No respone)

DIANE WONG: Okay. I don't see any more hands from people who have not yet spoken.

So I'll turn it back to Alicia.

ALICIA MURASAKI: Thank you, everyone, for coming and for providing public comment.

I just want to remind you one last time that

PH-Zakeim-37 cont.

the public comment period will end at 5:00 p.m. on September 11th. So you still have an opportunity to submit written comments to -- on the Draft EIR, and any comments will be made a part of the Final EIR.

I really want to thank you for joining us on Zoom and for your patience with us as we work through technology in this new format.

And have a safe and healthy evening. Thank you very much.

(Whereupon, the proceedings concluded at 6:16 p.m.)

STATE OF CALIFORNIA)
) ss.
COUNTY OF MARIN)

I, DEBORAH FUQUA, a Certified Shorthand Reporter of the State of California, do hereby certify that the foregoing proceedings were reported via the Zoom conferencing platform by me, a disinterested person, and thereafter transcribed under my direction into typewriting and which typewriting is a true and correct transcription of said proceedings.

I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing proceeding and caption named, nor in any way interested in the outcome of the cause named in said caption.

Dated the 1st day of September, 2020.

DEBORAH FUQUA

CSR NO. 12948

Responses to Comments from the Public Hearing Transcript

PH-Grover-1 The commenter expresses appreciation that the Golden Gate Audubon's concerns were addressed in the Draft EIR, including bird strikes, lighting, and vegetation disturbance during nesting season. The comment is noted.

PH-Grover-2 The commenter requests consideration of ground-nesting birds within the Reserve who may be particularly vulnerable to vegetation disturbance. The Draft EIR CPHP Mitigation Measure BIO-1c states if construction is required within nesting season, "within seven days prior to the proposed start of construction activities a qualified biologist shall conduct a nesting bird survey of all potential habitat at the construction site and within 250 feet of the perimeter of the construction site." This survey would include herbaceous vegetation. In response to this comment, the discussion of impacts to nesting birds in the Draft EIR Section 4.3, page 4.3-15 is clarified to indicate that herbaceous vegetation may provide nesting habitat for ground-nesting birds in the Reserve. Please refer to Section 8.5 of this Comments and Responses document for the proposed revision.

PH-Grover-3 The commenter indicates that the benefits of space reserved for wildlife depends on its continuity and connectedness, and that that there is no mention of displaced reserve space in the EIR. The Draft EIR Chapter 3, Project Description identifies the location and approximate area of the potential area that may be displaced by the New Hospital under the CPHP, and the area proposed to be redesignated as Open Space Reserve; please see pages 3-26 to 3-27, page 3-39, and Figure 3-21 on page 3-41. The area of forest land to be redesignated as Open Space Reserve is contiguous to the existing Open Space Reserve. UCSF's proposal under the CPHP would provide permanent open space reserve protection that is not currently provided for this area adjacent to the Surge parking lot, and ensure there is no net loss in protected areas at the campus site.

PH-Eroy-4 The commenter discusses vegetative management activities within the Reserve, which were the subject of prior environmental review in the Mount Sutro Open Space Reserve Management Plan Final EIR certified by the Regents in April 2018. These comments are not directly related to either the CPHP or the adequacy of the CPHP Draft EIR. For these comments, no response is required.

The commenter also asserts that that the proposed housing will encroach within the Reserve. The new Aldea Housing structures would be developed in generally the same building footprints as the existing Aldea Housing buildings, and consequently, this project development would not extend into the Reserve. Regardless, all potential environmental impacts of the Aldea Housing Densification project are adequately addressed in the Draft EIR, and mitigated to the extent feasible.

PH-Smith-5 The commenter expresses concern that there is no policy for art to be included in the CPHP. The comment is appreciated, however, it does not address the adequacy of the Draft EIR. The comment will be forwarded to decision-makers.

PH-Quick-6 The commenter states that the alternatives in the Draft EIR are not adequate. The commenter states the murals should be preserved due to their historic relevance. Please refer to Master Response 11: Toland Hall Murals.

PH-Quick-7 The commenter states the treatment of the murals in the Draft EIR and UCSF's proposal for preservation of the murals conflict with one another, and that the Draft EIR's plan for preserving the murals is insufficient. Please refer to Master Response 11: Toland Hall Murals.

PH-Cohen-8 The commenter expresses opposition to the proposed Fourth Street extension. This is not a comment on the adequacy of the EIR. The comment has been noted and will be forwarded to decision makers. To the extent development of the Fourth Avenue extension would result in environmental impacts, they are addressed in the Draft EIR and mitigated to the extent feasible.

The commenter also raises quality of life concerns in the Fourth Avenue vicinity, such as litter. As discussed in Master Response 1: Non-CEQA Comments, quality of life conditions, are not considered environmental impacts under CEQA.

PH-Cole-9 The commenter takes issue with the CPHP's proposal to replace any area of the Reserve that is lost due to new development under the CPHP by designating new Reserve area elsewhere on the campus site. While the commenter is correct that the area of the forest adjacent to the Surge Parking lot illustrated in Figure 3-21 is already forest land, it is currently designated as a "Support" zone in UCSF's existing functional zone map, and under the CPHP would be designated as an "Open Space Reserve" zone. Accordingly, the CPHP would provide permanent open space reserve protection that is not currently provided for this area.

PH-Cole-10 This comment stresses the importance of conducting noise monitoring near residents on Edgewood Avenue, and that the mitigation of limiting construction hours applies to this area.

With respect to construction noise, this topic is addressed on pages 4.11-16 through 4.11-26 of the Draft EIR and the impact was identified as a significant and unavoidable impact. As stated in Section 4.11 Noise and Vibration on page 4.11-24 of the Draft EIR, the Surge parking lot is located as close as 20 feet from the nearest off-site receptors (on Edgewood Avenue), and would likely be used for staging for the Aldea Housing Densification project and the New Hospital. CPHP Mitigation Measure NOI-1b: Construction Hours is

identified on page 4.11-19 of the Draft EIR to restrict the hours of construction to the degree feasible. Material deliveries and equipment start-ups at the staging area would fall within the "not noisy work" category within this mitigation measure and would be restricted to the hours indicated in the associated column.

Additionally, CPHP Mitigation Measure NOI- 1a: Construction Noise Control Measures identified on page 4.11-18 of the Draft EIR would require shielding of the staging area where adjacent sensitive receptors have direct line-of-sight with loading and delivery activities which would reduce off-site noise impacts and also reduce off-site transport of fugitive dust emissions as would the watering requirement of CPHP Mitigation Measure AIR-1b.

PH-Ungaretti-11 The commenter expresses support for preserving the murals. Please refer to Master Response 11: Toland Hall Murals.

PH-Rothman-12 The commenter requests that the murals be protected and notes they were previously informed that Toland Hall would remain in situ and would be surrounded by new development. Please refer to Master Response 11: Toland Hall Murals.

PH-Rothman-13 This comment requests that UCSF identify the location for where the murals will be relocated to prior to their removal, and that a well-regarded company be used to move the murals. Please refer to Master Response 11: Toland Hall Murals.

PH-Yap-14 The commenter suggests that the murals be preserved in the same environment as they are currently in. Please refer to Master Response 11: Toland Hall Murals.

PH-Yap-15 The commenter states that UCSF has no plan for keeping the murals on the campus site. Please refer to Master Response 11: Toland Hall Murals.

PH-Yap-16 The commenter requests that the murals be preserved in situ until a permanent location for the murals is determined. Please refer to Master Response 11: Toland Hall Murals.

PH-Kessler-17 The comment states that the proposed New Hospital would block the view of Sutro Tower from Golden Gate Park and that this would be a significant aesthetic impact. Please refer to Master Response 7: Aesthetic Impacts.

PH-Kessler-18 The comment states that some viewpoints depicted in the Draft EIR represent location on the route of San Francisco's 49-Mile Scenic Drive and that the proposed project would therefore damage scenic resources visible from a scenic route. The comment also states that the proposed New Hospital would

block views from within the Mount Sutro Open Space Reserve. Please refer to Master Response 7: Aesthetic Impacts.

PH-Manzo-19 The comment requests information on the CPHP's parking impacts to the adjacent neighborhoods. As noted on page 4.15-33 of the Draft EIR, parking is not a CEQA topic, and as such the Draft EIR does not include an assessment of parking impacts. Parking demand associated with the project is presented on pages 4.15-33 through 4.15-34 of the Draft EIR for informational purposes. In addition, the Draft EIR accounts for the potential effects of parking demand exceeding supply through its travel demand analysis, as discussed on pages 4.15-30 and 4.15-31 of the Draft EIR, and further discussed in Master Response 18.

PH-Manzo-20 The commenter requests the phasing plan for the proposed Aldea Housing Densification project. The Draft EIR notes the Aldea Housing Densification project would occur in two phases. The initial Aldea Housing Densification project is described in the Draft EIR Project Description on page 3-28, and conceptually illustrated in Figure 3-16 and 3-17 on pages 3-28 and 3-29; the Future Phase of the Aldea Housing Densification project is described on page 3-34 and conceptually illustrated in Figure 3-17 on page 3-29. The initial Aldea Housing Densification project is identified on page 3-37 (from 2028 to end of 2030); the timing of the future phase of the Aldea Housing Densification project is not yet defined, but would be completed prior to 2050.

PH-Cohn-21 The commenter indicates that EIRs always serve the interests that funded it, and true environmental impacts needs to be evaluated from a real 360 angle. Given the lack of specificity in this comment, no direct response is possible. Please see Master Response 2: General Comments on EIR and Environmental Topics.

PH-Cohn-22 The commenter makes a general comment regarding preservation of the forest. Given the lack of specificity in this comment, no direct response is possible. Please see Master Response 2: General Comments on EIR and Environmental Topics.

PH-Cohn-23 This comment questions what the standards and whose standards are in the Draft EIR about allowable air pollution, whether and how the air will be tested and monitored during this process, what the components of the noted particulates mentioned in the Draft EIR are, and that the Draft EIR mentions that there may be a release of asbestos during construction.

The significance criteria applied in the analysis of air quality impacts in the Draft EIR are identified on page 4.2-19 of the Draft EIR. Specifically, numeric thresholds developed by the Bay Area Air Quality Management District (BAAQMD) were applied in the analysis. The numeric thresholds are

presented in Table 4.2-6 of the Draft EIR and are published by BAAQMD. [1] BAAQMD is the regional agency with jurisdiction for regulating air quality within the nine -county San Francisco Bay Area Air Basin. Assessment of localized health risk impact also utilize thresholds published by BAAQMD specific to analysis under CEQA.

BAAQMD regularly monitors air quality in San Francisco at its Arkansas Street station and a summary is provided in Table 4.2-1 on Draft EIR page 4.2-3. Air quality monitoring is not currently conducted nor proposed to be conducted on the UCSF Parnassus campus site or environs.

With respect to diesel particulate matter, a thorough description of this toxic air contaminant is provided on page 4.2-11 of the Draft EIR.

Analysis of potential impacts of the proposed CPHP with respect to release of asbestos containing building materials and naturally occurring asbestos is provided in Section 4.8 Hazards and Hazardous Materials on Draft EIR page 4.8-14 through 4.8-19.

PH-Cohn-24 This comment raises concern regarding noise from truck trips coming back and forth.

Please refer to Draft EIR pages 4.11-27 and 4.11-28 for the assessment of increased noise levels from vehicles on Medical Center Way, including trucks. This analysis calculated noise levels using the DNL calculator developed by the federal Department of Housing and Urban Development. This model takes into account the increases in vehicle trips, including trucks, and the effect of roadway grade on the noise emissions from heavy trucks. Based on the estimated increase in traffic volumes on Medical Center Way as estimated by the transportation consultant, noise levels would increase from 58 DNL to 59 DNL at the nearest residential structures on Edgewood Avenue, approximately 180 feet away from the roadway. These predicted noise levels were identified as a less than significant impact in the Draft EIR.

PH-Cohn-25 The commenter makes a general comment that real solutions are needed that take into account the whole neighborhood and residents, and not what is most expedient for UCSF. The comment is appreciated, however, it does not address the adequacy of the Draft EIR. The comment will be forwarded to decision-makers.

[1] BAAQMD, CEQA Air Quality Guidelines. June 2017

PH-Gottstein-26 The commenter states his familial connection to Bernard Zakheim, and indicates the family is aggrieved at UCSF's suggestion for the family to save the murals at its expense. The comment is noted, and will be forwarded to decision-makers. Please also see Master Response 11: Toland Hall Murals.

PH-Gottstein-27 The commenter suggests the use of donations made for the expansion of UCSF to be used to fund safely conserving, removing, storing and reinstalling the murals. The comment is noted, and will be forwarded to decision-makers. Please also see Master Response 11: Toland Hall Murals.

PH-Semler-28 The commenter expresses appreciation to UCSF for engaging in work to address the COVID-19 pandemic. The comment is noted.

PH-Semler-29 The commenter objects to the removal of the Zakheim murals, including the panel depicting the first African-American nurse. Please see Master Response 11: Toland Hall Murals.

PH-Semler-30 The commenter suggests the Draft EIR is contradictory in how it describes the plan to preserve the murals. Please refer to Master Response 11: Toland Hall Murals.

PH-Semler-31 The commenter asserts that UCSF has prejudged the removal of the murals, and therefore has prejudged the document. Please refer to Master Response 11: Toland Hall Murals.

PH-Scatena-32 The commenter objects to the potential encroachment of the New Hospital into the Reserve. This is not a comment on the adequacy of the EIR. The comment has been noted and will be forwarded to decision makers.

The commenter also questions if the CPHP would result in elimination of access to the Reserve from Parnassus Avenue at Medical Center Way and creation of a new trail access on the east side of the campus. No details of the site plan for New Hospital are available at this time; however, UCSF does not intend to reduce overall pedestrian access to the Reserve.

PH-Scatena-33 The comment states that the shadow analysis is inadequate with respect to shadows in Cole Valley and requests that UCSF provide neighbors with video animation of shadow that would be cast by the proposed project. Please refer to Master Response 9: Shadow Impacts.

PH-Scatena-34 The comment indicates continuing review of the Draft EIR, and that detailed written comments will be submitted before the end of the public review period. The comment is noted; please see responses to comment letter I-Scatena.

PH-Scatena-35 The comment states that the proposed New Hospital would block the view of Sutro Tower from Golden Gate Park and agrees with a prior commenter that

this would be a significant aesthetic impact. Please refer to Master Response 7: Aesthetic Impacts.

PH-Zakheim-36 The comment indicates noticing the visual simulation from Golden Gate Park of the New Hospital blocking Sutro Tower. Please refer to Master Response 7: Aesthetic Impacts.

PH-Zakheim-37 The commenter suggests that UCSF's Request for Proposal with regard to the murals would damage or destroy them, and puts forward an approach the commenter believes will strengthen the murals and allow them to be moved without incurring damage. Please refer to Master Response 11: Toland Hall Murals.

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8.5 Revisions to the Draft EIR

8.5.1 Overview

This chapter presents revisions to the text, tables and figures to the Draft EIR. These revisions include both (1) revisions made in response to comments on the Draft EIR, as well as (2) UCSF staff-initiated text changes to correct minor inconsistencies, to add minor updates to information or clarification related to the CPHP, and to provide updated information where applicable. None of the revisions or corrections in this chapter substantially change the analysis and conclusions presented in the Draft EIR.

The chapter includes all revisions to the Draft EIR (see Section 8.5.2) in the sequential order that they appear in those documents. Preceding each revision is a brief explanation for the text change, and the section/page number in the Draft EIR where the revision occurs. Deletions in text and tables are shown in strikethrough (~~strikethrough~~) and new text is shown in underline (underline). The same revisions presented in this chapter are also incorporated in the consolidated Draft EIR in Volume 1 of this Final EIR, which includes the full text of the integrated Draft EIR, as revised.

8.5.2 Revisions to the Draft EIR

Draft EIR Chapter 1, Introduction

Draft EIR Chapter 1, Introduction, Section 1.5, page 1-7, second to last paragraph, first sentence, was incomplete, and is corrected as a staff-initiated change, as follows:

> A program EIR has been prepared for the CPHP that establishes a framework for tiered or project-level environmental documents that would be prepared in the future in accordance with the overall program.

Draft EIR Chapter 2, Summary

Draft EIR, Chapter 2, Summary, Section 2.4, Table 2-1, Significant and Unavoidable Impacts of the Proposed CPHP, page 2-6, Impact C-AIR-1 is revised as a staff-initiated change, as follows:

> **Impact C-AIR-1**: Implementation of the CPHP combined with cumulative development in the project area would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, pages 2-13, the first bullet under Mitigation Measure AIR-1a is revised in response to Comments O-LD2-106 and O-LD2-112, as follows:

- All mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the project site for more than two days continuously shall be equipped with engines meeting USEPA emissions standards for Tier 4 Final certified engines or equivalent; and

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, pages 2-15 to 2-16, CPHP Mitigation Measure AIR-2b, first paragraph and Nos. 4 and 7 are revised, and new No. 8 is added, as a staff-initiated change, as follows:

CPHP Mitigation Measure AIR-2b: TDM Program Enhancements

To reduce ~~on- and off-campus~~ vehicle trips and resulting air quality impacts, UCSF will implement TDM program enhancements such that the number of new average daily vehicle trips to and from the campus site is reduced by at least 15 percent from the estimated new average daily vehicle trips without these program enhancements (Fehr & Peers, 2020).

TDM program enhancements/strategies shall initially include the following:

1. *New shuttle connections to regional transit (e.g. BART):* Implement new UCSF shuttle service between the campus site and regional transit stations (e.g. BART, Caltrain) to make regional transit a more attractive option for employees, patients, and visitors.

2. *Expand telecommuting and flexible hours program for employees:* Allow employees in appropriate positions to telecommute from home and/or work a modified schedule such that they are commuting to the campus less frequently per week.

3. *Improved telehealth program for patients:* Implement an expanded telehealth program to reduce the need for patients to travel to the campus site for appointments.

4. *Carpool and vanpool credits and incentives:* Provide ~~cash allowance~~ a subsidy or discounted parking permit rates for individuals who carpool rather than drive alone; reduce monthly fares for Vanpool riders and drivers.

5. *Discontinue monthly parking permits:* Discontinue issuance of monthly parking permits to make commute travel mode a daily decision by shifting to daily parking permits.

6. *Enhanced patient TDM program*: Enhance information provided to patients regarding travel options to the campus site, including discussion of limited parking environment and public transit options.

7. *TNC to transit subsidy*: Provide ~~cash allowance~~ a subsidy for individuals to use TNC to travel to transit rather drive alone.

8. *Transit pass program*: UCSF Health will implement a patient transit pass program by June 30, 2025. In addition, a petition to run a referendum on a SFMTA student transit pass will be reviewed and voted on by the UCSF student government assembly by June 30, 2025. Balloting would be in March and voting would be in April. Assuming the referendum passes, the results would be submitted to UCOP for approval in May and the fee would typically apply at the start of the new academic year, which would be September.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-18, Impact C-AIR-1 is revised as a staff-initiated change, as follows:

Impact C-AIR-1: Implementation of the CPHP combined with cumulative development in the project area would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-19, CPHP Mitigation Measure BIO-1c, the following sentence is added add the end of the paragraph in the first bullet:

> The qualified biologist will monitor all vegetation removal in the Open Space Reserve during bird nesting season.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-20, CPHP Mitigation Measure BIO-1e, the bulleted paragraph is revised as follows in response to Comment I-Louie-7:

- A qualified biologist shall provide training to all construction workers prior to starting work on plan components. The training shall cover special-status species with potential to be found onsite, avoidance measures to be undertaken if a species is found, avoiding the spread of invasive weeds and pathogens during construction, and best management practices for site housekeeping.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, pages 2-21 to 2-22, Mitigation Measure CUL-1b is revised as follows:

> **CPHP Mitigation Measure CUL-1b: Document Historical Resources Prior to Demolition or Alteration**
>
> Prior to any demolition work or significant alterations initiated at the known historical resources, UCSF shall ensure that a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards thoroughly documents each building and associated landscaping and setting. This includes the Zakheim Murals in UC Hall. Documentation shall include still photography and a written documentary record of the building to the National Park Service's standards of the Historic American Buildings Survey (HABS) or the Historic American Engineering Record (HAER), including accurate scaled mapping and architectural descriptions. If available, scaled architectural plans will also be included. Photos include large-format (4"x5") black-and-white negatives and 8"x10" enlargements. Digital photography may be substituted for large-format negative photography if archived locally. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research and oral history collection as appropriate. Copies of the records shall be submitted to the Northwest Information Center at Sonoma State University and the UCSF Kalmanovitz Library Archives and Special Collections.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-22, new CPHP Mitigation Measure CUL-1e is inserted following Mitigation Measure CUL-1d:

> **CPHP Mitigation Measure CUL-1e: Display of Zakheim Murals**
>
> Provided that the Zakheim murals are successfully removed from Toland Hall and stored, UCSF will convene a Task Force by the end of 2021 to advise on options for the display of the murals in a publicly accessible setting, either on a UCSF campus or at a museum or other institution. The Task Force will include the Chair of the City's Historic Preservation Commission, or their designee.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-23, the last two sentences in Mitigation CUL-3 are revised in response to Comment A-SFP-14, as follows:

> Treatment for most resources could consist of (but shall not be limited to) sample excavation, site documentation, and historical research, as appropriate to the discovered ~~prehistoric~~ resource. The treatment plan shall include provisions for analysis of data in a regional context as appropriate to the discovered ~~prehistoric~~ resource, reporting of results within a timely manner, and dissemination of reports to local and state repositories, libraries, and interested professionals.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-24, the mitigation for historic resources for Impact C-CUL-1 is revised as follows:

> **Historic Resources.** Implement CPHP Mitigation Measures CUL-1a through ~~-1d~~le.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-25, CPHP Mitigation Measure GEO-3 is modified as a staff-initiated change:

> **CPHP Mitigation Measure GEO-3:** UCSF shall implement the following geotechnical recommendations as adapted from those contained within the Rutherford & Chekene March 2019 report:
>
> - Remove selected trees located on or at the crest of steep rock slopes on which tree root wedging decreases stability. Determination of specific trees to be removed shall be made in association with a certified arborist and state licensed geotechnical engineer or engineering geologist. Removal will involve cutting trees and leaving stumps such that the root system can rot in situ with minimal disturbance to the surface geology.
> - Conduct qualitative monitoring of identified slopes by a state licensed geotechnical engineer or engineering geologist or as directed by said professional. Monitoring shall occur, at a minimum, after each ~~moderate to~~ major storm or earthquake, as defined by the geotechnical professional. The geotechnical professional shall submit a report of findings to UCSF that includes recommendations for additional slope stability improvements, if deemed necessary, to maintain continued safety in accordance with geotechnical standards and building code requirements.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, Impact HYD-1 is modified as a staff-initiated change as follows:

> **Impact HYD-1:** Construction and operation of campus development under the CPHP would ~~not~~ have the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, the level of significance before mitigation for Impact HYD-1 is modified as a staff-initiated change, and changed from LTS to LTSM, as follows:

> ~~LTS~~ LTSM

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, new Mitigation Measure HYD-1 is included for Impact HYD-1 as a staff-initiated change, as follows:

~~None required.~~

CPHP Mitigation Measure HYD-1: During implementation of the CPHP, UCSF shall continue to implement water conservation measures and construct and implement stormwater management controls as needed so as to:

a. Avoid increasing the likelihood of surcharges by exceeding the capacity of the City's CSS;

b. Avoid increasing the extent or duration of ponding or overland flow by exceeding the capacity of the City's CSS; and

c. Avoid discharges to the City's CSS that could increase the frequency, duration, or volume of combined sewer discharges to the receiving waters.

To meet the first two (hydraulic) performance standards, UCSF shall design all new on-campus buildings and site improvements to be consistent with requirements of the City's Stormwater Management Ordinance (Article 4.2 of the San Francisco Public Works Code), ensuring that the stormwater runoff rate and volume from the project shall not exceed pre-development conditions for the 1- and 2-year, 24-hour design storm (the standard for sites that are less than 50 percent impervious). In addition, when connections to the City's CSS are being designed, UCSF shall analyze the capacity of the adjoining sewer system to ensure that the system can accommodate UCSF's increased flows and/or modified connection points. UCSF may choose to conduct this modeling analysis on its own and submit the analysis to the SFPUC for review, or request that the SFPUC conduct the analysis on UCSF's behalf, subject to reimbursement of the SFPUC's costs by UCSF. If the analysis determines that increased flows may exceed the conveyance capacity of the adjoining downstream sewers, UCSF shall pay its proportional share of the costs of expanding the sewer system to accommodate the increased flows from the Parnassus Heights campus site.

To meet the third (hydrologic) performance standard, UCSF shall ensure that the total volume of stormwater discharges from the Parnassus Heights campus site in wet weather is decreased by an amount sufficient to offset flows from any increase in impervious surfaces and any increases in wastewater discharges as a result of the CPHP. Necessary reductions may be achieved via LID, on-site detention and re-use, on-site detention for discharge, and/or other strategies in conformance with the City's Stormwater Management Ordinance, and may be less than the total wet weather discharges from Parnassus Heights campus site if modeling demonstrates there is sufficient storage, pumping, and treatment capacity in the City's CSS to avoid increased discharges to the receiving waters from the CSS discharge structures.

UCSF shall use the SFPUC's model to establish a baseline prior to implementation of the CPHP and to demonstrate that future incremental increases in stormwater and/or wastewater from the campus site under the CPHP would not cause or contribute to any increase in overflow volumes from the City's CSS discharge structures, as determined through modeling at every major phase of the CPHP (starting with the Initial Phase) or

> every five years, whichever is more frequent, through CPHP buildout. UCSF may choose to conduct this modeling analysis on its own and submit the analysis to the SFPUC for review, or request that the SFPUC conduct the analysis on UCSF's behalf, subject to reimbursement of the SFPUC's costs by UCSF. In the event of non-compliance, UCSF shall immediately take steps to remedy the deficiency and provide reports to the SFPUC in conjunction with each construction project undertaken to implement the CPHP until the performance standard is met.
>
> Any improvements constructed outside the campus site boundary or in public right of way in the City's jurisdiction shall be subject to construction site runoff requirements and post-construction stormwater controls in accordance with the City Public Works Code and in compliance with the City's Stormwater Management Ordinance, and shall be included in UCSFs calculation of the total volume of increased flows to be offset and its modeling of incremental increases in flows into the City's CSS.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, the level of significance after mitigation for Impact HYD-1 is modified as a staff-initiated change, and changed from NA to LTS, as follows:

> ~~NA~~ LTS

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, Impact HYD-2 is modified as a staff-initiated change, as follows:

> **Impact HYD-2:** Construction and operation of the campus development under the CPHP would not substantially alter the existing drainage patterns of the site or area, in a manner that has the potential to result in substantial erosion or siltation on- or off- site; would potentially substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; would potentially create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, the level of significance before mitigation for Impact HYD-2 is modified as a staff-initiated change, and changed from LTS to LTSM, as follows:

> ~~LTS~~ LTSM

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, new Mitigation Measure HYD-1 is included as mitigation for Impact HYD-2 as a staff-initiated change, as follows:

> ~~None required.~~ Implement CPHP Mitigation Measure HYD-1.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, the level of significance after mitigation for Impact HYD-2 is modified as a staff-initiated change, and changed from NA to LTS, as follows:

> ~~NA~~ LTS

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, Impact C-HYD-1 is modified as a staff-initiated change, as follows:

> **Impact C-HYD-1:** Construction and operation of campus development under the CPHP, in conjunction with other cumulative development within the City of San Francisco, would have the potential to ~~not~~ cumulatively violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, the level of significance before mitigation for Impact C-HYD-1 is modified as a staff-initiated change, and changed from LTS to LTSM, as follows:

~~LTS~~ LTSM

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, include Mitigation Measure HYD-1 for Impact C-HYD-1 as a staff-initiated change, as follows:

~~None required.~~ Implement CPHP Mitigation Measure HYD-1.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, the level of significance after mitigation for Impact C-HYD-1 is modified as a staff-initiated change, and changed from NA to LTS, as follows:

~~NA~~ LTS

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, Impact C-HYD-2 is modified as a staff-initiated change as follows:

> **Impact C-HYD-2:** Construction and operation of campus development under the CPHP, in conjunction with other cumulative development in the City of San Francisco's CSS, would not have the potential to cumulatively alter the drainage pattern of the site or area, through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site; would have the potential to substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, the level of significance before mitigation for Impact C-HYD-2 is modified as a staff-initiated change and changed from LTS to LTSM, as follows:

~~LTS~~ LTSM

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, include Mitigation Measure HYD-1 for Impact C-HYD-2 as a staff-initiated change, as follows:

~~None required.~~ Implement CPHP Mitigation Measure HYD-1.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-30, the level of significance after mitigation for Impact C-HYD-2 is modified as a staff-initiated change, and changed from NA to LTS, as follows:

~~NA~~ LTS

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-3, Summary of CPHP Impacts and Mitigation Measures, page 2-33, Mitigation Measure NOI-3b is modified as follows:

CPHP Mitigation Measure NOI-3b: Assessment and Relocation/Retrofitting of Vibration-Sensitive Equipment: UCSF shall evaluate the presence of vibration-sensitive equipment within 150 feet of construction and demolition areas. Any sensitive equipment shall be evaluated for the existing extent of vibration isolation and relocated or further embellish isolation, as warranted. Alternatively, use of such equipment may be suspended during the substantial vibration-generating activities within 150 feet.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-4, Summary of Irving Street Arrival, RAB and Initial Aldea Densification Projects, and Initial Phase Improvements Impacts and Mitigation Measures, page 2-42, under the applicable mitigation measures for Impact CUL-1 for the RAB, the new CPHP Mitigation Measure CUL-1e is added following CPHP Mitigation Measure CUL-1d:

CPHP Mitigation Measure CUL-1e: Display of Zakheim Murals.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-4, Summary of Irving Street Arrival, RAB and Initial Aldea Densification Projects, and Initial Phase Improvements Impacts and Mitigation Measures, page 2-45, Impact HYD-1 is modified as a staff-initiated change as follows:

Impact HYD-1: Construction and operation of campus development under the CPHP would ~~not~~ have the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-4, Summary of Irving Street Arrival, RAB and Initial Aldea Densification Projects, and Initial Phase Improvements Impacts and Mitigation Measures, page 2-45, the level of significance before mitigation for Impact HYD-1 is modified as a staff-initiated change, and changed from LTS to LTSM, as follows:

~~LTS~~ LTSM

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-4, Summary of Irving Street Arrival, RAB and Initial Aldea Densification Projects, and Initial Phase Improvements Impacts and Mitigation

Measures, page 2-45, under the applicable mitigation measures for Impact HYD-1, new CPHP Mitigation Measure HYD-1 is included as a staff-initiated change, as follows:

~~None required.~~ **CPHP Mitigation Measure HYD-1.**

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-4, Summary of Irving Street Arrival, RAB and Initial Aldea Densification Projects, and Initial Phase Improvements Impacts and Mitigation Measures, page 2-45, the level of significance after mitigation for Impact HYD-1 is modified as a staff-initiated change and changed from NA to LTS for the Irving Street Arrival, RAB, Initial Aldea Housing Densification and Initial Phase Improvements, as follows:

~~NA~~ LTS

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-4, Summary of Irving Street Arrival, RAB and Initial Aldea Densification Projects, and Initial Phase Improvements Impacts and Mitigation Measures, page 2-46, Impact HYD-2 is modified as a staff-initiated change, as follows:

Impact HYD-2: Construction and operation of the campus development under the CPHP would not substantially alter the existing drainage patterns of the site or area, in a manner that has the potential to result in substantial erosion or siltation on- or off- site; would potentially substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; would potentially create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow.

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-4, Summary of Irving Street Arrival, RAB and Initial Aldea Densification Projects, and Initial Phase Improvements Impacts and Mitigation Measures, page 2-46, the level of significance before mitigation for Impact HYD-2 is modified as a staff-initiated change, and changed from LTS to LTSM, as follows:

~~LTS~~ LTSM

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-4, Summary of Irving Street Arrival, RAB and Initial Aldea Densification Projects, and Initial Phase Improvements Impacts and Mitigation Measures, page 2-46, under the applicable mitigation measures for Impact HYD-2, new CPHP Mitigation Measure HYD-1 is included as a staff-initiated change, as follows:

~~None required.~~ **CPHP Mitigation Measure HYD-1.**

Draft EIR, Chapter 2, Summary, Section 2.7, Table 2-4, Summary of Irving Street Arrival, RAB and Initial Aldea Densification Projects, and Initial Phase Improvements Impacts and Mitigation Measures, page 2-46, the level of significance after mitigation for Impact HYD-2 is modified as a staff-initiated change, and changed from NA to LTS for the Irving Street Arrival, RAB, Initial Aldea Housing Densification and Initial Phase Improvements, as follows:

~~NA~~ LTS

Draft EIR Chapter 3, Project Description

Draft EIR Chapter 3, Project Description, Section 3.7, page 3-37, second to last paragraph, third sentence, the estimated volume of demolition associated with UC Hall and School of Nursing was inadvertently overstated, and is corrected as a staff-initiated change, as follows:

> This includes approximately 30,000 gsf of building demolition to accommodate the proposed Irving Street Arrival project, ~~254,000~~ 233,000 gsf for demolition of UC Hall and School of Nursing to make way for the proposed RAB, and an estimated 24,000 gsf of demolition for three of the existing Aldea Housing structures.

Draft EIR Chapter 3, Project Description, Section 3.7.2, page 3-39, first paragraph revised as a staff-initiated change to refer to the proposed LRDP Amendment as Amendment No 7, instead of Amendment No. 6, as follows:

> Proposed LRDP Amendment No. 7~~6~~[7] would revise those portions of the 2014 LRDP pertaining to Parnassus Heights to incorporate concepts and proposals identified in the CPHP. Proposed changes would include the following:
>
> [7] The prior six ~~five~~ amendments to the 2014 LRDP are as follows: Amendment No. 1 revised the functional zone map for the Mission Bay campus site; Amendment No. 2 was for Mission Bay East Campus Phase 1 Building; Amendment No. 3 was for the Child, Teen, and Family Center and Department of Psychiatry Building at 2130 Third Street; Amendment No. 4 was for the Minnesota Street Graduate Student and Trainee Housing; ~~and~~ Amendment No. 5 was for the 2130 Post Street Faculty Housing Retrofit, and Amendment No. 6 was for administrative changes to update the ownership status of the Laurel Heights property, and to include the UCSF-owned 777 Mariposa site.

Draft EIR Chapter 3, Project Description, Section 3.7.2, page 3-44, last paragraph, last sentence is revised as a staff-initiated change to refer to the proposed LRDP Amendment as Amendment No 7, instead of Amendment No. 6, as follows:

> Proposed LRDP Amendment No. 7~~6~~ includes an update to the GHGRS which incorporates emissions generated by CPHP construction and operations.

Draft EIR Section 4.1, Aesthetics, Wind, Shadow

Draft EIR, Section 4.1, Aesthetics, Wind, and Shadow, page 4.1-42, second paragraph is clarified in response to Comment O-PARKIN-13:

> As shown in **Figure 4.1-19**, buildings proposed as part of the initial Aldea Housing Densification project would be up to 96 feet in height in an area of the city currently zoned for 40 feet. As such, this project would not align with 2014 LRDP sub-objective 1B because it would not be consistent with local zoning and height and bulk limitations for the site. However, consistent with the CPHP design principles ~~guidelines~~, the initial Aldea Housing Densification project would be developed in a way that would result in "respectful relationships with neighboring structures and natural features" (Campus Design Principle C3). In addition, the CPHP includes a series of "best practices" with respect to campus design. For redevelopment of the Aldea Housing Community, best

practices would "reinforce its connection with Mount Sutro" Among the means to this end, Aldea redevelopment should, among other things:

- "Thoughtfully incorporate views to maximize connectivity to nature while preserving residents' privacy,
- "~~r~~Respect the existing wooded setting and open space areas, refrain from impacting the extent of the Mount Sutro Open Space Reserve,
- "Consider impact on Clarendon and Behr Avenues if changing the building siting or scale; preserve public view corridors and street scale as feasible,
- "Foster a harmonious integration of housing through landscaping,
- ~~and~~ "~~e~~Establish discrete façade treatments ~~to~~ and a design language that embraces the ~~surrounding~~ context, and
- "Prioritize the use of natural materials for building design."

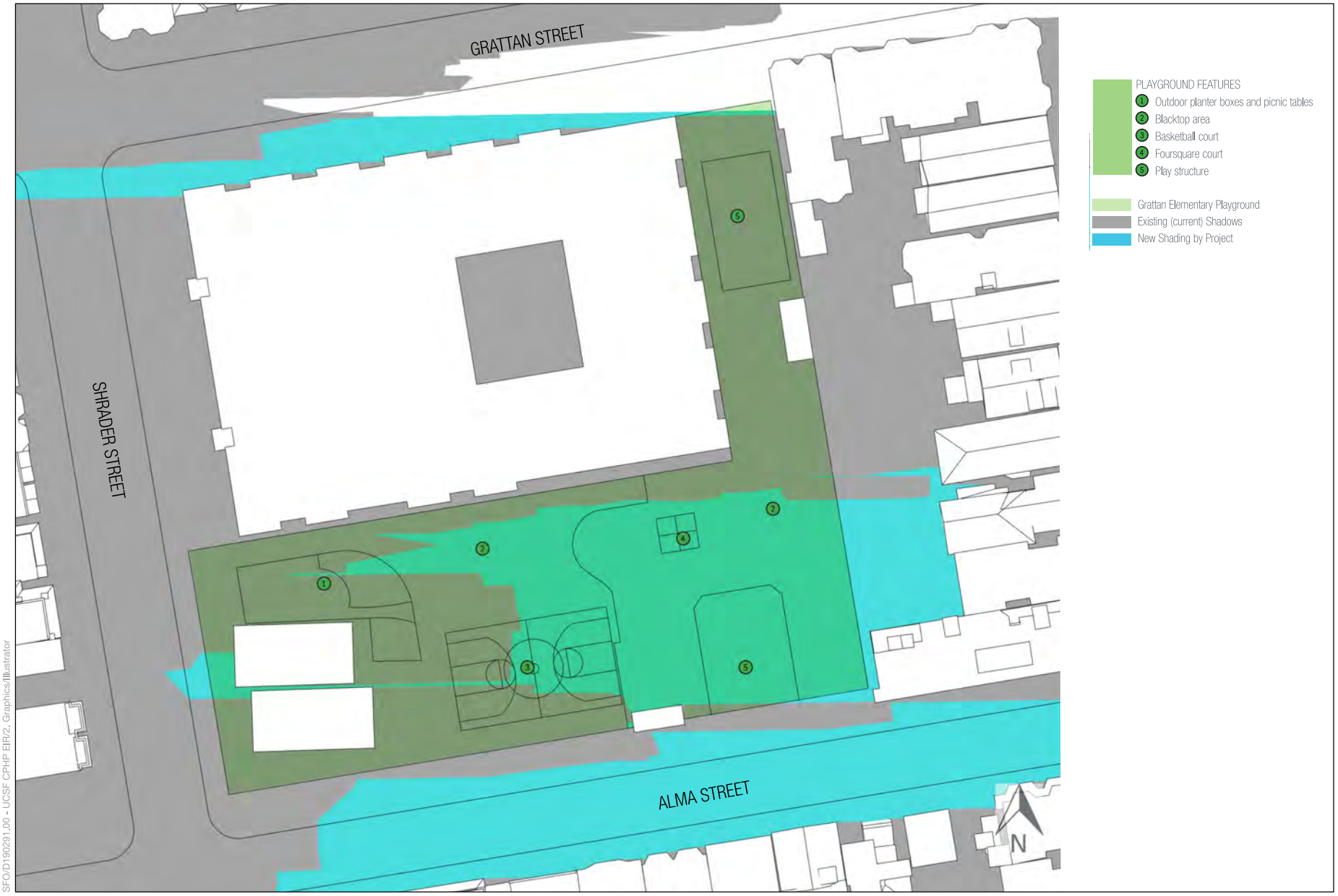
Draft EIR, Section 4.1, Aesthetics, Wind, and Shadow, page 4.1-45, first paragraph, fourth sentence, the following staff-initiated change is made to correct a typographical error:

> **CPHP Mitigation Measure ~~CPHP~~ AES-3** would be implemented to reduce the impact to a less than significant level.

Draft EIR, Section 4.1, Aesthetics, Wind, and Shadow, page 4.1-67, footnote 11 is corrected in response to Comment O-PARKIN-16:

> [11] Including ~~Excluding~~ potential rooftop observation deck and vestibule that would occupy a small portion of the roof. ~~No rooftop mechanical equipment/enclosures are proposed for the New Hospital.~~ As currently conceived, the majority of mechanical equipment would be contained within various levels of the New Hospital to minimize the amount of equipment located on the roof; components of mechanical equipment located on the roof may slightly exceed the 294 feet in height.

In response to Comment I-Anderson-1, Draft EIR, Section 4.1, Aesthetics, Wind, and Shadow, page 4.1-73, Figure 4.1-38, the street labels for Stanyan Street and Rivoli Street changed to Shrader Street and Alma Street, respectively, and are corrected in a revised Figure 4.1-38 on the following page. (In addition, corresponding shadow figures for Grattan Elementary School included in Appendix SHDW are revised as well; see revisions under the heading, Appendix SHDW, below.)



SFO/D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Prevision Design, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Revised Figure 4.1-38
September 6 and April 5, 6:31 pm
Date and Time of Maximum Shading on Grattan Elementary School

Draft EIR Section 4.2, Air Quality

Draft EIR, Section 4.2, Air Quality, page 4.2-4, been amended to include the following statement, with associated footnotes:

> At least two recent studies are indicating potential links between pollution exposure and novel COVID-19 mortality. However, these studies are preliminary and qualify that "If COVID-19 spread is indeed impacted by air pollution levels, which is not yet known, some of the effects detected in our study could be mediated by" transmission of infectious disease.[.01, .02]
>
> [.01] Wu, X., Nethery, R.C., Sabath, M.B., Braun, D. and Dominici, F., 2020. *Air pollution and COVID-19 mortality in the United States: strengths and limitations of an ecological regression analysis.* Science Advances (in press). Available at: https://projects.iq.harvard.edu/covid-pm/home.
>
> [.02] Michael Petroni *et al* 2020 *Environ. Res. Lett.* 15 0940a9, Hazardous air pollutant exposure as a contributing factor to COVID-19 mortality in the United States. Available at: https://iopscience.iop.org/article/10.1088/1748-9326/abaf86/pdf.

Draft EIR, Section 4.2, Air Quality, page 4.2-24, fourth paragraph, last sentence is revised in response to Comment O-TL4-2, as follows:

> Therefore, a ~~cumulative~~ cumulatively considerable increase in cancer risk from all sources would occur if the total of all risks exceeds 100 in one million.

Draft EIR, Section 4.2, Air Quality, page 4.2-29, the first bullet under Mitigation Measure AIR-1a is revised in response to Comments O-LD2-106 and O-LD2-112, as follows:

- All mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the project site for more than two days continuously shall be equipped with engines meeting USEPA emissions standards for Tier 4 Final certified engines or equivalent; and

Draft EIR, Section 4.2, Air Quality, page 4.2-36, CPHP Mitigation Measure AIR-2b, first paragraph and Nos. 4 and 7 are revised, and new No. 8 is added, as a staff-initiated change, as follows:

> **CPHP Mitigation Measure AIR-2b: TDM Program Enhancements**
>
> To reduce ~~on- and off-campus~~ vehicle trips and resulting air quality impacts, UCSF will implement TDM program enhancements such that the number of new average daily vehicle trips to and from the campus site is reduced by at least 15 percent from the estimated new average daily vehicle trips without these program enhancements (Fehr & Peers, 2020).
>
> TDM program enhancements/strategies shall initially include the following:
>
> 1. *New shuttle connections to regional transit (e.g. BART):* Implement new UCSF shuttle service between the campus site and regional transit stations (e.g. BART, Caltrain) to make regional transit a more attractive option for employees, patients, and visitors.

2. *Expand telecommuting and flexible hours program for employees:* Allow employees in appropriate positions to telecommute from home and/or work a modified schedule such that they are commuting to the campus less frequently per week.

3. *Improved telehealth program for patients:* Implement an expanded telehealth program to reduce the need for patients to travel to the campus site for appointments.

4. *Carpool and vanpool credits and incentives:* Provide ~~cash allowance~~ a subsidy or discounted parking permit rates for individuals who carpool rather than drive alone; reduce monthly fares for Vanpool riders and drivers.

5. *Discontinue monthly parking permits:* Discontinue issuance of monthly parking permits to make commute travel mode a daily decision by shifting to daily parking permits.

6. *Enhanced patient TDM program*: Enhance information provided to patients regarding travel options to the campus site, including discussion of limited parking environment and public transit options.

7. *TNC to transit subsidy*: Provide ~~cash allowance~~ a subsidy for individuals to use TNC to travel to transit rather drive alone.

8. *Transit pass program*: UCSF Health will implement a patient transit pass program by June 30, 2025. In addition, a petition to run a referendum on a SFMTA student transit pass will be reviewed and voted on by the UCSF student government assembly by June 30, 2025. Balloting would be in March and voting would be in April. Assuming the referendum passes, the results would be submitted to UCOP for approval in May and the fee would typically apply at the start of the new academic year, which would be September.

Draft EIR, Section 4.2, Air Quality, page 4.2-69, Impact C-AIR-1 is revised as a staff-initiated change, as follows:

Impact C-AIR-1: Implementation of the CPHP combined with cumulative development in the project area would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard. (Significant and Unavoidable with Mitigation)

Draft EIR Section 4.3, Biological Resources

Draft EIR, Section 4.3, Biological Resources, page 4.3-3, fourth paragraph, the following sentence is inserted after the second sentence, and associated footnote is added:

The nearby Mount Sutro Open Space Reserve has recorded 99 different migratory bird species.[.01]

[.01] eBird. 2020. Mt. Sutro OSP Sightings. https://ebird.org/hotspot/L1011743?yr=all

Draft EIR, Section 4.3, Biological Resources, page 4.3-15, fourth paragraph, second sentence is clarified in response to Comment PH-Grover-2:

> Smaller birds may nest in trees or shrubs on the campus site or in trees, shrubs, or herbaceous vegetation within the Reserve., ~~though~~ However, they are ~~unlikely~~ less likely to nest in busy areas with frequent human and vehicular traffic.

Draft EIR, Section 4.3, Biological Resources, page 4.3-16, CPHP Mitigation Measure BIO-1c, the following sentence is added add the end of the paragraph in the first bullet:

> The qualified biologist will monitor all vegetation removal in the Open Space Reserve during bird nesting season.

Draft EIR, Section 4.3, Biological Resources, page 4.3-17, CPHP Mitigation Measure BIO-1e, the bulleted paragraph is revised as follows in response to Comment I-Louie-7:

- A qualified biologist shall provide training to all construction workers prior to starting work on plan components. The training shall cover special-status species with potential to be found onsite, avoidance measures to be undertaken if a species is found, avoiding the spread of invasive weeds and pathogens during construction, and best management practices for site housekeeping.

Draft EIR Section 4.4, Cultural Resources and Tribal Cultural Resources

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, edits are made to clarify the scope and findings of earlier reports and to note updates concerning four resources and confirming earlier findings (except where noted otherwise, below):

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, page 4.4-5: Table 4.4-1 is updated on the following pages.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, page 4.4-10, first paragraph under the heading San Francisco City Landmarks, the last sentence is revised acknowledge additional landmark sites, as follows:

> There are currently ~~287~~ 289 landmark sites and 14 historic districts in San Francisco subject to Article 10, and none of these are located within the Parnassus Heights campus site.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, page 4.4-12, first bullet under Impact CUL-1 is revised as follows:

- UC Hall (eligible for listing in the California Register), which includes the Zakheim murals (designated as a City Landmark) in Toland Hall;

TABLE 4.4-1
INVENTORY OF HISTORICAL RESOURCES ON UCSF PARNASSUS HEIGHTS CAMPUS SITE

Building Name	Year Built (Source)	Eligibility (Source)	2020 DPR Update/ Eligibility (Source)
Millberry Union Complex ~~(excluding garage)~~	1955 (Carey & Co., 2011)	NR[a] and CR[b] (Carey & Co., 2011)	NR and CR (ESA, 2020)
UC Hall	1917 (Carey & Co., 2003)	CR (Carey & Co., 2003)	
School of Dentistry/Dental Clinics	1979 (Carey & Co., 2011)	NR and CR with Criteria Consideration G (Carey & Co., 2011)	
Clinical Sciences	1933 (Page & Turnbull, 2005)	CR (Page & Turnbull, 2005)	
Saunders Court (cultural landscape)	1967 (Carey & Co., 2011)	Not age-eligible; ~~Presumed~~ may become eligible for NR and CR (Carey & Co., 2011)	NR and CR (ESA, 2020)
Mount Sutro Open Space Reserve (cultural landscape)	1886 (Knapp & VerPlanck, 2013)	CR (Knapp & VerPlanck, 2013)	
Health Sciences Instruction and Research (HSIR) West	1966 (Carey & Co., 2011), 1964 (UCSF, 2019)	Not age-eligible; ~~Presumed~~ may become eligible for NR and CR (Carey & Co., 2011)	NR and CR (ESA, 2020)
HSIR East	1966 (Carey & Co., 2011), 1964 (UCSF, 2019)	Not age-eligible; ~~Presumed~~ may become eligible for NR and CR (Carey & Co., 2011)	NR and CR (ESA, 2020)
Medical Sciences	1954 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)	
Langley Porter Psychiatric Institute (LPPI)	1943 (Graves, 2019a), 1941 (UCSF, 2019)	NR and CR (Graves, 2019a)	
Potential Third Avenue Historic District		NR and CR (Carey & Co., 2011)	
1320 Third Avenue	1911 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor	
1326 Third Avenue	1911 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor	
1332 Third Avenue	1911 (Carey & Co., 2011), 1915 (UCSF, 2019)	Contributor	
1338 Third Avenue	1910 (Carey & Co., 2011), 1913 (UCSF, 2019)	Contributor	
1344 Third Avenue	1910 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor	
1350 Third Avenue	1911 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor	
1356 Third Avenue	1911 (Carey & Co., 2011)	Contributor	
1362 Third Avenue	1909 (Carey & Co., 2011)	Contributor	
1422-24 Fifth Avenue	1922 (Carey & Co., 2011), 1915 (UCSF, 2019)	NR and CR (Carey & Co., 2011)	
1432-34 Fifth Avenue	1910 (Carey & Co., 2011), 1911 (UCSF, 2019)	NR and CR (Carey & Co., 2011)	
1468 Fifth Avenue	1948 (Carey & Co., 2011), 1920 (UCSF, 2019)	NR and CR (Carey & Co., 2011)	
Faculty Alumni House (745 Parnassus Avenue)	1915 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)	

TABLE 4.4-1 (CONTINUED)
INVENTORY OF HISTORICAL RESOURCES ON UCSF PARNASSUS HEIGHTS CAMPUS SITE

Building Name	Year Built (Source)	Eligibility (Source)	2020 DPR Update/ Eligibility (Source)
Surge	1966 (Carey & Co., 2011)	Not age-eligible; ~~Presumed~~ may become eligible for NR and CR (Carey & Co., 2011)	
University House (Chancellor's residence)	1966 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)	
Aldea San Miguel Housing Complex			
Aldea San Miguel 8 (105 Behr Avenue)	1960 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)	
Aldea San Miguel 12 (165 Johnstone Drive)	1960 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)	
Aldea San Miguel 10 (175 Johnstone Drive)	1960 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)	

NOTES:
[a] National Register of Historic Places
[b] California Register of Historical Resources

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, Impact CUL-1, page 4.4-15, last paragraph, and page 4.4-16, first paragraph are revised as follows:

> In July 2020, ~~P~~pursuant to Article 10 of the City Planning Code, the City of San Francisco ~~has~~ also initiated City Landmark designation procedures with the Board of Supervisors for the Zakheim murals. On November 25, 2020, the Mayor of San Francisco approved Ordinance 241-20 amending the Planning Code to designate the Zakheim murals as a City Landmark consistent with the standards set forth in Article 10 of the Planning Code. However, as UCSF is a constitutionally created state entity, it is not subject to local land use regulation whenever using land under its control in furtherance of its educational mission. While UCSF may consider the requirements of Article 10 of the City Planning Code when demolishing UC Hall and the Zakheim murals therein, it is not bound by the City's plans and policies. Similarly, if it is determined that GSA, on behalf of the United States, has retained federal ownership of the Zakheim murals, GSA also will not be bound by the City's plans and policies. The ~~potential~~ City Landmark designation ~~would~~ makes no practical difference for purposes of the foregoing CEQA analysis because UC Hall and the Zakheim murals therein are already considered to be historical resources for CEQA purposes.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, Impact CUL-1, page 4.4-16, third and fourth paragraphs, are revised as follows:

> Built in 1955, Millberry Union was determined individually eligible for inclusion in the National Register and California Register (Carey & Co., 2011).[2] This evaluation found that the building is historically significant under National Register/California Register criteria A/1 as the first and only location on campus where students and faculty could share in social, cultural, and recreational activities. A reconnaissance-level pedestrian

survey of this building by ESA in 2019 found that it is essentially unchanged since its original evaluation in 2011, and as such, its historic status would remain unchanged. ESA updated the evaluation in 2020 to clarify inclusion of the Millberry Union Garage, which is physically connected to the Millberry Union complex. Because the parking garage was constructed to serve students, faculty, and visitors, its function is linked to the historic significance of the Millberry Union complex, though in a supporting role. ESA concurred with the 2011 evaluation and identified the period of significance as 1956 – ca. 1960, which represents the beginning of construction of the Millberry Union complex and the approximate completion of the garage addition. Millberry Union is considered a historical resource for CEQA purposes.

The proposed Irving Street Arrival project is included below as a project-specific component in the EIR, and the analysis assumes that the Millberry Union would not be demolished in connection with Irving Street Arrival project and that alterations would be limited to the Millberry Union Garage portion of the Millberry Union complex. Under the Future Phase of the proposed CPHP, the Millberry Union's two towers would be partially or completely demolished and replaced with a new building that could contain clinical, instruction, research, and campus community spaces. Partial or complete demolition of the Millberry Union ~~this building~~ under the CPHP would be considered a significant impact.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, Impact CUL-1, page 4.4-17, third paragraph, first sentence is revised as follows:

LPPI (including three small support structures that are either not age-eligible or have been determined not eligible for listing in the National Register or California Register) would be demolished to allow for construction of the New Hospital.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, Impact CUL-1, page 4.4-18, second paragraph is revised as follows:

Saunders Court was evaluated in 2011, at which time it was 43 years old, and was found to be a significant cultural landscape that may become eligible for listing in the National Register and California Register when it reaches 50 years of age (i.e., in 2018). As the only space on campus that embodies both the original Affiliated Colleges campus and the postwar expansion of the university, it appeared to be eligible under criteria A/1, and as the work of master Robert Roysten, it appeared to be eligible under criteria C/3. ESA updated the evaluation in 2020, at which time Saunders Court is 53 years old. ESA concurred with the 2011 evaluation and identified the period of significance as 1967, the year that Saunders Court was designed and developed. ~~It is therefore presumed individually for listing in the National and California Registers as a historical resource.~~ Despite the central lawn having been fenced off for use as a construction staging area since 2016, all other elements that compose Saunders Court (i.e., its character-defining features) remain, including the paved walkways around the perimeter of the central lawn, the concrete steps, the columns from the old Medical Sciences Building, the cornerstone from one of the original Affiliated Colleges buildings, various sculptures, mature trees, the overall rectangular form of the courtyard, and circulation through it. Saunders Court therefore

retains sufficient integrity to convey its historical and architectural significance and is considered a historical resource for CEQA purposes.

Under the proposed CPHP, Saunders Court would be expanded and connected on its west side to the proposed Promenade, a new east-west pedestrian corridor. Because detailed plans are not yet available, proposed alterations are presumed to result in a significant impact to Saunders Court.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, Impact CUL-1, page 4.4-18, last paragraph, first sentence is revised as follows:

As discussed above, the proposed CPHP would result in the partial or total demolition of buildings that are individually eligible for listing in the National Register and/or California Register: UC Hall (including the Zakheim murals), Millberry Union, School of Dentistry, LPPI, and Aldea San Miguel Housing Buildings 8, 10, and 12.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, page 4.4-19, Mitigation Measure CUL-1b is revised as follows:

CPHP Mitigation Measure CUL-1b: Document Historical Resources Prior to Demolition or Alteration

Prior to any demolition work or significant alterations initiated at the known historical resources, UCSF shall ensure that a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards thoroughly documents each building and associated landscaping and setting. This includes the Zakheim Murals in UC Hall. Documentation shall include still photography and a written documentary record of the building to the National Park Service's standards of the Historic American Buildings Survey (HABS) or the Historic American Engineering Record (HAER), including accurate scaled mapping and architectural descriptions. If available, scaled architectural plans will also be included. Photos include large-format (4"x5") black-and-white negatives and 8"x10" enlargements. Digital photography may be substituted for large-format negative photography if archived locally. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research and oral history collection as appropriate. Copies of the records shall be submitted to the Northwest Information Center at Sonoma State University and the UCSF Kalmanovitz Library Archives and Special Collections.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, page 4.4-20, new Mitigation Measure CUL-1e is inserted following Mitigation Measure CUL-1d:

CPHP Mitigation Measure CUL-1e: Display of Zakheim Murals

Provided that the Zakheim murals are successfully removed from Toland Hall and stored, UCSF will convene a Task Force by the end of 2021 to advise on options for the display of the murals in a publicly accessible setting, either on a UCSF campus or at a museum or other institution. The Task Force will include the Chair of the City's Historic Preservation Commission, or their designee.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, page 4.4-20, last paragraph, and page 4.4-21, first paragraph are revised as follows:

Irving Street Arrival

The proposed Irving Street Arrival project would modify a portion of Medical Building 1 that functions as a pedestrian entrance extending from Irving Street to Parnassus Avenue. This would entail the modification or demolition of a portion of the Medical Building 1. In addition, the Irving Street Arrival project would replace the façades or reskin two Millberry Union and Medical Building 1 parking garages. ~~None of the affected buildings~~ Medical Building 1 does not qualify as a historical resource~~s~~. The Millberry Union Garage is a component of the Millberry Union complex, which does qualify as a historical resource. The Irving Street Arrival project would make façade changes to the Millberry Union Garage; however, it would still function as a parking garage and access point to the Millberry Union and the campus beyond. The character defining features of the Millberry Union complex are:

- Complex composed of the one-story student union ("Millberry Union building"), five-story women's residence hall, five-story men's residence hall, and eight-story parking garage
- Flat roofs on the two residence halls
- Vertical orientation of the two residence halls
- Use of modern materials
- Large expanses of glass in aluminum-frame windows
- Primary historical function of providing housing, dining, and recreational facilities for students

The Millberry Union complex was determined significant under National Register/ California Register criteria A/1 (events). The character-defining features primarily relate to the Parnassus Avenue side of the complex as well as the presence of the functional components of the resource. The existence of an eight-story parking garage and the use of modern materials are the character-defining features that apply to the Millberry Union Garage portion of the resource. Also, the Parnassus Avenue façade is considered the primary façade and the Millberry Union Garage, fronting Irving Street, constitutes the rear façade. Replacing or reskinning the rear façade of the parking garage portion of the Millberry Union complex would not change the function of the garage or alter the primary façade, the Millberry Union Building portion on Parnassus Avenue leaving the majority of the character-defining features in-tact. As such, the Millberry Union complex would remain an eligible resource after the completion of the Irving Street Arrival project.

For this reason, while ~~T~~the Irving Street Arrival project would ~~have no~~ physically alter a portion of the Millberry Union complex, it would result in a less-than-significant impact on known historical resources.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, page 4.4-21, fourth and fifth paragraphs addressing mitigation and significance after mitigation for Research and Academic Building, are revised as follows:

> **Mitigation:** Implement CPHP Mitigation Measures CUL-1a through ~~-1d~~1e.
>
> **Significance after Mitigation:** Because demolition of UC Hall under the CPHP would result in a substantial adverse change in the significance of a historical resource, no measures would fully mitigate these actions to a less-than-significant level. Therefore, even with implementation of CPHP Mitigation Measures CUL-1a, CUL-1b, CUL-1c, ~~and~~ CUL-1d, and CUL-1e, the impact would be significant and unavoidable.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, page 4.4-22, first paragraph and bullets under Impact CUL-2 is revised as follows:

> ***CPHP***
>
> The following buildings would be altered or demolished under the proposed CPHP. These buildings either already meet or will meet the 45-year age criterion by the full build-out of the CPHP in 2050. They have not been previously evaluated and may become eligible for listing in the National and/or California Registers:
>
> - ~~Millberry Union Garage;~~
> - 75 Behr Avenue;
> - 80 Behr Avenue;
> - 85 Behr Avenue;
> - 90 Behr Avenue;
> - 95 Behr Avenue;
> - 45 Johnstone Drive;
> - 50 Johnstone Drive;
> - 20 Adolph Sutro Court; and
> - 30 Adolph Sutro Court.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, page 4.4-24, fifth paragraph, last two sentences in Mitigation CUL-3, are revised in response to Comment A-SFP-14, as follows:

> Treatment for most resources could consist of (but shall not be limited to) sample excavation, site documentation, and historical research, as appropriate to the discovered ~~prehistoric~~ resource. The treatment plan shall include provisions for analysis of data in a regional context as appropriate to the discovered ~~prehistoric~~ resource, reporting of results within a timely manner, and dissemination of reports to local and state repositories, libraries, and interested professionals.

Draft EIR, Section 4.4, Cultural Resources and Tribal Cultural Resources, page 4.4-30, third paragraph, is revised as follows:

> **Mitigation:** Implement CPHP Mitigation Measures CUL-1a through ~~-1d~~1e.

Draft EIR Section 4.6, Geology and Soils

Draft EIR, Section 4.6, Geology and Soils, page 4.6-21, CPHP Mitigation Measure GEO-3 is modified as a staff-initiated change:

> **CPHP Mitigation Measure GEO-3:** UCSF shall implement the following geotechnical recommendations as adapted from those contained within the Rutherford & Chekene March 2019 report:
>
> - Remove selected trees located on or at the crest of steep rock slopes on which tree root wedging decreases stability. Determination of specific trees to be removed shall be made in association with a certified arborist and state licensed geotechnical engineer or engineering geologist. Removal will involve cutting trees and leaving stumps such that the root system can rot in situ with minimal disturbance to the surface geology.
>
> - Conduct qualitative monitoring of identified slopes by a state licensed geotechnical engineer or engineering geologist or as directed by said professional. Monitoring shall occur, at a minimum, after each ~~moderate to~~ major storm or earthquake, as defined by the geotechnical professional. The geotechnical professional shall submit a report of findings to UCSF that includes recommendations for additional slope stability improvements, if deemed necessary, to maintain continued safety in accordance with geotechnical standards and building code requirements.

Draft EIR Section 4.7, Greenhouse Gas Emissions

Draft EIR, Section 4.7, Greenhouse Gas Emissions, page 4.7-5, the following text is added at the end of the third paragraph as a staff-initiated change:

> Additionally, consistency of the CPHP with the Final 2017 Clean Air Plan of the BAAQMD is addressed in Table 4.2-20 of Draft EIR Section 4.2, Air Quality (pages 4.2-66 and 4.2-67).

Draft EIR Section 4.8, Hazards and Hazardous Materials

Draft EIR, Section 4.8, Hazards and Hazardous Materials, page 4.8-2, the fourth paragraph, first sentence is revised in response to Comment I-Kessler-19 to acknowledge off-campus residences along the east side of the campus site as sensitive receptors:

> Off-campus receptors (residences) abut the western, northern, eastern and southern campus site boundaries.

Draft EIR Section 4.9, Hydrology and Water Quality

Draft EIR, Section 4.9, Hydrology and Water Quality, Impact HYD-1 on page 4.9-10, third paragraph is modified as a staff-initiated change as follows:

> **Impact HYD-1: Construction and operation of campus development under the CPHP would ~~not~~ have the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality. (Less than Significant with Mitigation)**

Draft EIR, Section 4.9, Hydrology and Water Quality, Impact HYD-1 on page 4.9-12, third and fourth paragraphs are modified as a staff-initiated change as follows:

~~Therefore,~~ ~~d~~Due to the characteristics of the proposed changes and inclusion of post-development BMPs and NPDES drainage control requirements, the operational impacts of the CPHP related to water quality and waste discharge requirements would be reduced, and well within the dry weather capacity of the City's treatment plants. However, increases in stormwater volumes and wastewater volumes under the CPHP could increase the volume or frequency of overflow events at one or both of the City's plants in wet weather, and result in an impact on water quality. To address this potential impact, UCSF would implement CPHP Mitigation Measure HYD-1 below. ~~less than significant.~~

~~**Mitigation:** Non required.~~

CPHP Mitigation Measure HYD-1: During implementation of the CPHP, UCSF shall continue to implement water conservation measures and construct and implement stormwater management controls as needed so as to:

a. Avoid increasing the likelihood of surcharges by exceeding the capacity of the City's CSS;
b. Avoid increasing the extent or duration of ponding or overland flow by exceeding the capacity of the City's CSS; and

c. Avoid discharges to the City's CSS that could increase the frequency, duration, or volume of combined sewer discharges to the receiving waters.

To meet the first two (hydraulic) performance standards, UCSF shall design all new on-campus buildings and site improvements to be consistent with requirements of the City's Stormwater Management Ordinance (Article 4.2 of the San Francisco Public Works Code), ensuring that the stormwater runoff rate and volume from the project shall not exceed pre-development conditions for the 1- and 2-year, 24-hour design storm (the standard for sites that are less than 50 percent impervious). In addition, when connections to the City's CSS are being designed, UCSF shall analyze the capacity of the adjoining sewer system to ensure that the system can accommodate UCSF's increased flows and/or modified connection points. UCSF may choose to conduct this modeling analysis on its own and submit the analysis to the SFPUC for review, or request that the SFPUC conduct the analysis on UCSF's behalf, subject to reimbursement of the SFPUC's costs by UCSF. If the analysis determines that increased flows may exceed the conveyance capacity of the adjoining downstream sewers, UCSF shall pay its proportional share of the costs of expanding the sewer system to accommodate the increased flows from the Parnassus Heights campus site.

To meet the third (hydrologic) performance standard, UCSF shall ensure that the total volume of stormwater discharges from the Parnassus Heights campus site in wet weather is decreased by an amount sufficient to offset flows from any increase in impervious surfaces and any increases in wastewater discharges as a result of the CPHP. Necessary reductions may be achieved via LID, on-site detention and re-use, on-site detention for discharge, and/or other strategies in conformance with the City's Stormwater Management Ordinance, and may be

less than the total wet weather discharges from Parnassus Heights campus site if modeling demonstrates there is sufficient storage, pumping, and treatment capacity in the City's CSS to avoid increased discharges to the receiving waters from the CSS discharge structures.

UCSF shall use the SFPUC's model to establish a baseline prior to implementation of the CPHP and to demonstrate that future incremental increases in stormwater and/or wastewater from the campus site under the CPHP would not cause or contribute to any increase in overflow volumes from the City's CSS discharge structures, as determined through modeling at every major phase of the CPHP (starting with the Initial Phase) or every five years, whichever is more frequent, through CPHP buildout. UCSF may choose to conduct this modeling analysis on its own and submit the analysis to the SFPUC for review, or request that the SFPUC conduct the analysis on UCSF's behalf, subject to reimbursement of the SFPUC's costs by UCSF. In the event of non-compliance, UCSF shall immediately take steps to remedy the deficiency and provide reports to the SFPUC in conjunction with each construction project undertaken to implement the CPHP until the performance standard is met.

Any improvements constructed outside the campus site boundary or in public right of way in the City's jurisdiction shall be subject to construction site runoff requirements and post-construction stormwater controls in accordance with the City Public Works Code and in compliance with the City's Stormwater Management Ordinance, and shall be included in UCSFs calculation of the total volume of increased flows to be offset and its modeling of incremental increases in flows into the City's CSS.

Significance after Mitigation: Less than Significant.

Draft EIR, Section 4.9, Hydrology and Water Quality, Impact HYD-1 on page 4.9-12, last two paragraphs are modified as a staff-initiated change as follows:

Development associated with the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvements would be subject to the same or similar regulatory requirements as those described above during construction and operation. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to construction site runoff requirements and post-construction stormwater controls in accordance with the City Public Works Code and in compliance with the City's Stormwater Management Ordinance. As such, the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality would be less than significant with implementation of CPHP Mitigation Measure HYD-1.

Mitigation: ~~None required.~~ Implement CPHP Mitigation Measure HYD-1.

Significance after Mitigation: Less than Significant.

Draft EIR, Section 4.9, Hydrology and Water Quality, Impact HYD-2 on page 4.9-13, first paragraph, is modified as a staff-initiated change as follows:

> **Impact HYD-2: Construction and operation of the campus development under the CPHP would not substantially alter the existing drainage patterns of the site or area, in a manner that has the potential to result in substantial erosion or siltation on- or off- site; would potentially substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; would potentially create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow. (Less than Significant with Mitigation)**

Draft EIR, Section 4.9, Hydrology and Water Quality, 4.9-14, first through third paragraphs, modify the discussion of Impact HYD-2 as a staff-initiated change as follows:

> Flooding and Stormwater Drainage Capacity
>
> As indicated above, the additional development under the CPHP could incrementally increase the amount of impervious surfaces over existing conditions, primarily in the campus core, and could result in localized alteration of existing drainage patterns within the campus site. ~~However,~~ tThe implementation of the LID requirements would minimize any increase in the rate or amount of peak storm runoff making flooding on- or off-site unlikely. As discussed in the Environmental Setting, the campus site is not considered susceptible to flooding from 100-year storm events. As under existing conditions, under buildout of the CPHP, stormwater runoff within developed areas of the campus site would continue to be collected by on-site stormwater collection facilities and routed off-site to the City's CSS. Due to the relatively small change in impervious surfaces and the flow reductions that would be achieved with the implementation of LID stormwater features, storm water flows from the campus site are not expected to ~~would not~~ adversely affect stormwater drainage capacity and ~~. In fact,~~ the CPHP would implement ~~includes~~ upgrades to the existing CSS within the campus core as discussed further in Section 4.16, Utilities. ~~Therefore,~~ ~~c~~Considering the minor change in impervious surfaces, incorporation of LID stormwater features, ~~and~~ proposed improvements to the existing CSS that would occur with the program, and implementation of CPHP Mitigation Measure HYD-1, the potential impacts related to flooding on- or off-site, stormwater drainage capacity, or additional sources of polluted runoff would be less than significant.
>
> Impede or Redirect Flow
>
> As noted above, the campus site is not located in a 100-year flood hazard area nor is it identified by SFPUC as an area subject to flooding from 100-year peak storm events. The campus core and Aldea Housing area are already developed with stormwater collection facilities, and proposed new development in these areas under the CPHP would not impede or redirect flood flows. UCSF would evaluate the capacity of the CSS collection system at connection points as required by CPHP Mitigation Measure HYD-1 and t~~T~~he potential impact would be less than significant.

Mitigation: ~~None required.~~ Implement CPHP Mitigation Measure HYD-1.

Significance after Mitigation: Less than Significant.

Draft EIR, Section 4.9, Hydrology and Water Quality, 4.9-15, second and third paragraphs, modify the discussion of Impact HYD-2 as a staff-initiated change as follows:

Flooding and Stormwater Drainage Capacity

The proposed Irving Street Arrival project would have no associated increase in stormwater runoff because of no net change to impervious surfaces. As a result, there would be no impact related to flooding or stormwater drainage capacity. As indicated above, the RAB and initial Aldea Housing Densification projects, and as needed, Initial Phase improvements, would be required to implement stormwater drainage control features consistent with the NPDES Phase II MS4 permit, and in combination with implementation of CPHP Mitigation Measure HYD-1 ~~which~~ would ensure that changes to drainage patterns, if any, do not increase stormwater flow volumes such that there would be ~~no~~ increased potential for flooding or adverse effects related to stormwater drainage capacity. Furthermore, as applicable, any Initial Phase improvements that would be constructed outside the campus site boundary would be subject to stormwater management and design guidelines in accordance with the City Public Works Code as indicated in CPHP Mitigation Measure HYD-1. The potential impact related to stormwater drainage capacity would be less than significant with mitigation.

Impede or Redirect Flow

The campus site and surrounding areas are not located in a 100-year flood hazard area or identified by SFPUC as an area subject to flooding from 100-year peak storm events. The campus core and Aldea Housing complex are already developed and would not impede or redirect flood flows. UCSF would evaluate the capacity of the CSS collection system at connection points as required by CPHP Mitigation Measure HYD-1 and ~~T~~the potential impact on flood flows from implementation of the Irving Street Arrival, RAB, and initial Aldea Housing Densification projects, and Initial Phase improvement would be less than significant.

Mitigation: ~~None required.~~ Implement CPHP Mitigation Measure HYD-1.

Significance after Mitigation: Less than Significant.

Draft EIR, Section 4.9, Hydrology and Water Quality, Impact C-HYD-1 on page 4.9-16, second paragraph, is modified as a staff-initiated change as follows:

Impact C-HYD-1: Construction and operation of campus development under the CPHP, in conjunction with other cumulative development within the City of San Francisco, would have the potential to ~~not~~ cumulatively violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality. (Less than Significant with Mitigation)

Draft EIR, Section 4.9, Hydrology and Water Quality, 4.9-16, third and fourth paragraphs, modify and expand the discussion of Impact C-HYD-1 as a staff-initiated change as follows:

> Cumulative projects have the potential to discharge pollutants, including sediment, off-site during construction and operational activities, which could further degrade runoff directed into the CSS. In addition, cumulative development that would increase flows to the City's CSS without increasing capacity to address the frequency or volume of wet weather overflows could result in water quality impacts. ~~However,~~ ~~s~~Similar to the CPHP, cumulative projects would be required to implement project-specific BMPs and comply with federal, State, as well as local regulations related to stormwater water quality. These regulations include, but are not limited to, the NPDES CGP and also the City's Stormwater Management Ordinance. All cumulative projects that disturb more than one acre would include preparation and implementation of a SWPPP to reduce pollutants in stormwater and other non-point source runoff during construction. Projects that create or replace 5,000 square feet or more of impervious surfaces and have existing impervious surfaces greater than 50 percent must decrease the stormwater runoff rate and volume by 25 percent from 2-year 24-hour design storm. These regulatory requirements also include LID design measures which must be implemented into project designs and are created to minimize off-site discharges and reduce pollutant loading. ~~Therefore,~~ ~~w~~With adherence to these existing regulatory requirements and implementation of CPHP Mitigation Measure HYD-1, the CPHP's contribution to the potential cumulative impact related to water quality standards or waste discharge requirements would not be considerable ~~be less than significant~~.
>
> **Mitigation:** ~~None required.~~ Implement CPHP Mitigation Measure HYD-1.
>
> **Significance after Mitigation:** Less than Significant.

Draft EIR, Section 4.9, Hydrology and Water Quality, Impact C-HYD-2 on page 4.9-16, second to last paragraph, is modified as a staff-initiated change as follows:

> **Impact C-HYD-2: Construction and operation of campus development under the CPHP, in conjunction with other cumulative development in the City of San Francisco's CSS, would not have the potential to cumulatively alter the drainage pattern of the site or area, through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site; would have the potential to substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow. (Less than Significant with Mitigation)**

Draft EIR, Section 4.9, Hydrology and Water Quality, 4.9-17, second through fifth paragraphs, modify Impact C-HYD-2 as a staff-initiated change as follows:

> ***Flooding and Stormwater Drainage Capacity***
>
> As stated above, cumulative projects would involve redevelopment and development within what is already a densely developed area with a relatively high percentage of

impervious surfaces. However, these cumulative projects could result in increases in impervious surfaces providing additional stormwater runoff that could create or exacerbate flooding and/or exceed the capacity of existing stormwater infrastructure.

As previously discussed, cumulative projects would be required to comply with applicable stormwater runoff regulations, including the City's Stormwater Management Ordinance. The ordinance includes drainage control requirements that address management of peak stormwater flows and even reducing stormwater flows from existing conditions, in many cases, such that there could be potential reductions in stormwater volumes compared to existing conditions. In addition, like the CPHP, other redevelopment projects could include updates to outdated or undersized stormwater infrastructure that no longer meets current demands or City requirements. Older infrastructure would be replaced with newer infrastructure that could provide increased capacity to accommodate higher volume flows during peak storm events.

~~Therefore,~~ ~~s~~Since the CPHP would include upgrades to existing infrastructure, address any increases in impervious surfaces with implementation of LID stormwater features similar to what would be required for other current and future cumulative projects, and implement CPHP Mitigation Measure HYD-1, the potential for flooding or exceedances of stormwater infrastructure capacity would be less than significant.

Impede or Redirect Flow

As noted above, the campus site is located in an upland portion of the City that is not within a 100-year flood hazard area, and is not identified by SFPUC as an area subject to flooding from 100-year peak storm events. As a result, there is no means for the proposed improvements associated with the CPHP to combine with other cumulative projects and create adverse effects related to impeding or redirecting flood flows. Accordingly, the project would not result in a ~~have an inc~~considerable considerable contribution to cumulative effects on impedance or redirection of flood flows. ~~There would be no cumulative impact.~~

Mitigation: ~~None required~~. Implement CPHP Mitigation Measure HYD-1.

Significance after Mitigation: Less than Significant.

Draft EIR Section 4.11, Noise and Vibration

Draft EIR, Section 4.11, Noise and Vibration, page 4.11-31, the Mitigation Measure NOI-3b is modified as follows:

CPHP Mitigation Measure NOI-3b: Assessment and Relocation/Retrofitting of Vibration-Sensitive Equipment

UCSF shall evaluate the presence of vibration-sensitive equipment within 150 feet of construction and demolition areas. Any sensitive equipment shall be evaluated for the existing extent of vibration isolation and relocated or further embellish isolation, as

warranted. Alternatively, use of such equipment may be suspended during the substantial vibration-generating activities within 150 feet.

Draft EIR Section 4.12, Population and Housing

Draft EIR, Section 4.12, Population and Housing, page 4.12-8, first paragraph, third sentence is revised in response to Comment A-SFP-27, as follows:

> Some of the ~~E~~employment growth at the Parnassus Heights campus site was included in the 2014 LRDP and is potentially accounted for in the employment projections for San Francisco included in the *Plan Bay Area 2040.*

Draft EIR Section 4.16, Utilities and Service Systems

Draft EIR, Section 4.16, Utilities and Service Systems, 4.16-22, third and fourth paragraphs, modify and expand the discussion of Impact UTIL-3 for the CPHP as a staff-initiated change as follows:

> Assuming wastewater generation as 90 percent of water usage, the overall increase in wastewater resulting from the 2.0 million gsf net increase of building space associated with the proposed CPHP would be roughly 0.18 mgd. UCSF would consult with the SFPUC to determine where connections to the City's CSS would be made, and whether new ~~W~~wastewater flows from the Parnassus Heights campus site would be directed to the OSP and/or the SEP. The OSP has a dry weather capacity of 43 mgd and is currently treating approximately 17 mgd. The SEP has an average dry weather design flow capacity of 85.4 mgd and is currently treating approximately 60 mgd. Therefore, based on current sewage flows, the City's treatment plants ~~has~~ have ~~about 26 mgd of~~ excess dry weather treatment capacity, which is adequate to accommodate the increase in wastewater flow generated by the net new development envisioned under the proposed CPHP. As a result, the proposed CPHP would not result in a determination by the SFPUC that it has inadequate capacity to serve the projected demand, and the impact would be less than significant. (See Section 4.9, Hydrology and Water Quality for a discussion of wet weather treatment capacity and overflows.)
>
> **Mitigation:** None required.

Draft EIR Section 5.4, Growth-Inducing Effects

Draft EIR, Chapter 5, CEQA Statutory Sections, Section 5.2, Table 5-1, Significant and Unavoidable Impacts of the Proposed CPHP, page 5-2, Impact C-AIR-1 is revised as a staff-initiated change, as follows:

> **Impact C-AIR-1**: Implementation of the CPHP combined with cumulative development in the project area would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Draft EIR Section 5.4, Growth-inducing Effects, page 5-5, first paragraph, first sentence, inadvertently made a reference to "CEQA Guidelines Section 15126.2(d)" instead of "CEQA Guidelines Section 15126.2(e)," and is corrected as a staff-initiated change, as follows:

> As required under CEQA, an EIR must include a discussion of the ways in which the proposed CPHP could directly or indirectly foster economic or population growth, or the construction of additional housing and how that growth would, in turn, affect the surrounding environment (CEQA Guidelines Section 15126.2(e~~d~~)).

Draft EIR Chapter 6, Alternatives

Draft EIR, Chapter 6, Alternatives, Section 6.2, Table 6-1, Significant and Unavoidable Impacts of the Proposed CPHP, page 6-5, Impact C-AIR-1 is revised as a staff-initiated change, as follows:

> **Impact C-AIR-1**: Implementation of the CPHP combined with cumulative development in the project area would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Draft EIR Chapter 6, Alternatives, Section 6.3.1, page 6-11, second paragraph, is modified as a staff-initiated change, as follows:

> ### *Hydrology and Water Quality*
>
> No new construction or ground disturbing activities associated with the proposed CPHP would occur at the Parnassus Heights campus site under this alternative. In addition, this alternative would not result in an increase in impervious surfaces, or operational changes in the amount or quality of stormwater runoff at the campus site. Accordingly, this alternative would avoid the ~~less than~~ significant but mitigable project and cumulative CPHP impacts related to the potential to violate water quality discharges requirements; ~~degrade surface or groundwater quality; result in erosion and siltation~~; affect flooding; exceed the capacity of stormwater drainage systems; provide additional sources of polluted runoff; or impede or redirect storm flows; and would avoid the less than significant project and cumulative CPHP impacts related to the potential to degrade surface or groundwater quality; and result in erosion and siltation.

Draft EIR Chapter 6, Alternatives, Section 6.3.2, page 6-18, third paragraph, is modified as a staff-initiated change, as follows:

> ### *Hydrology and Water Quality*
>
> This alternative would result in substantially less new construction or ground disturbing activities, and a smaller increase in new impervious surfaces at the campus site, compared to the CPHP. Accordingly, this alternative would further reduce the CPHP's ~~less than~~ significant but mitigable project and/or cumulative impacts related to the potential to violate water quality discharges requirements; ~~degradation of surface or groundwater quality; erosion and siltation;~~ effect on flooding; effect on the capacity of

stormwater drainage systems; additional sources of polluted runoff; or impedance or redirection of storm flows; and would avoid the less than significant project and cumulative CPHP impacts related to the potential to degrade surface or groundwater quality; and result in erosion and siltation.

Draft EIR Chapter 6, Alternatives, Section 6.3.3, page 6-29, second paragraph, is modified as a staff-initiated change, as follows:

Hydrology and Water Quality

This alternative would result in less new construction and groundbreaking activities compared to the CPHP; and an incrementally smaller increase in new impervious surfaces at the campus site, compared to the CPHP, and thus, generate incrementally less runoff. Project and/or cumulative impacts related to the potential to violate water quality discharges requirements; degradation of surface or groundwater quality; erosion and siltation; effect on flooding; effect on the capacity of stormwater drainage systems; additional sources of polluted runoff; or impedance or redirection of storm flows, would be reduced compared to the proposed project and similarly less than significant, with compliance with the construction BMPs required by the NPDES Construction General Permit and operational design measures and LID stormwater requirements controls of the Phase II MS4 permit, and mitigation similar to that identified for the proposed CPHP in Mitigation Measure HYD-1.

Draft EIR Chapter 6, Alternatives, Section 6.3.4, page 6-42, first paragraph, is modified as a staff-initiated change, as follows:

Hydrology and Water Quality

This alternative would result in similar new construction and groundbreaking activities as the CPHP, with an exception being potentially less intrusion into and excavation of the hillside east of the New Hospital. Also, with a smaller New Hospital building footprint, there would be an incrementally smaller increase in new impervious surfaces at the campus site under this alternative when compared to the CPHP. Nonetheless, similar to the proposed CPHP, compliance with the construction BMPs required by the NPDES Construction General Permit and operational design measures and LID stormwater requirements controls of the Phase II MS4 permit would ensure that project and/or cumulative impacts would be less than significant, including impacts related to the potential to violate water quality discharges requirements; degradation surface or groundwater quality; erosion and siltation; effect on flooding; effect on the capacity of stormwater drainage systems; additional sources of polluted runoff; or impedance or redirection of storm flows, and mitigation similar to that identified for the proposed CPHP in Mitigation Measure HYD-1.

Draft EIR, Chapter 6, Alternatives, Section 6.5, Table 6-3, Comparison of Impacts of the Proposed CPHP and Alternatives, page 6-59, Impact C-AIR-1 is revised as a staff-initiated change, as follows:

> **Impact C-AIR-1**: Implementation of the CPHP <u>combined with cumulative development in the project area</u> would result in a cumulatively considerable net increase of a criteria pollutant ~~(PM_{10})~~ for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Draft EIR Chapter 6, Alternatives, Section 6.5, last two rows of Table 6-3 on page 6-63, and first two rows of Table 6-3 are modified as a staff-initiated change, as shown on the following page (Table 6-3 title and column headings are included for context).

Draft EIR Chapter 6, Alternatives, Section 6.6.1, page 6-69, fourth paragraph is modified as a staff-initiated change, as follows:

> The No Project - No Development Alternative would also avoid ~~24~~ <u>28</u> other significant but mitigable impacts that would occur under the CPHP, including impacts related to operational lighting, generation of construction emissions; exposure to construction- and operational-related toxic air contaminant emissions, conflict with the 2017 Clean Air Plan, potential impacts to special-status species during construction; potential for increased bird strikes from new building development; potential to disturb unknown archaeological and tribal resources, human remains and/or paleontological resources during construction excavation; landslides; generation of GHG emissions; <u>potential to violate water quality standards or waste discharge requirements and exceed stormwater drainage systems from increases in stormwater and/or wastewater volumes,</u> potentially encountering naturally occurring asbestos or contaminated soils during construction excavation; construction vibration effects; and construction traffic effects.

Draft EIR Chapter 6, Alternatives, Section 6.6.2, page 6-70, last paragraph and page 6-71, first paragraph, are modified as a staff-initiated change, as follows:

> The Reduced Project Alternative would also serve to incrementally reduce the severity of ~~24~~ <u>28</u> other significant but mitigable impacts that would occur under the CPHP, including impacts related to operational lighting, generation of construction emissions; exposure to construction- and operational-related toxic air contaminant emissions, conflict with the 2017 Clean Air Plan, potential impacts to special-status species during construction; potential for increased bird strikes from new building development; potential to disturb unknown archaeological and/or tribal resources, human remains and paleontological resources during construction excavation; landslides; generation of GHG emissions; <u>potential to violate water quality standards or waste discharge requirements and exceed stormwater drainage systems from increases in stormwater and/or wastewater volumes,</u> potentially encountering naturally occurring asbestos or contaminated soils during construction excavation; construction vibration effects; and construction traffic effects.

TABLE 6-3
COMPARISON OF IMPACTS OF THE PROPOSED CPHP AND ALTERNATIVES

Impact	Proposed CPHP	No Project Alternative		Alternative 2: Reduced Project	Alternative 3: CPHP including New Hospital - 19-Story Option	Alternative 4: CPHP including New Hospital - Phased Option
		Alternative 1A: No Project - No Development	Alternative 1B: No Project - Development under 2014 LRDP			
4.9 Hydrology and Water Quality						
Impact HYD-1: Construction and operation of campus development under the CPHP would ~~not~~ have the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.	LTS<u>M</u>	- LTS	-LTS	- LTS<u>M</u>	-/= LTS<u>M</u>	-/+ LTS<u>M</u>
Impact HYD-2: Construction and operation of the campus development under the CPHP would not substantially alter the existing drainage patterns of the site or area, in a manner that has the potential to result in substantial erosion or siltation on- or off-site; <u>would potentially</u> substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; <u>would potentially</u> create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow.	LTS<u>M</u>	- LTS	- LTS	- LTS<u>M</u>	-/= LTS<u>M</u>	-/+ LTS<u>M</u>
Impact C-HYD-1: Construction and operation of campus development under the CPHP, in conjunction with other cumulative development within the City of San Francisco, <u>would have the potential to</u> ~~not~~ cumulatively violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.	LTS<u>M</u>	- LTS	- LTS	- LTS<u>M</u>	-/= LTS<u>M</u>	-/+ LTS<u>M</u>
Impact C-HYD-2: Construction and operation of campus development under the CPHP, in conjunction with other cumulative development in the City of San Francisco's CSS, would not have the potential to cumulatively alter the drainage pattern of the site or area, through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site; <u>would have the potential to</u> substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow.	LTS<u>M</u>	- LTS	- LTS	- LTS<u>M</u>	-/= LTS<u>M</u>	-/+ LTS<u>M</u>

Draft EIR Chapter 7, Report Preparation

Draft EIR Chapter 7, Report Preparation Section 7.1.4, page 7-3, the following consultant is added as a staff-initiated change, as follows:

Hydrology/Hydraulics Assistance

Hydroconsult Engineers, Inc.

Beth Goldstein, PE, LEED AP, QSP/QSD

Draft EIR Appendix A

Draft EIR, Appendix A, Initial Study and Notice of Preparation, Section 2.5, page 12, fourth paragraph, first sentence is revised as a staff-initiated change to refer to the proposed LRDP Amendment as Amendment No 7, instead of Amendment No. 6, as follows:

> Proposed LRDP Amendment No. 7~~6~~ would revise those portions of the 2014 LRDP pertaining to Parnassus Heights to incorporate concepts and proposals identified in the CPHP.

Draft EIR, Appendix A, Initial Study and Notice of Preparation, Section 2.5, page 13, last paragraph, last sentence is revised as a staff-initiated change to refer to the proposed LRDP Amendment as Amendment No 7, instead of Amendment No. 6, as follows:

> Proposed LRDP Amendment No. 7~~6~~ includes an update to the GHGRS which incorporates emissions generated by CPHP construction and operations.

Draft EIR Appendix AIR

Draft EIR Appendix AIR, CalEEmod Outputs Existing Operation (Draft EIR page 1,282), as shown on the following page, the title header is revised from "Existing Emissions Aldea Housing Initial Phase Demolition" to "Existing Emissions UC Hall ~~Aldea Housing Initial Phase~~ Demolition."

Draft EIR Appendix CUL

Draft EIR, Appendix CUL, Cultural Resources Table CUL-1 modified as follows to clarify the scope and findings of earlier reports and to note updates concerning four resources, confirming earlier findings.

Existing Emissions Aldea Housing Initial Phase Demolition - San Francisco County, Annual

Existing Emissions UC Hall ~~Aldea Housing Initial Phase~~ Demolition

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	145.00	1000sqft	3.33	145,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	4.6	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2000
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	605.78	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - UCSF Specific emission rate assuming purchased

Land Use -

Construction Phase -

Off-road Equipment - Operational Run Only

Trips and VMT - Operational run only

Vehicle Trips - Operational Energy Run Only for Building to be demolished. Traffic emissions calculated separately as net new for RAB

Consumer Products -

Area Coating -

Landscape Equipment -

TABLE CUL-1
INVENTORY OF EXTANT BUILDINGS AND CULTURAL LANDSCAPES ON UCSF PARNASSUS HEIGHTS CAMPUS

Building Name	Year Built (Source)	Eligibility (Source)	2020 DPR Update/ Eligibility (Source)	Proposed Action Under 2014 LRDP	Proposed Action Under CPHP
Kalmanovitz Library	1991 (aerial photos)	Not evaluated			
Millberry Union Complex	1955 (Carey & Co., 2011)	NR[a] and CR[b] (Carey & Co., 2011)	NR and CR (ESA, 2020)	Renovation	Demolition (either whole or partial)
~~Millberry Union Garage~~	~~1955 (aerial photos)~~	~~Not evaluated~~		~~Demolition~~	
Medical Building 1 (Ambulatory Care Center or ACC)	1972 (Carey & Co., 2011)	Not age-eligible (Carey & Co., 2011)			Addition
Lucia Child Care Center	1978 (Carey & Co., 2011)	Not age-eligible (Carey & Co., 2011)			Demolition
UC Hall	1917 (Carey & Co., 2003)	CR (Carey & Co., 2003)		Seismic retrofit and renovation	Demolition
School of Dentistry/Dental Clinics	1979 (Carey & Co., 2011)	NR and CR with Criteria Consideration G (Carey & Co., 2011)			Demolition
Koret Vision Research	1986 (Carey & Co., 2011)	Not evaluated (Carey & Co. 2011)		Demolition	Demolition
Kirkham Child Care Center	2009 (Carey & Co., 2011)	Not evaluated (Carey & Co., 2011)			Demolition
Proctor	1956 (Carey & Co., 2003 and 2011)	Not eligible (Carey & Co., 2003)		Demolition	Demolition
Clinical Sciences	1933 (Page & Turnbull, 2005)	CR (Page & Turnbull, 2005)			
School of Nursing	1979 (Carey & Co., 2011), 1972 (UCSF, 2019)	Not eligible (Carey & Co., 2011)			Demolition
Dolby Regeneration Medicine	2010 (aerial photos)	Not evaluated			
Saunders Court (cultural landscape)	1967 (Carey & Co. 2011)	Not age-eligible; ~~Presumed~~ may become eligible for NR and CR (Carey & Co. 2011)	NR and CR (ESA, 2020)	Renovation	Alteration/ expansion
Mount Sutro Open Space Reserve (cultural landscape)	1886 (Knapp & VerPlanck, 2013)	CR (Knapp & VerPlanck, 2013)		Continued management	Modification of boundary
Health Sciences Instruction and Research (HSIR) West	1966 (Carey & Co. 2011), 1964 (UCSF, 2019)	Not age-eligible; ~~Presumed~~ may become eligible for NR and CR (Carey & Co. 2011)	NR and CR (ESA, 2020)		Renovation
HSIR East	1966 (Carey & Co. 2011), 1964 (UCSF, 2019)	Not age-eligible; ~~Presumed~~ may become eligible for NR and CR (Carey & Co. 2011)	NR and CR (ESA, 2020)		Renovation
Medical Sciences	1954 (Carey & Co. 2011)	NR and CR (Carey & Co., 2011)			Renovation
Moffitt Hospital	1955 (Carey & Co. 2003)	Not eligible (Carey & Co. 2003)		Renovation	~~Demolition (variant)~~ Renovation
Long Hospital	1982 (Carey & Co. 2011)	Not age-eligible (Carey & Co., 2011)		Addition	

TABLE CUL-1 (CONTINUED)
INVENTORY OF EXTANT BUILDINGS AND CULTURAL LANDSCAPES ON UCSF PARNASSUS HEIGHTS CAMPUS

Building Name	Year Built (Source)	Eligibility (Source)	2020 DPR Update/ Eligibility (Source)	Proposed Action Under 2014 LRDP	Proposed Action Under CPHP
Langley Porter Psychiatric Institute (LPPI)	1943 (Graves, 2019a), 1941 (UCSF, 2019)	NR and CR (Graves, 2019a)		Demolition	Demolition
Pump House	Ca. 1990 (aerial photos)	Not evaluated			
LPPI Butler	1964 (Carey & Co. 2011)	Not eligible (Carey & Co. 2011)		Demolition	
LPPI Outpatient Clinic (OPC)	1979 (Carey & Co. 2011)	Not age-eligible (Carey & Co. 2011)		Demolition	
LPPI Paint Shop/Hut	1966 (Carey & Co., 2011)	Not age-eligible (Carey & Co., 2011)		Demolition	
Central Utility Plant	1998 (aerial photos)	Not evaluated			
Parnassus Services	2005 (aerial photos)	Not evaluated			
Environmental Health and Safety (EHS)	1971 (Carey & Co., 2011)	Not age-eligible (Carey & Co., 2011)		Demolition	
Environmental Health and Safety Annex (Annex)	1953 (Carey & Co., 2011)	Not eligible (Carey & Co., 2011)			Demolition
Potential Third Avenue Historic District		NR and CR (Carey & Co., 2011)			
1320 Third Avenue	1911 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor			
1322-24 Third Avenue	1911 (Carey & Co., 2011)	Non-contributor			
1326 Third Avenue	1911 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor			
1332 Third Avenue	1911 (Carey & Co., 2011), 1915 (UCSF, 2019)	Contributor			
1338 Third Avenue	1910 (Carey & Co., 2011), 1913 (UCSF, 2019)	Contributor			
1344 Third Avenue	1910 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor			
1350 Third Avenue	1911 (Carey & Co., 2011), 1912 (UCSF, 2019)	Contributor			
1356 Third Avenue	1911 (Carey & Co., 2011)	Contributor			
1362 Third Avenue	1909 (Carey & Co. 2011)	Contributor			
145 Irving Street Apartments	2006 (aerial photos)	Not evaluated			
1420 Fifth Avenue	1911 (Carey & Co., 2011)	Not eligible (Carey & Co., 2011)			
1422-24 Fifth Avenue	1922 (Carey & Co., 2011), 1915 (UCSF, 2019)	NR and CR (Carey & Co., 2011)			

TABLE CUL-1 (CONTINUED)
INVENTORY OF EXTANT BUILDINGS AND CULTURAL LANDSCAPES ON UCSF PARNASSUS HEIGHTS CAMPUS

Building Name	Year Built (Source)	Eligibility (Source)	2020 DPR Update/ Eligibility (Source)	Proposed Action Under 2014 LRDP	Proposed Action Under CPHP
1428 Fifth Avenue	1909 (Carey & Co., 2011), 1915 (UCSF, 2019)	Not eligible (Carey & Co., 2011)			
1432-34 Fifth Avenue	1910 (Carey & Co., 2011), 1911 (UCSF, 2019)	NR and CR (Carey & Co., 2011)			
1440 Fifth Avenue	1911 (UCSF, 2019)	Not evaluated			
1442 Fifth Avenue	1911 (Carey & Co., 2011)	Not eligible (Carey & Co., 2011)			
1452 Fifth Avenue	1909 (Carey & Co., 2011), 1920 (UCSF, 2019)	Not eligible (Carey & Co., 2011)			
1454 Fifth Avenue	1909 (Carey & Co., 2011), 1911 (UCSF, 2019)	Not eligible (Carey & Co., 2011)			
1460 Fifth Avenue	1912 (Carey & Co., 2011), 1911 (UCSF, 2019)	Not eligible (Carey & Co., 2011)			
1464 Fifth Avenue	1912 (Carey & Co., 2011), 1911 (UCSF, 2019)	Not eligible (Carey & Co., 2011)			
1468 Fifth Avenue	1948 (Carey & Co., 2011), 1920 (UCSF, 2019)	NR and CR (Carey & Co., 2011)			
1472-74 Fifth Avenue	1922 (Carey & Co., 2011)	Not eligible (Carey & Co., 2011)			
1478-80 Fifth Avenue	1924 (Carey & Co., 2011), 1923 (UCSF, 2019)	Not eligible (Carey & Co., 2011)			
1482 Fifth Avenue	1923 (Carey & Co., 2011), 1922 (UCSF, 2019)	Not eligible (Carey & Co., 2011)			
1486-88 Fifth Avenue	1924 (UCSF, 2019)	Not evaluated			
1490 Fifth Avenue	1909 (Carey & Co., 2011), 1905 (UCSF, 2019)	Not eligible (Carey & Co., 2011)			
50 Kirkham Street	1923 (Carey & Co., 2011)	Not eligible (Carey & Co., 2011)			
Faculty Alumni House (745 Parnassus Avenue)	1915 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)		Seismic retrofit	
Surge	1966 (Carey & Co., 2011)	Not age-eligible; ~~Presumed~~ may become eligible for NR and CR (Carey & Co., 2011)		Demolition	
Woods	1962 (Carey & Co., 2003)	Not eligible (Carey & Co., 200~~3~~11)		Demolition	
University House (Chancellor's residence)	1966 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)			
Aldea San Miguel Housing Complex					

TABLE CUL-1 (CONTINUED)
INVENTORY OF EXTANT BUILDINGS AND CULTURAL LANDSCAPES ON UCSF PARNASSUS HEIGHTS CAMPUS

Building Name	Year Built (Source)	Eligibility (Source)	2020 DPR Update/ Eligibility (Source)	Proposed Action Under 2014 LRDP	Proposed Action Under CPHP
75 Behr Avenue	Ca. 1998-99 (UCSF, 2019)	Not evaluated			Demolition
80 Behr Avenue	Ca. 1998-99 (UCSF, 2019)	Not evaluated			Demolition
85 Behr Avenue	Ca. 1998-99 (UCSF, 2019)	Not evaluated			Demolition
90 Behr Avenue	Ca. 1998-99 (UCSF, 2019)	Not evaluated			Demolition
95 Behr Avenue	Ca. 1998-99 (UCSF, 2019)	Not evaluated			Demolition
Aldea San Miguel 8 (105 Behr Avenue)	1960 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)			Demolition
45 Johnstone Drive	Ca. 1998-99 (UCSF, 2019)	Not evaluated			Demolition
50 Johnstone Drive	Ca. 1998-99 (UCSF, 2019)	Not evaluated			Demolition
155 Johnstone Drive (Aldea Center on Mount Sutro)	2011 (UCSF, 2019)	Not evaluated			Demolition
Aldea San Miguel 12 (165 Johnstone Drive)	1960 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)			Demolition
Aldea San Miguel 10 (175 Johnstone Drive)	1960 (Carey & Co., 2011)	NR and CR (Carey & Co., 2011)			Demolition
20 Adolph Sutro Court	Ca. 1998-99 (UCSF, 2019)	Not evaluated			Demolition
30 Adolph Sutro Court	Ca. 1998-99 (UCSF, 2019)	Not evaluated			Demolition

NOTES:

[a] National Register of Historic Places

[b] California Register of Historical Resources

Draft EIR Appendix SHDW

In response to Comment I-Anderson-1, Draft EIR, Appendix SHDW Draft EIR pages 1,722 to 1,734, the street labels for Stanyan Street and Rivoli Street are changed to Shrader Street and Alma Street, respectively, and are corrected in revised figures on the following pages.

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PREVISION DESIGN

GRATTAN 1

CPHP PROJECT

Shading diagrams on the date of maximum shading

7:44 AM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED

PREVISION DESIGN

GRATTAN 2

CPHP PROJECT

Shading diagrams on the date of maximum shading

8:00 AM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED

PREVISION DESIGN

GRATTAN 3

CPHP PROJECT

Shading diagrams on the date of maximum shading

9:00 AM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

GRATTAN STREET

SHRADER STREET

ALMA STREET

N

REVISED

PREVISION DESIGN

GRATTAN 4

CPHP PROJECT

Shading diagrams on the date of maximum shading

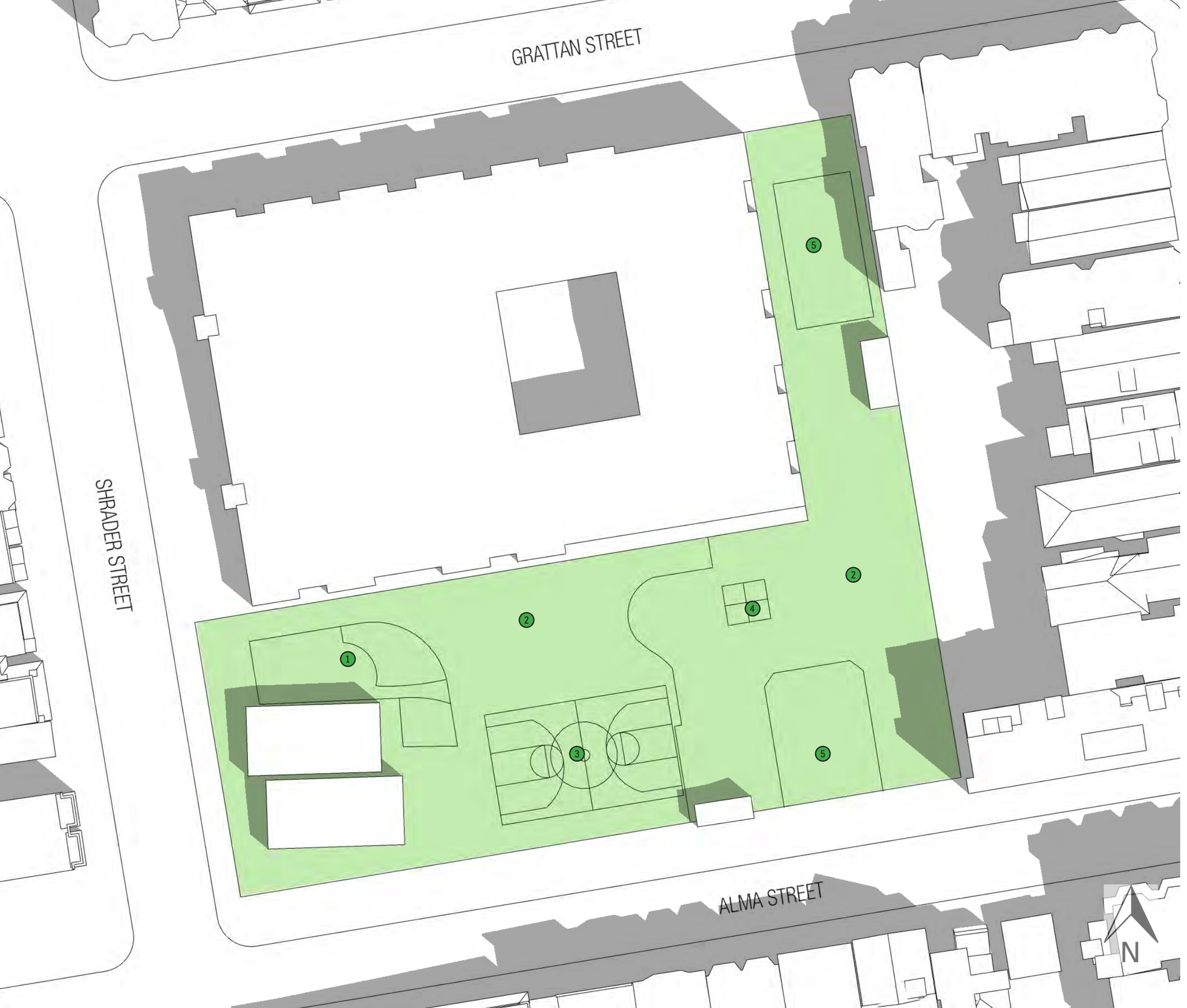
10:00 AM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED



PREVISION DESIGN

GRATTAN 5

CPHP PROJECT

Shading diagrams on the date of maximum shading

11:00 AM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED

PREVISION DESIGN

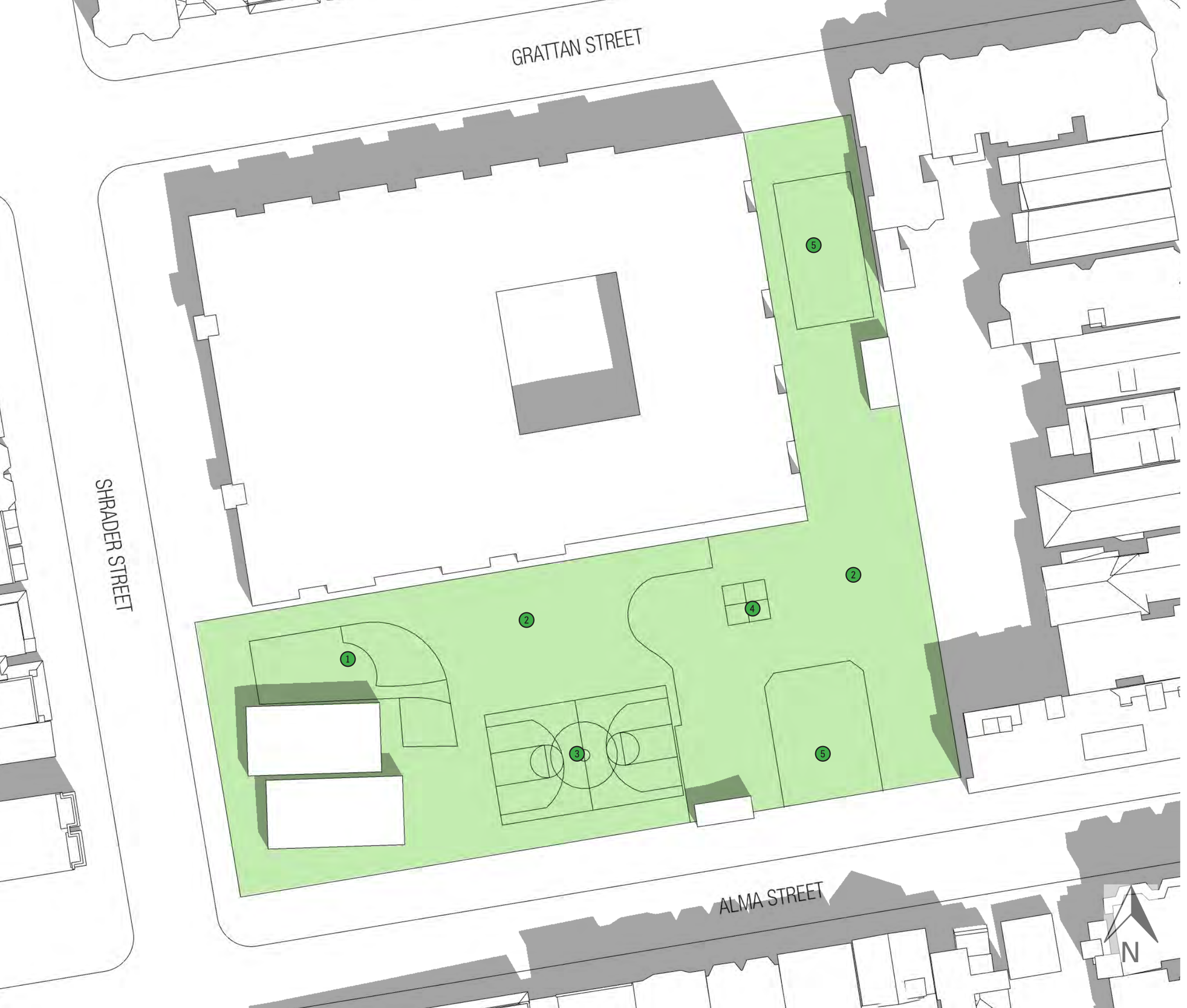
GRATTAN 6

CPHP PROJECT

Shading diagrams on the date of maximum shading

12:00 PM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6



PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED

PREVISION DESIGN

GRATTAN 7

CPHP PROJECT

Shading diagrams on the date of maximum shading

1:00 PM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED

PREVISION DESIGN

GRATTAN 8

CPHP PROJECT

Shading diagrams on the date of maximum shading

2:00 PM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED

GRATTAN STREET
SHRADER STREET
ALMA STREET
N

PREVISION DESIGN

GRATTAN 9

CPHP PROJECT

Shading diagrams on the date of maximum shading

3:00 PM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES

1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED

PREVISION DESIGN

GRATTAN 10

CPHP PROJECT

Shading diagrams on the date of maximum shading

4:00 PM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED

PREVISION DESIGN

GRATTAN 11

CPHP PROJECT

Shading diagrams on the date of maximum shading

5:00 PM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED

PREVISION DESIGN

GRATTAN 12

CPHP PROJECT

Shading diagrams on the date of maximum shading

6:00 PM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

GRATTAN STREET

SHRADER STREET

ALMA STREET

N

REVISED

PREVISION DESIGN

GRATTAN 13

CPHP PROJECT

Shading diagrams on the date of maximum shading

6:31 PM

DATE OF MAXIMUM SHADOW
SEPTEMBER 6

GRATTAN STREET

SHRADER STREET

ALMA STREET

N

PLAYGROUND FEATURES
1. Outdoor planter boxes and picnic tables
2. Blacktop area
3. Basketball court
4. Foursquare court
5. Play structure

Grattan Elementary Playground
Existing (current) Shadows
New Shading by Project

REVISED

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CHAPTER 9
Mitigation Monitoring and Reporting Program

9.1 Introduction

When approving projects with mitigation measures that if implemented would avoid or lessen significant impacts, the California Environmental Quality Act (CEQA) requires public agencies to adopt monitoring and reporting programs or conditions of project approval to mitigate or avoid the identified significant effects (Public Resources Code Section 21081.6(a)(1)). A public agency adopting measures to mitigate or avoid the significant impacts of a proposed project is required to ensure that the measures are fully enforceable, through permit conditions, agreements, or other means (Public Resources Code Section 21081.6(b)). The mitigation measures required by a public agency to reduce or avoid significant project impacts not incorporated into the design or program for the project may be made conditions of project approval as set forth in a Mitigation Monitoring and Reporting Program (MMRP). The program must be designed to ensure project compliance with mitigation measures during CPHP implementation.

The MMRP includes the mitigation measures identified in the CPHP EIR which are required to address the significant impacts associated with the proposed CPHP. The required mitigation measures are summarized in this program; the full text of the impact analysis and mitigation measures are presented in the Final EIR.

9.2 Format

The MMRP is organized in a table format (see Table 9-1), keyed to each significant impact and each mitigation measure. Only mitigation measures adopted to address significant impacts are included in this program. Each mitigation measure is set out in full, followed by a tabular summary of monitoring requirements. The column headings in the tables are defined as follows:

- **Environmental Impact:** This column presents the environmental impacts identified in the EIR.
- **Mitigation Measures:** This column identifies the mitigation measures associated with the impacts identified in the EIR.
- **Implementation Procedure:** This column identifies the procedure for implementing each mitigation measure.
- **Responsible Unit:** This column contains an assignment of responsibility for the monitoring and reporting tasks.
- **Report Mechanism:** This column refers to the outcome from implementing the mitigation measure.

9.3 Enforcement

If the proposed CPHP is approved, the MMRP would be adopted by the Regents. Therefore, all mitigation measures for significant impacts must be carried out in order to fulfill the requirements of approval. A number of the mitigation measures would be implemented during the course of the development review process. These measures would be checked on plans, in reports, and in the field prior to construction. Most of the remaining mitigation measures would be implemented during the construction or CPHP implementation phase.

TABLE 9-1
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.1 Aesthetics, Wind, and Shadow				
Impact AES-3: Implementation of the CPHP would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.	**CPHP Mitigation Measure AES-3: Minimize light and glare resulting from new buildings.** Light and glare from buildings shall be minimized through the orientation of the building, use of landscaping materials and choice of primary facade materials. Design standards and guidelines to minimize light and glare shall be adopted for the new buildings, including: • Reflective metal walls and mirrored glass walls shall not be used as primary building materials for facades. • Installation of illuminated building signage shall strive to be consistent with UCSF design guidelines and/or City Planning Code sign standards for illumination. • Exterior light fixtures shall be configured to emphasize close spacing and lower intensity light. Light fixtures shall use luminaries that do not direct the cone of light towards off-campus structures. • Design parking structure lighting to minimize off-site glare.	Issue instructions to design teams to incorporate design standards in all project plans and designs. Require architects and design professionals to document how design standards are addressed and incorporated. Review project plans to ensure that such features have been incorporated in the design to address the impacts.	UCSF Project Manager and Design Teams	Ensure project incorporates design standards prior to final project approval. After construction, the Project Manager shall provide written verification to the Monitor that design standards have been incorporated to address the impacts.
Impact AES-4: Implementation of the CPHP would potentially create wind hazards in publicly accessible areas of substantial pedestrian use.	**CPHP Mitigation Measure AES-4: Design new buildings to minimize wind impacts at pedestrian level.** Prior to the approval of the design of individual buildings to be developed pursuant to the CPHP and for which one or more building facades would have a height of 80 feet or more, UCSF shall engage a qualified wind consultant to conduct wind tunnel testing of the proposed building(s) to determine whether the building(s) would result in new exceedance(s) of the City of San Francisco's 26-mph pedestrian wind hazard criterion. The wind tunnel testing shall be conducted for the building(s) under consideration in the context of then-existing conditions as well as in the context of conditions representative of then-anticipated CPHP buildout (the buildout scenario in the EIR, as may be modified from time to time by UCSF to reflect actual building designs known at the time) so as to determine whether the individual building(s) and/or the buildout condition would result in exceedances of the wind hazard criterion. If the wind tunnel analysis determines that the building(s)' design or buildout conditions would increase the hours of wind hazard exceedance or the number of test points subject to hazardous winds, compared to then-existing conditions, UCSF shall work with the wind consultant to identify feasible mitigation strategies, including design changes (e.g., setbacks, rounded/chamfered building corners, stepped facades, etc.), to eliminate or reduce	Issue instructions in each bid package to alert the architect and design team that UCSF will engage, or require the design team to engage, a qualified wind consultant to evaluate proposed building designs for buildings 80 feet or more in height. Require documentation of the findings of all wind consultation and testing, where deemed necessary, and proposed wind-reducing measures. Review project plans to ensure that necessary wind-reducing features have been incorporated in the design.	UCSF Project Manager and Design Teams	Provide written verification in report form to the Monitor for each contract bid that the bid includes provision for wind hazard consultation and testing, where deemed necessary, for buildings 80 feet or more in height, documentation of the results, and incorporation into the building design of any necessary wind reduction features.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.1 Aesthetics, Wind, and Shadow (cont.)				
Impact AES-4 (cont.)	wind hazards to the maximum feasible extent. If UCSF finds that these changes or other wind speed reduction strategies are not feasible as they would unduly restrict the proposed building's space program, result in operational inefficiencies, and/or substantially higher costs, the building(s) may nonetheless be approved provided that the project incorporates wind speed reduction strategies to the maximum feasible extent, as determined by UCSF in consultation with the wind consultant. Wind speed reduction strategies could also include features such as landscaping, localized installation of porous/solid screens, installation of canopies along building frontages, and the like.			
Impact C-AES-3: Implementation of the CPHP, combined with cumulative projects, would potentially create wind hazards in publicly accessible areas of substantial pedestrian use.	Implement CPHP Mitigation Measure AES-4.	See CPHP Mitigation Measure AES-4.	See CPHP Mitigation Measure AES-4.	See CPHP Mitigation Measure AES-4.
EIR Section 4.2 Air Quality				
Impact AIR-1: Construction of campus development under the CPHP would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	**CPHP Mitigation Measure AIR-1a: Clean Construction Equipment for CPHP Projects.** The construction contractor(s) shall develop a plan demonstrating that the off-road equipment used to on-site to construct CPHP projects would achieve a fleet-wide average 80 percent reduction in NO_X exhaust emissions, compared to uncontrolled aggregate statewide emission rates for similar equipment. One feasible plan to achieve this reduction would include the following: • All mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the project site for more than two days continuously shall be equipped with engines meeting USEPA emissions standards for Tier 4 Final certified engines or equivalent; • Use of electrically-powered construction equipment to the degree available and feasible; and Alternatively, if UCSF can demonstrate through preparation of an air quality assessment report prepared by an air quality specialist that large or contemporaneous CPHP construction projects would not exceed BAAQMD thresholds, then the above mitigation requirements may be waived.	Issue instructions in each bid package of each construction project for contractors to incorporate the required clean construction equipment plan. The successful contractor will prepare a plan to achieve a fleet-wide average 80 percent reduction in NO_X exhaust emissions, compared to uncontrolled aggregate statewide emission rates for similar equipment.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provision for construction NOx emissions reduction. Provide a report on construction emissions reduction strategies and report to Monitor upon request; but no less than quarterly after beginning each construction phase.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.2 Air Quality (cont.)				
Impact AIR-1 (cont.)	**CPHP Mitigation Measure AIR-1b: Best Management Practices for Controlling Particulate Emissions during Construction.** The following BAAQMD Best Management Practices for particulate control will be required for all construction activities related to CPHP projects (BAAQMD, 2017). These measures will reduce particulate emissions primarily during soil movement, grading and demolition activities but also during vehicle and equipment movement on unpaved project sites. • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 mph. • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, § 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • Post a publicly visible sign with the telephone number and person to contact at UCSF regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's telephone number shall also be visible to ensure compliance with applicable regulations.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will prepare a construction air pollution control strategy to report on the implementation of the mitigation measure.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provision for construction air pollution control. Provide a report on construction air pollution control strategies and report to Monitor upon request; but no less than quarterly after beginning each construction phase.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.2 Air Quality (cont.)				
Impact AIR-2: Operation of campus facilities developed under the CPHP would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	**CPHP Mitigation Measure AIR-2a: Project-Level Operational Measures** The following measures, most of which are identified in the 2017 BAAQMD *CEQA Guidelines,* shall be reviewed and incorporated into specific development projects if not already included in the development project or otherwise in place at the Parnassus Heights campus site: • Provide and maintain secure bike parking (at least one space per 20 vehicle spaces); • Provide and maintain showers and changing facilities for employees; • Provide information on transportation alternatives to employees; • Provide and maintain preferential carpool and vanpool parking for non-residential uses; • Increase building energy efficiency below Title 24 (reduces NO_X related to natural gas combustion); • Require use of electrically powered landscape equipment, where feasible; • Use low VOC architectural coatings in maintaining buildings; • Meet California Green Building Code standards in new construction (reduces NOx related to natural gas combustion); and • Provide electric vehicle charging stations in existing parking areas to promote the use of zero emission vehicles. • Equip all truck loading and unloading docks with a power outlet for every two-dock doors. Signs shall be posted stating "Diesel trucks are prohibited from idling more than 5 minutes and trucks requiring auxiliary power shall connect to the electrical outlets to run auxiliary equipment.	Adopt suggested operational measures, as specified, as a condition of approval. Issue instructions to design teams to incorporate BAAQMD suggested operational measures in all project plans and designs. Require architects and design professionals to document how design standards are addressed and incorporated. Review project plans to ensure that such features have been incorporated in the design to address the impacts.	UCSF Project Manager and Design Teams	Verify that project incorporates features that implement these measures prior to final approval. After construction, each project manager shall provide written verification to the Monitor that measures were incorporated according to the design. Regularly review operations to determine that measures continue to be implemented.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.2 Air Quality (cont.)				
Impact AIR-2 (cont.)	**CPHP Mitigation Measure AIR-2b: TDM Program Enhancements** To reduce vehicle trips and resulting air quality impacts, UCSF will implement TDM program enhancements such that the number of new average daily vehicle trips to and from the campus site is reduced by at least 15 percent from the estimated new average daily vehicle trips without these program enhancements. TDM program enhancements/strategies shall initially include the following: 1. *New shuttle connections to regional transit (e.g. BART):* Implement new UCSF shuttle service between the campus site and regional transit stations (e.g. BART, Caltrain) to make regional transit a more attractive option for employees, patients, and visitors. 2. *Expand telecommuting and flexible hours program for employees:* Allow employees in appropriate positions to telecommute from home and/or work a modified schedule such that they are commuting to the campus less frequently per week. 3. *Improved telehealth program for patients:* Implement an expanded telehealth program to reduce the need for patients to travel to the campus site for appointments. 4. *Carpool and vanpool credits and incentives:* Provide a subsidy or discounted parking permit rates for individuals who carpool rather than drive alone; reduce monthly fares for Vanpool riders and drivers. 5. *Discontinue monthly parking permits:* Discontinue issuance of monthly parking permits to make commute travel mode a daily decision by shifting to daily parking permits. 6. *Enhanced patient TDM program*: Enhance information provided to patients regarding travel options to the campus site, including discussion of limited parking environment and public transit options. 7. *TNC to transit subsidy*: Provide a subsidy for individuals to use TNC to travel to transit rather drive alone. 8. *Transit pass program*: UCSF Health will implement a patient transit pass program by June 30, 2025. In addition, a petition to run a referendum on a SFMTA student transit pass will be reviewed and voted on by the UCSF student government assembly by June 30, 2025. Balloting would be in March and voting would be in April. Assuming the referendum passes, the results would be submitted to UCOP for approval in May and the fee would typically apply at the start of the new academic year, which would be September.	Develop a TDM program and or enhancements to existing TDM measures to achieve a minimum 15 percent reduction in average daily vehicle trips compared to the trip volume that would otherwise occur. The baseline new average daily vehicle trips without TDM program enhancements would be based on the average daily vehicle trip estimates for "Existing Conditions" and "CPHP (Future Phase)" scenarios, as presented in EIR Appendix TRANS. Prepare a survey-based annual monitoring plan to be implemented coincident with completion and occupancy of the Initial Phase projects.	UCSF Project Manager and UCSF Transportation Department, with the support of a qualified transportation engineer or planner.	Provide written verification of the TDM program/ enhancements to the Monitor prior to the start of construction of the New Hospital. Provide an annual report on the efficacy of the TDM program/enhancements to the Monitor.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.2 Air Quality (cont.)				
Impact AIR-2 (cont.)	UCSF may also make improvements to its existing TDM measures to achieve the targeted reduction in daily vehicle trips. In addition, if other new and/or improved TDM strategies are identified in the future, UCSF may implement such strategies in place of or in addition to the ones listed above. The TDM program enhancements/strategies shall be monitored annually for their combined effectiveness in meeting the performance standard set forth above. The annual monitoring and reporting program shall include: (a) an annual calculation of baseline new average daily vehicle trips without TDM program enhancements for each year starting in 2030; (b) an annual calculation of new average daily vehicle trips with the TDM program enhancements; and (c) a comparison of the results of (a) and (b) against the "existing" average daily vehicle trips to determine whether the performance standard of a 15 percent reduction in new average daily vehicle trips is achieved. As this significant impact would likely occur upon the completion of the New Hospital, the annual monitoring and reporting program shall be commenced upon the completion and occupancy of the Initial Phase projects, i.e., after 2030, and shall be conducted by a qualified transportation engineer, using data from UCSF's regularly administered travel behavior surveys for employee commute, patient and visitor travel, and resident travel. Using these survey results, the monitoring report will gauge the effectiveness of implemented TDM program enhancements at achieving the required 15 percent reduction in new average daily vehicle trips. If the annual performance standard is met, no further action from UCSF is required until the next year. In the event that the performance standard is not met, UCSF will examine the TDM program to identify areas of improvement and institute changes, which shall be evaluated for their effectiveness in the following year's monitoring report.			
Impact AIR-3: Construction activities under the CPHP could expose sensitive receptors to substantial pollutant concentrations and exceed the LRDP EIR standard of significance by exposing receptors to toxic air contaminant emissions that (1) result in a cancer risk greater than 10 cancer cases per 1 million people exposed in a lifetime; or (2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater.	**CPHP Mitigation Measure AIR-3: *Project-Specific Health Risk Analysis.*** UCSF shall prepare and submit to UCOP for review and approval, a project-specific health risk analysis demonstrating that project construction activities will not result in a significant acute, chronic non-cancer or cancer-related health risk to sensitive receptors. This requirement shall apply to construction projects in excess of 12 months of active construction (i.e., exclusive of interior renovations) and within 1,000 feet of sensitive receptors. As a performance standard, any subsequent project-specific health risk analysis must demonstrate an excess cancer risk level of 10-in-1 million or less, a non-cancer (i.e., chronic or acute) hazard index of 1.0 or less, and an incremental increase an annual average $PM_{2.5}$ concentrations of no more than 0.3 microgram per cubic meter.	Conduct, or cause to be conducted, a project-specific health risk assessment for construction of each individual building (or group of buildings, if proposed for simultaneous construction) that meet the criteria specified in the measure.	UCSF Project Manager and Design and/or Construction Teams	Provide written verification in report form to the Monitor for that each required health risk assessment has been prepared prior to project-specific approvals being granted.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.2 Air Quality (cont.)				
Impact AIR-4: Campus site operations under the CPHP could expose sensitive receptors to substantial pollutant concentrations and exceed the LRDP EIR standard of significance by exposing receptors to toxic air contaminant emissions that (1) result in a cancer risk greater than 10 cancer cases per 1 million people exposed in a lifetime; or (2) for acute or chronic effects, result in concentrations of toxic air contaminant emissions with a Hazard Index of 1.0 or greater.	**CPHP Mitigation Measure AIR-4a: *Laboratory Fume Hood Emission Control*.** For any individual project that contains more than 25,000 square feet of emissions-generating laboratory space within a building and 50 fume hoods, UCSF shall conduct a health risk screening analysis and obtain a permit from BAAQMD for the proposed individual projects; this permit may be required either prior to or as a condition of approval of the proposed individual project. In accordance with BAAQMD Rules 2-1 and 2-5, new sources of emissions must implement Best Available Control Technology for Toxics (T-BACT) if individual source risks exceed 1.0 in a million for cancer and/or chronic hazard index is greater than 0.20. Additionally, a permit will be denied if project cancer risk exceeds 10.0 in a million or if the chronic or acute hazard index exceeds 1.0.	Conduct, or cause to be conducted, a project-specific health risk screening analysis for construction of each individual project that meets the criteria specified in the measure. Obtain the required BAAQMD permit for each individual project that meets the criteria specified in the measure.	UCSF Project Manager and Design and/or Construction Teams	Provide written verification in report form to the Monitor for that each required health risk screening analysis and permit has been prepared prior to project-specific approvals being granted.
	CPHP Mitigation Measure AIR-4b: *Design for Diesel Delivery Truck Emissions Minimization*. UCSF shall incorporate the following health risk reduction measures into the project design and construction contracts (as applicable) in order to reduce the potential health risk due to exposure to toxic air contaminant emissions from diesel trucks. Emissions from CPHP-associated diesel trucks shall be reduced through implementing the following measures, as feasible: • Install electrical hook-ups for diesel trucks at loading docks. • Require trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards. • Require truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels. • Prohibit trucks from idling for more than two minutes to the extent feasible. • Establish truck routes to avoid sensitive receptors in the project to the extent feasible. A truck route program, along with truck calming, parking, and delivery restrictions, shall be implemented	Issue instructions in each bid package of each design project for the design team to incorporate the mitigation measure.	UCSF Project Manager and Design Teams	Provide written verification in report form to the Monitor for that each required health risk reduction measure has been incorporated into project-specific design prior to project approvals being granted.
Impact AIR-5: The CPHP could conflict with or obstruct implementation of the *2017 Clean Air Plan*.	**CPHP Mitigation Measure AIR-5: Implement "cool roof and pavement" design elements.** UCSF shall implement "cool parking" that promotes the use of cool surface treatments for new parking facilities, as well existing surface lots undergoing resurfacing. Additionally, new building construction shall include low-albedo roofing materials to the extent it can reduce energy demand.	Issue instructions in each bid package of each design project for the design team to incorporate the mitigation measure.	UCSF Project Manager and Design Teams	Provide written verification in report form to the Monitor for that the required design elements have been incorporated into project-specific design prior to project approvals being granted.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.2 Air Quality (cont.)				
Impact C-AIR-1: Implementation of the CPHP combined with cumulative development in the project area would result in a cumulatively considerable net increase of a criteria pollutant (PM_{10}) for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	Implement CPHP Mitigation Measure AIR-2a and AIR-2b.	See CPHP Mitigation Measures AIR-2a and 2b.	See CPHP Mitigation Measures AIR-2a and 2b.	See CPHP Mitigation Measures AIR-2a and 2b.
Impact C-AIR-2: Implementation of the CPHP could contribute considerably to cumulative emissions of TACs and $PM_{2.5}$ that could expose sensitive receptors to substantial pollutant concentrations or health risks.	Implement CPHP Mitigation Measures AIR-1a and AIR-1b.	See CPHP Mitigation Measures AIR-1a and 1b.	See CPHP Mitigation Measures AIR-1a and 1b.	See CPHP Mitigation Measures AIR-1a and 1b.
EIR Section 4.3 Biological Resources				
Impact BIO-1: Implementation of the CPHP would not have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	**CPHP Mitigation Measure BIO-1a. Botanical Surveys** • Within suitable habitat for special-status plant species (open gravel areas along roadsides and hillsides for coastal triquetrella), a qualified biologist approved by CDFW shall conduct a focused survey for all species with potential to be present prior to ground disturbance. If no special-status plants are observed, no further action is required. • If special-status plant species, including coastal triquetrella are observed, the plants will be avoided with a suitable buffer, determined in coordination with CDFW The buffer zone shall be clearly demarcated using exclusion fencing. If establishing an avoidance buffer is not feasible, individual plants shall be transplanted to an area with suitable physical and biological conditions outside of the work area and monitored and adaptively managed for five years.	Engage a qualified biologist to undertake the survey(s) specified in the mitigation measure.	UCSF Project Manager	Provide written verification in report form to the Monitor for that the required survey(s) have been conducted prior to ground disturbance.
	CPHP Mitigation Measure BIO-1b. Protection of Monarch Butterflies • Prior to demolition activities, a qualified biologist familiar with monarch butterfly behavior and habitat shall conduct a preconstruction survey for the presence of overwintering monarch butterfly aggregations. The survey shall be conducted in December or January during the period when overwintering aggregations appear. Should an overwintering aggregation be identified in trees surrounding proposed work sites within or adjacent to the Reserve, a 200-foot buffer shall be established around the occupied trees until the aggregation has dispersed, and construction within the buffer zone will be avoided for the duration of the overwintering period.	Engage a qualified biologist to undertake the survey(s) specified in the mitigation measure.	UCSF Project Manager	Provide written verification in report form to the Monitor for that the required survey(s) have been conducted prior to demolition.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.3 Biological Resources (cont.)				
Impact BIO-1 (cont.)	**CPHP Mitigation Measure BIO-1c. Protection of Nesting Birds** • Tree and vegetation removal or pruning associated with project construction and commencement of outdoor project construction activities shall be avoided from February 1 through August 31, the primary local bird nesting season, to the extent feasible. If tree and vegetation removal or pruning associated with project construction is proposed during the nesting period, within seven days prior to the proposed start of construction activities a qualified biologist shall conduct a nesting bird survey of all potential habitat at the construction site and within 250 feet of the perimeter of the construction site. The qualified biologist will monitor all vegetation removal in the Open Space Reserve during bird nesting season. • If any active nests are detected during the pre-construction survey, the qualified biologist shall recommend a work-exclusion buffer zone that shall be designated around the active nest to allow for both the successful fledging of the birds and initiation of work on some portions of the project site. A qualified biologist shall monitor any occupied nest located within a protective buffer zone in order to determine if the designated buffer zone is effective and when the buffer zone is no longer needed. If the buffer zone is determined to be ineffective, its size shall be increased until it is effective, or work within one-quarter mile of the nest shall cease until the young have fledged and are independent of the nest.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate knowledge of appropriate timing for tree and vegetation removal and pruning for protection of nesting birds.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for implementation of mitigation measure. Provide construction status report to Monitor upon request.
	CPHP Mitigation Measure BIO-1d. Protection of Roosting Bats • Prior to project construction, a qualified bat biologist shall conduct a pre-construction survey for roosting bats in trees to be removed or pruned and structures to be demolished within the work area and within a 50-foot radius of the work area. If no roosting bats are found, no further action is required. • If a non-maternal roost of bats is found in a tree or structure to be removed or demolished as part of project construction, the individuals shall be safely evicted, under the direction of a qualified bat biologist, by opening the roosting area to allow airflow through the cavity. Removal or demolition should occur no sooner than at least two nights after the initial minor site modification (to alter airflow). This action allows bats to leave during darkness, thus increasing their chance of finding new roosts with a minimum of disturbance. Departure of the bats from the construction area shall be confirmed with a follow-up survey by a qualified bat biologist prior to start of construction.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate knowledge of appropriate procedures for protection of nesting bats.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for implementation of mitigation measure. Provide construction status report to Monitor upon request.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.3 Biological Resources (cont.)				
Impact BIO-1 (cont.)	• If active maternity roosts are found in trees or structures that will be removed or demolished as part of project construction, tree removal or demolition of that tree or structure shall commence and be completed before maternity roosting colonies form (generally before March 1), or shall not commence until after young are flying (generally after July 31). Active maternity roosts shall not be disturbed between March 1 and July 31.			
	CPHP Mitigation Measure BIO-1e. Worker Education • A qualified biologist shall provide training to all construction workers prior to starting work on plan components. The training shall cover special-status species with potential to be found onsite, avoidance measures to be undertaken if a species is found, avoiding the spread of invasive weeds and pathogens during construction, and best management practices for site housekeeping.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate knowledge of appropriate worker education for protection of special-status species.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for implementation of mitigation measure. Provide construction status report to Monitor upon request.
Impact BIO-2: Implementation of the CPHP would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	**Mitigation Measure BIO-2a: Prevention of Harm to Migrating Birds During Construction.** Construction areas requiring lights shall implement the following measures to the extent feasible: • Construction-related lighting shall be fully shielded and focused down to ensure no significant illumination passes beyond the immediate work area. Lighting shall be positioned around the perimeter of the work area positioned toward activity and not surrounding habitat of the Reserve. • Yellow or orange light shall be used where possible. • Construction personnel shall reduce the amount of lighting to the minimum necessary to safely accomplish the work. • Night construction near suitable habitat for nesting and migratory birds and bats (i.e. the Reserve forest and understory vegetation) shall be avoided during nesting season (February 15 – August 15). If night construction near these areas cannot be avoided, light shall not be allowed to shine directly into suitable habitat.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate knowledge of appropriate procedures for construction lighting and nigh construction activity to protect migrating birds.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for implementation of mitigation measure. Provide construction status report to Monitor upon request.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.3 Biological Resources (cont.)				
Impact BIO-2 (cont.)	**Mitigation Measure BIO-2b: Bird-Safe Building Treatments.** Building designs shall: • Avoid installation of lighting in areas where not required for public safety. • Examine and adopt alternatives to bright, all-night, floor-wide lighting when interior lights would be visible from the exterior or when exterior lights must be left on at night, including: – Installing motion-sensitive lighting – Installing task lighting – Installing programmable timers • Installing fixtures that use lower-wattage, sodium, and yellow-red spectrum lighting (if compatible with personnel safety requirements). • Where exterior lights are to be left on at night, install fully shielded lights to contain and direct light away from the sky. • Employ glazing options such as use of either fritted glass, Dichroic glass, etched glass, translucent glass, or glass that reflects ultraviolet light in appropriate portions of the building façade. • Minimize light and glare resulting from new buildings through the orientation of the building, use of landscaping materials and choice of primary façade materials. Design standards and guidelines to minimize light and glare shall be adopted for the new buildings, including: reflective metal walls and mirrored glass walls shall not be used as primary building materials for facades.	Issue instructions to design teams to incorporate bird-safe building treatments in building designs. Require architects and design professionals to document use of bird-safe treatments and review project plans to ensure that such features have been incorporated in the design.	UCSF Project Manager and Design Teams	Verify that project incorporates treatments prior to final project approval. After construction, the Project Manager shall provide written verification to the Monitor that treatments were installed according to the design.
Impact C-BIO-1: Implementation of the CPHP would not result in cumulatively considerable impacts on biological resources, in combination with past, present and reasonably foreseeable future projects in the vicinity of the Parnassus Heights campus site.	Implement CPHP Mitigation Measures BIO-1a through 1e, and BIO-2a and 2b.	See CPHP Mitigation Measures BIO-1a through 1e, BIO-2a, and BIO-2b.	See CPHP Mitigation Measures BIO-1a through 1e, BIO-2a, and BIO-2b.	See CPHP Mitigation Measures BIO-1a through 1e, BIO-2a, and BIO-2b.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources				
Impact CUL-1: Implementation of the CPHP would result in a substantial adverse change in the significance of known historical resources.	**CPHP Mitigation Measure CUL-1a: Identify Character-Defining Features.** Prior to any demolition work or significant alterations initiated at the known historical resources, UCSF shall ensure that a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards identifies character-defining features of each historical resource. Despite being presumed or having been previously determined eligible for listing in the National Register and/or California Register, character-defining features of the historical resources that would be demolished or may be significantly altered under the CPHP have not been explicitly or adequately identified. According to guidance from the National Park Service, a historical resource "must retain… the essential physical features [i.e., character-defining features] that enable it to convey its historic identity. The essential physical features are those features that define both *why* a property is significant…and *when* it was significant" (National Park Service, 1997). The identification of character-defining features is necessary for complete documentation of each historical resource as well as appropriate public interpretation and salvage plans.	Engage, or cause to be engaged by the design team, a qualified architectural historian to identify character-defining features of resources to be demolished or significantly altered.	UCSF Project Manager and Design Teams	Provide written documentation of the character-defining features of each applicable resource to the Monitor.
	CPHP Mitigation Measure CUL-1b: Document Historical Resources Prior to Demolition or Alteration. Prior to any demolition work or significant alterations initiated at the known historical resources, UCSF shall ensure that a qualified architectural historian who meets the Secretary of the Interior's Professional Qualification Standards thoroughly documents each building and associated landscaping and setting. This includes the Zakheim Murals in UC Hall. Documentation shall include still photography and a written documentary record of the building to the National Park Service's standards of the Historic American Buildings Survey (HABS) or the Historic American Engineering Record (HAER), including accurate scaled mapping and architectural descriptions. If available, scaled architectural plans will also be included. Photos include large-format (4"x5") black-and-white negatives and 8"x10" enlargements. Digital photography may be substituted for large-format negative photography if archived locally. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research and oral history collection as appropriate. Copies of the records shall be submitted to the Northwest Information Center at Sonoma State University and the UCSF Kalmanovitz Library Archives and Special Collections.	Engage, or cause to be engaged by the design team, a qualified architectural historian to document the resources to be demolished or significantly altered. Ensure that the resulting documentation is submitted to the repositories specified.	UCSF Project Manager and Design Teams	Provide written verification to the Monitor that documentation has been prepared and submitted to the repositories.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources (cont.)				
Impact CUL-1 (cont.)	**CPHP Mitigation Measure CUL-1c: Public Interpretation and Salvage Plan.** Prior to any demolition or significant alteration activities that would remove character-defining features of, or demolish, an individual historical resource on the project site, UCSF shall determine whether any such features may be salvaged, in whole or in part, during demolition/alteration. If it is determined that features are present that will be salvaged, a Salvage Plan shall be prepared by a qualified architectural historian or historic architect who meets the Secretary of the Interior's Professional Qualification Standards and presented to UCSF Planning staff. Prior to any demolition or significant alteration activities that would remove character-defining features of, or demolish, an individual historical resource on the project site, UCSF shall prepare a plan for interpretive displays. The specific location, media, and other characteristics of such interpretive display(s) shall be included in this proposal. The historic interpretation plan shall be prepared in coordination with an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards and an exhibit designer or landscape architect with historical interpretation design experience. Interpretive display(s) shall document the individually eligible resources to be demolished or altered. The interpretative plan should also explore contributing to digital platforms that are publicly accessible. A proposal describing the general parameters of the interpretive program and the substance, media, and other elements of such interpretive display shall be approved by UCSF Planning staff prior to commencement of any demolition activities. Following any demolition or alteration activities within the project site, UCSF shall provide within publicly accessible areas of the project site a permanent display(s) of interpretive materials concerning the history and architectural features of the individual historical resources.	Engage, or cause to be engaged by the design team, a qualified architectural historian to determine whether any character-defining features of resources to be demolished or significantly altered are salvageable. If salvage is feasible, prepare, or cause to be prepared by the design team, a Salvage Plan developed by a qualified architectural historian. Engage, or cause to be engaged by the design team, a qualified architectural historian to prepare an interpretive plan for public display concerning the character-defining features of resources to be demolished or significantly altered. Identify appropriate location(s) for the display(s) and ensure that they are installed no later than six months after demolition or after issuance of a certificate of occupancy for replacement structure(s), whichever is later.	UCSF Project Manager and Design Teams	Provide written verification to the Monitor of the results of the evaluation of salvage potential, verification of the preparation of a Salvage Plan, if applicable, and verification of installation of interpretive display(s).
	CPHP Mitigation Measure CUL-1d: Digital-Imaging and Virtual Preservation of Zakheim Murals in UC Hall. Prior to the commencement of demolition activities at UC Hall, UCSF Planning staff shall work with a conservator experienced in digital preservation to develop and implement a digital imaging and virtual preservation proposal for the Zakheim murals in UC Hall. The proposal shall include a plan to digitally preserve the Zakheim murals through high-resolution three-dimensional digital recording that would be made available both online and through a planned interpretive virtual reality interpretive exhibit on campus to be maintained by the UCSF Library's Archives and Special Collections department. UCSF Planning staff shall ensure that the digital-imaging and virtual preservation activities are completed prior to any demolition activities in Toland Hall.	Engage, or cause to be engaged by the design team, a qualified architectural conservator to undertake virtual preservation though documentation of the Zakheim Murals. Ensure that the resulting documentation is submitted to the repositories specified.	UCSF Project Manager and Design Teams	Provide written verification to the Monitor that documentation has been prepared and submitted to the repositories.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources (cont.)				
Impact CUL-1 (cont.)	**CPHP Mitigation Measure CUL-1e: Digital-Imaging and Virtual Preservation of Zakheim Murals in UC Hall.** Provided that the Zakheim murals are successfully removed from Toland Hall and stored, UCSF will convene a Task Force by the end of 2021 to advise on options for the display of the murals in a publicly accessible setting, either on a UCSF campus or at a museum or other institution. The Task Force will include the Chair of the City's Historic Preservation Commission, or their designee.	Prior to end of 2021, develop the list of Task Force personnel, and convene Task Force to advise on options for the display of the murals in a publicly accessible setting.	UCSF Project Manager and Design Teams	Provide written verification to the Monitor results of Task Force recommendations.
Impact CUL-2: Implementation of the CPHP would result in a substantial adverse change in the significance of potential future historical resources that may become eligible by the full build-out of the CPHP in 2050.	Implement CPHP Mitigation Measures CUL-1a through -1c.	See CPHP Mitigation Measures CUL-1a through -1c.	See CPHP Mitigation Measures CUL-1a through -1c.	See CPHP Mitigation Measures CUL-1a through -1c.
Impact CUL-3: Implementation of the CPHP could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.	**CPHP Mitigation Measure CUL-3: Inadvertent Discovery of Archaeological Resources and Tribal Cultural Resources.** Prior to commencement of construction activities, all on-site personnel shall attend a mandatory pre-project training to outline the general archaeological and tribal cultural sensitivity of the project area. The training will include a description of the types of resources that could be encountered and the procedures to follow in the event of an inadvertent discovery of resources. If prehistoric or historic-era archaeological resources are encountered by construction personnel during ground-disturbing activities, all construction activities within 100 feet shall halt and the contractor shall notify the UCSF Environmental Coordinator (EC). The UCSF EC shall retain a Secretary of the Interior-qualified archaeologist (qualified archaeologist) to inspect the find within 24 hours of discovery. If it is determined that the project could damage a historical resource or a unique archaeological resource, construction shall cease in an area determined by the qualified archaeologist until a mitigation plan has been prepared and implemented [CEQA Guidelines 15064.5(b)(4)]. If the find is a potential tribal cultural resource, the UCSF EC shall contact a Native American representative or representatives (as provided by the Native American Heritage Commission) [PRC 21074(2)(c)]. The qualified archaeologist, in consultation with the UCSF EC and the Native American representative(s), shall determine when construction can resume. If the resource is determined to be a historical resource or a unique archaeological resource, the preferred mitigation shall be preservation in place. In accordance with PRC Section 21083.2(b), preservation in place shall be accomplished through:	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate knowledge of procedures and requirements when cultural resources are discovered during construction activities.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for implementation of mitigation measure if cultural resources are discovered during construction activities. Provide construction status report to Monitor upon request.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources (cont.)				
Impact CUL-3 (cont.)	(1) modifying the construction plan to avoid the resource; (2) incorporating the resource within open space; (3) capping and covering the resource; or (4) deeding the resource site into a permanent conservation easement. If preservation in place is not feasible, the qualified archaeologist, in consultation with the UCSF EC and the Native American representative(s) (if the resource is prehistoric), shall prepare and implement a detailed treatment plan. In all cases treatment will be carried out with dignity and respect (including protecting the cultural character, traditional use, and confidentiality of the resource). For prehistoric resources, the Native American representative(s) will be consulted on the research approach, methods, and whether burial or data recovery or alternative mitigation is appropriate for the find. Treatment for most resources could consist of (but shall not be limited to) sample excavation, site documentation, and historical research, as appropriate to the discovered resource. The treatment plan shall include provisions for analysis of data in a regional context as appropriate to the discovered resource, reporting of results within a timely manner, and dissemination of reports to local and state repositories, libraries, and interested professionals.			
Impact CUL-4: Implementation of the CPHP could disturb human remains, including those interred outside of dedicated cemeteries.	**CPHP Mitigation Measure CUL-4: Inadvertent Discovery of Human Remains.** In the event of discovery or recognition of any human remains during ground-disturbing activities, treatment shall comply with all applicable state and federal laws. All construction activities within 100 feet shall halt and the contractor shall notify the UCSF Environmental Coordinator (EC). In accordance with PRC 5097.98, the UCSF EC shall contact the San Francisco Office of the Medical Examiner (Medical Examiner) to determine that no investigation of the cause of death is required. The Medical Examiner shall contact the Native American Heritage Commission (NAHC) within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant (MLD) from the deceased Native American. Within 48 hours, the MLD shall make recommendations to the UCSF EC of the appropriate means of treating the human remains and any grave goods. Whenever the NAHC is unable to identify an MLD, the MLD fails to make a recommendation, or the parties are unable to agree on the appropriate treatment measures, the human remains shall be reinterred with appropriate dignity on the property in a location not subject to further and future subsurface disturbance.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate knowledge of procedures and requirements when cultural resources are discovered during construction activities.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for implementation of mitigation measure if cultural resources are discovered during construction activities. Provide construction status report to Monitor upon request.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.4 Cultural Resources and Tribal Cultural Resources (cont.)				
Impact CUL-5: Implementation of the CPHP could cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe.	Implement CPHP Mitigation Measure CUL-3.	See CPHP Mitigation Measure CUL-3.	See CPHP Mitigation Measure CUL-3.	See CPHP Mitigation Measure CUL-3.
Impact C-CUL-1: Implementation of the CPHP would result in cumulatively considerable impacts on cultural and/or tribal cultural resources, in combination with past, present and reasonably foreseeable future projects in the vicinity of the Parnassus Heights campus site.	**Historic Resources.** Implement CPHP Mitigation Measures CUL-1a through -1d. **Archaeological Resources, Human Remains, and Tribal Cultural Resources.** Implement CPHP Mitigation Measures CUL-3 and CUL-4.	See CPHP Mitigation Measures CUL-1a through 1d, CUL-3, and CUL-4.	See CPHP Mitigation Measures CUL-1a through 1d, CUL-3, and CUL-4.	See CPHP Mitigation Measures CUL-1a through 1d, CUL-3, and CUL-4.
EIR Section 4.6 Geology and Soils				
Impact GEO-3: New development under the CPHP would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides.	**CPHP Mitigation Measure GEO-3:** UCSF shall implement the following geotechnical recommendations as adapted from those contained within the Rutherford & Chekene March 2019 report: • Remove selected trees located on or at the crest of steep rock slopes on which tree root wedging decreases stability. Determination of specific trees to be removed shall be made in association with a certified arborist and state licensed geotechnical engineer or engineering geologist. Removal will involve cutting trees and leaving stumps such that the root system can rot in situ with minimal disturbance to the surface geology. • Conduct qualitative monitoring of identified slopes by a state licensed geotechnical engineer or engineering geologist or as directed by said professional. Monitoring shall occur, at a minimum, after each major storm or earthquake, as defined by the geotechnical professional. The geotechnical professional shall submit a report of findings to UCSF that includes recommendations for additional slope stability improvements, if deemed necessary, to maintain continued safety in accordance with geotechnical standards and building code requirements.	For CPHP projects proposed adjacent to the Reserve that would involve excavation or cut slope cut excavation, project-specific geotechnical evaluations shall be prepared as part of the design process and include evaluations of potentially affected slopes, recommendations for tree removal on or at the crest of steep rock slopes, and recommendations for monitoring frequency.	A state-licensed geotechnical engineer in consultation with certified arborist, shall report to the UCSF Project Manager.	The UCSF Project Manager shall submit the results of each tree assessment to the Monitor.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.6 Geology and Soils (cont.)				
Impact GEO-6: Construction associated with the CPHP could have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**CPHP Mitigation Measure GEO-6:** Prior to commencement of construction activities, all on-site personnel shall attend a mandatory pre-project training to outline the general paleontological sensitivity of the project area. The training will include a description of the types of resources that could be encountered and the procedures to follow in the event of an inadvertent discovery of resources. If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist meeting the Society of Vertebrate Paleontology (SVP) Standards can assess the nature and importance of the find and, if necessary, develop appropriate salvage measures in conformance with SVP standards (2010). If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, a qualified paleontologist shall evaluate the resource and determine whether it is "unique" under CEQA. Any discovered paleontological resources that are determined by the qualified paleontologist to be "unique" in accordance with CEQA shall be given appropriate salvage measures in conformance with SVP standards (2010).	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate knowledge of procedures and requirements when paleontological resources are discovered during construction activities.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for implementation of mitigation measure if paleontological resources are discovered during construction activities. Provide construction status report to Monitor upon request.
Impact C-GEO-1: Implementation of the CPHP could have the potential to combine with past, present and reasonably foreseeable future projects to result in cumulatively considerable impacts related to geology and soils.	Implement CPHP Mitigation Measure GEO-6.	See CPHP Mitigation Measure GEO-6.	See CPHP Mitigation Measure GEO-6.	See CPHP Mitigation Measure GEO-6.
EIR Section 4.7 Greenhouse Gas Emissions				
Impact GHG-1: Implementation of the CPHP would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	**CPHP Mitigation Measure GHG-1a: Emission Reduction Measures to supplement those currently included in GHGRS update that would occur as part of the proposed amendment to the 2014 LRDP under the CPHP.** The GHGRS update shall include the following measure identified in Table 4.7-4 to address long-term GHG emissions reductions:	Incorporate the recommended design principle (storm water capture and treatment) into the GHGRS update.	UCSF Project Manager and GHGRS Manager.	Provide the GHGRS update inclusive of the recommended design principle to the Monitor.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.7 Greenhouse Gas Emissions (cont.				
Impact GHG-1 (cont.)	• ***Water Conservation Strategies*:** Campus design principle WC2 of the CPHP identifies storm water capture and treatment to reduce water demand. UCSF shall amend the GHGRS to include a Water Conservation Measure based on storm water capture and the associated reduction in outdoor water demand. A year 2050 target of 3 percent reduction of overall outdoor water use shall be established.			
	CPHP Mitigation Measure GHG-1b: Implement CPHP Mitigation Measure AIR-2a: Project-Level Operational Measures, CPHP Mitigation Measure AIR-2b: TDM Program Enhancements, CPHP Mitigation Measure AIR-4b: Design for Diesel Delivery Truck Emissions Minimization, and CPHP Mitigation Measure AIR-5: Implement "cool roof and pavement" design elements to further reduce emissions from individual projects and mobile sources.	See CPHP Mitigation Measures AIR-2a, AIR-2b, AIR-4b, and AIR-5.	See CPHP Mitigation Measures AIR-2a, AIR-2b, AIR-4b, and AIR-5.	See CPHP Mitigation Measures AIR-2a, AIR-2b, AIR-4b, and AIR-5.
	CPHP Mitigation Measure GHG-1c: Monitor emissions annually and acquire carbon offset credits in conformance with CARB guidance, prioritizing local and in-State offsets to achieve and maintain carbon neutrality for the Parnassus Heights campus site under the CPHP. As part of this mitigation measure, UCSF is making the following separate, though overlapping, GHG emission reduction commitments: (1) As a CARB-covered entity, UCSF will maintain compliance with CARB's cap and trade program; (2) Per existing UC Policy, UCSF's Scope 1 and Scope 2 GHG emissions shall, commencing in 2025, be entirely carbon neutral; (3) Also per existing UC Policy, commencing in 2020, UCSF's Scope 1, Scope 2, and Scope 3 emissions from commuters and air travel shall be voluntarily offset; and (4) UCSF's total GHG operational emissions from all Scope 1, 2, and 3 sources (as defined in this EIR) shall not exceed the Parnassus Heights campus's baseline emissions from these sources in 2018. Each of these commitments is described in more detail below. **Compliance with CARB's Cap and Trade Program:** Any carbon offset credits purchased for the purpose of compliance with CARB's cap and trade program shall be purchased from an accredited carbon credit market. Such offset credits (or California Carbon Offsets) shall be registered with, and retired[1] by an	Throughout the lifetime of the CPHP, prepare, or cause to be prepared by a qualified GHG emissions expert, an annual report of campus GHG emissions (Scope 1, 2, and 3). If the annual monitoring shows that emissions for a given year exceed the 2018 baseline emissions, purchase carbon offset credits that comply with CARB guidance, prioritizing local and in-State offsets.	UCSF Project Manager	Provide the annual GHG report to the Monitor. If the annual report reveals the need for purchase of carbon offset credits, provide the Monitor with documentation that such purchase has occurred, in compliance with CARB guidance.

[1] When Climate Reserve Tonnes (CRTs) are transferred to a retirement account in the Reserve System, they are considered retired. Retirement accounts are permanent and locked to prevent a retired CRT from being transferred again. CRTs are retired when they have been used to offset an equivalent ton of emissions or have been removed from further transactions on behalf of the environment.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.7 Greenhouse Gas Emissions (cont.				
Impact GHG-1 (cont.)	Offset Project Registry, as defined in 17 California Code of Regulations § 95802(a), approved by the California Air Resources Board such as, but not limited to, Climate Action Reserve, American Carbon Registry or Verra (formerly Verified Carbon Standard). In order to demonstrate that the carbon offset credits provided are real, permanent, additional, quantifiable, verifiable, and enforceable, as those terms are defined in 17 California Code of Regulations § 95802(a), UCSF shall document in its annual report: (i) the protocol used to develop those credits, and (ii) the third-party verification report concerning those credits. As and when the credits are retired, UCSF shall document in its annual report the unique serial numbers of those credits showing that they have been retired. **Compliance with UC Policy:** Compliance with UC's policies for carbon neutrality by 2025 and UC's own policy to reduce Scope 1, 2, and transportation-related Scope 3 emissions below 1990 levels pursuant to AB 32 will be accomplished through reductions in direct emissions, the purchase of renewable electricity and possibly biomethane, and the purchase of carbon offset credits. UCSF will purchase voluntary carbon offset credits as the final action to reach the GHG emission reduction targets. As part of the UC Carbon Neutrality Initiative, internal guidelines have been developed to ensure that any use of offsets for this purpose will result in additional, verified GHG emissions reductions from actions that align, as much as possible, with UC's research, teaching, and public service mission. Specifically, any voluntary carbon offset credits used by UCSF to mitigate GHG emissions will: 1. Prioritize local (within the air district) and in-state offset credits over in-nation offset credits. Offset credits shall be third-party verified by a major registry recognized by CARB such as CAR (Climate Action Reserve). If sufficient local and in-state offset credits are not available, UCSF will purchase CARB conforming national offset credits registered with an approved registry. 2. Be reported publicly and tracked through the Climate Registry (TCR) as required by UC policy. TCR is a non-profit organization governed by U.S. states and Canadian provinces and territories. UCSF's TCR reports will be third-party verified and posted publicly.			

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.7 Greenhouse Gas Emissions (cont.				
Impact GHG-1 (cont.)	**Commitment to control Parnassus Heights Annual Emissions to not exceed existing baseline:** UCSF shall annually monitor Parnassus Heights campus-wide GHG operational emissions from all Scope 1, 2 and 3 sources (as defined in this EIR [Scope 1 emissions include on-site natural gas combustion, vehicle fuel use, and fugitive emissions from equipment; Scope 2 emissions are from off-site energy generation; and Scope 3 emissions are indirect emissions not covered in Scope 2, including commuting and other travel, electricity transmission and distribution losses, off-site wastewater treatment, and off-site municipal solid waste disposal], commencing in 2025 upon the completion and occupancy of the first project under the CPHP. The estimated annual emissions shall be compared to the year 2018 baseline of 125,426 MT CO_2e per year to determine whether the emissions have increased above the baseline level. For the identified amount of exceedance of the performance standard, UCSF shall purchase carbon offset credits sufficient to maintain carbon neutrality. These offset credits shall be purchased for the types of Scope 1 and Scope 3 emissions that are already reported to and verified by a third party verification body annually, as well as for Scope 3 emissions from patient and visitor vehicle trips, indirect emissions from water and wastewater demand, and solid waste emissions, all of which are included in the EIR analysis above as required by CEQA. Carbon offset credits used for this purpose shall originate from a voluntary carbon credit registry that TCR recognizes such as: CAR, ACR, or Verra (other registries are also applicable). Offset credits in this case shall be registered, transferred, and retired at such registries. The protocols of each registry, and UC own internal screens, shall be used to demonstrate that the carbon offset credits provided are real, permanent, additional, and have been independently verified as adhering to its applicable project protocols. For this purpose, local (within the air district) and in-state carbon offset credits shall be prioritized over in-nation offset credits. If sufficient local and in-state offset credits are not available, UCSF will purchase CARB conforming national offset credits registered with an approved registry. As and when the credits are retired, UCSF shall document in its annual report the unique identifier of those credits showing that they have been retired and accepted by TCR.			

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.8 Hazards and Hazardous Materials				
Impact HAZ-1: Construction and operation of campus development under the proposed CPHP could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	**CPHP Mitigation Measure HAZ-1:** An Excavation Management Plan shall be prepared by a qualified consultant to include the California Air Resource Board (CARB) Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations to minimize naturally occurring asbestos through the application of best management practices for fugitive dust from construction, grading and excavation operations. Unless site specific testing by a certified laboratory can demonstrate the absence of naturally occurring asbestos in materials to be excavated, construction specifications shall include implementation of this CARB ATCM.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate knowledge of procedures and requirements for managing naturally occurring asbestos.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for implementation of mitigation measure for managing naturally occurring asbestos during ground-disturbing activities. Provide construction status report to Monitor upon request.
Impact HAZ-4: Campus development under the proposed CPHP would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. However, previously unknown contamination could be encountered during construction and could have the potential to create a significant hazard to the public or the environment.	**CPHP Mitigation Measure HAZ-4:** Prior to development on the Parnassus Heights campus site under the CPHP, a Soil Management Plan shall be prepared by a qualified environmental consulting firm to reflect current regulatory requirements and risk management protocols that are in accordance with Regional Water Quality Control Board oversight. The Plan shall include measures to address protocols for identifying, handling, and characterizing suspect contaminated soils. Notification and sampling requirements for adequate characterization shall be in accordance with the overseeing agency (RWQCB or SFDEH) requirements and any required removal or remediation work shall be completed to the overseeing agency's standards prior to occupancy of the new structure.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate knowledge of procedures and requirements for soil management with respect to suspected soil contamination.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for implementation of mitigation measure for managing suspected soil contamination during ground-disturbing activities. Provide construction status report to Monitor upon request.
EIR Section 4.9 Hydrology and Water Quality				
Impact HYD-1: Construction and operation of campus development under the CPHP would have the potential to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.	**CPHP Mitigation Measure HYD-1:** During implementation of the CPHP, UCSF shall continue to implement water conservation measures and construct and implement stormwater management controls as needed so as to: a. Avoid increasing the likelihood of surcharges by exceeding the capacity of the City's CSS; b. Avoid increasing the extent or duration of ponding or overland flow by exceeding the capacity of the City's CSS; and c. Avoid discharges to the City's CSS that could increase the frequency, duration, or volume of combined sewer discharges to the receiving waters. To meet the first two (hydraulic) performance standards, UCSF shall design all new on-campus buildings and site improvements to be consistent with requirements of the City's Stormwater Management Ordinance (Article 4.2 of the San Francisco Public	Prior to implementation of the CPHP, use SFPUC's model to establish a baseline of stormwater and wastewater flows from the campus site. Starting with the Initial Phase, and thereafter, at every major phase of the CPHP (or every five years, whichever is more frequent) use SFPUC's model to estimate stormwater and/or wastewater flows from the campus site and submit the analysis to the SFPUC for review (or request that the SFPUC conduct the analysis on UCSF's behalf).	UCSF Project Manager and Design and Construction Teams	Provide written verification in report form to the Monitor that each contract bid on each phase to certify that selected bid includes provisions for applicable required improvements in the mitigation measure. Provide construction status report to Monitor upon request.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.9 Hydrology and Water Quality (cont.)				
Impact HYD-1 (cont.)	Works Code), ensuring that the stormwater runoff rate and volume from the project shall not exceed pre-development conditions for the 1- and 2-year, 24-hour design storm (the standard for sites that are less than 50 percent impervious). In addition, when connections to the City's CSS are being designed, UCSF shall analyze the capacity of the adjoining sewer system to ensure that the system can accommodate UCSF's increased flows and/or modified connection points. UCSF may choose to conduct this modeling analysis on its own and submit the analysis to the SFPUC for review, or request that the SFPUC conduct the analysis on UCSF's behalf, subject to reimbursement of the SFPUC's costs by UCSF. If the analysis determines that increased flows may exceed the conveyance capacity of the adjoining downstream sewers, UCSF shall pay its proportional share of the costs of expanding the sewer system to accommodate the increased flows from the Parnassus Heights campus site. To meet the third (hydrologic) performance standard, UCSF shall ensure that the total volume of stormwater discharges from the Parnassus Heights campus site in wet weather is decreased by an amount sufficient to offset flows from any increase in impervious surfaces and any increases in wastewater discharges as a result of the CPHP. Necessary reductions may be achieved via LID, on-site detention and re-use, on-site detention for discharge, and/or other strategies in conformance with the City's Stormwater Management Ordinance, and may be less than the total wet weather discharges from Parnassus Heights campus site if modeling demonstrates there is sufficient storage, pumping, and treatment capacity in the City's CSS to avoid increased discharges to the receiving waters from the CSS discharge structures. UCSF shall use the SFPUC's model to establish a baseline prior to implementation of the CPHP and to demonstrate that future incremental increases in stormwater and/or wastewater from the campus site under the CPHP would not cause or contribute to any increase in overflow volumes from the City's CSS discharge structures, as determined through modeling at every major phase of the CPHP (starting with the Initial Phase) or every five years, whichever is more frequent, through CPHP buildout. UCSF may choose to conduct this modeling analysis on its own and submit the analysis to the SFPUC for review, or request that the SFPUC conduct the analysis on UCSF's behalf, subject to reimbursement of the SFPUC's costs by UCSF. In the event of non-compliance, UCSF shall immediately take steps to remedy the deficiency and provide reports to the SFPUC in conjunction with each construction project undertaken to implement the CPHP until the performance standard is met.	Incorporate building and site improvements, consistent with City's Stormwater Management Ordinance, to ensure performance standards in the mitigation measure are met.		

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.9 Hydrology and Water Quality (cont.)				
Impact HYD-1 (cont.)	Any improvements constructed outside the campus site boundary or in public right of way in the City's jurisdiction shall be subject to construction site runoff requirements and post-construction stormwater controls in accordance with the City Public Works Code and in compliance with the City's Stormwater Management Ordinance, and shall be included in UCSFs calculation of the total volume of increased flows to be offset and its modeling of incremental increases in flows into the City's CSS.			
Impact HYD-2: Construction and operation of the campus development under the CPHP would not substantially alter the existing drainage patterns of the site or area, in a manner that has the potential to result in substantial erosion or siltation on- or off- site; would potentially substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site; would potentially create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow.	Implement CPHP Mitigation Measure HYD-1.	See CPHP Mitigation Measure HYD-1.	See CPHP Mitigation Measure HYD-1.	See CPHP Mitigation Measure HYD-1.
Impact C-HYD-1: Construction and operation of campus development under the CPHP, in conjunction with other cumulative development within the City of San Francisco, would have the potential to cumulatively violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.	Implement CPHP Mitigation Measure HYD-1.	See CPHP Mitigation Measure HYD-1.	See CPHP Mitigation Measure HYD-1.	See CPHP Mitigation Measure HYD-1.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.9 Hydrology and Water Quality (cont.)				
Impact C-HYD-2: Construction and operation of campus development under the CPHP, in conjunction with other cumulative development in the City of San Francisco's CSS, would not have the potential to cumulatively alter the drainage pattern of the site or area, through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site; would have the potential to substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flow.	Implement CPHP Mitigation Measure HYD-1.	See CPHP Mitigation Measure HYD-1.	See CPHP Mitigation Measure HYD-1.	See CPHP Mitigation Measure HYD-1.
EIR Section 4.11 Noise and Vibration				
Impact NOI-1: Construction activities under the CPHP would generate a substantial temporary increase in ambient noise levels in the vicinity of the construction project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	**CPHP Mitigation Measure NOI-1a: Construction Noise Control Measures.** UCSF contractors shall employ site-specific noise attenuation measures during construction of projects under the CPHP to reduce the generation of construction noise. These measures shall be included in a Noise Control Plan that shall be submitted for review and approval by UCSF to ensure that construction noise is consistent with the standards set forth in the City's Noise Ordinance. Measures specified in the Noise Control Plan and implemented during project construction shall include, at a minimum, the following noise control strategies: • Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds. • Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will prepare a construction noise control plan to report on the implementation of the mitigation measure.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for construction noise control. Provide a report on construction noise control to Monitor upon request; but no less than quarterly after beginning each construction activity.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

<table>
<tr><th>Environmental Impact</th><th>Mitigation Measures</th><th>Implementation Procedure</th><th>Responsible Unit</th><th>Report Mechanism</th></tr>
<tr><td colspan="5">EIR Section 4.11 Noise and Vibration (cont.)</td></tr>
<tr><td>Impact NOI-1 (cont.)</td><td>Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used where feasible.
• Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures.
• Shield staging areas where adjacent sensitive receptors have direct line-of-sight with loading and delivery activities. Shielding may consist of plywood fencing with no gaps or acoustical paneling erected in K-rails.</td><td></td><td></td><td></td></tr>
<tr><td></td><td>CPHP Mitigation Measure NOI-1b: Construction Hours. Construction hours shall be restricted to the hours listed in the table below. In rare circumstances, work may need to occur outside of these work hour limits. In such cases, UCSF Community and Government Relations will receive advance notice from the project manager, at least one week in advance as feasible, and will engage the community to identify measures to minimize potential impacts. These measures may include, but not be limited to, restricting work to smaller time windows, condensing the overall duration of nighttime work to the degree feasible, and erecting temporary barriers to shield the short-term nighttime activity.
<table>
<tr><th colspan="5">Construction Hours</th></tr>
<tr><th></th><th colspan="2">“Not Noisy” Work[1]</th><th colspan="2">Noisy Work</th></tr>
<tr><th></th><th>Regular hours</th><th>Extended hours[2]</th><th>Regular hours</th><th>Extended hours[1]</th></tr>
<tr><td>Monday - Friday</td><td>7:00 a.m. to 5:00 p.m.</td><td>5:00 p.m. to 8:00 p.m.</td><td>8:00 a.m. to 5:00 p.m.</td><td></td></tr>
<tr><td>Saturday</td><td></td><td>8:00 a.m. to 5:00 p.m.</td><td></td><td>9:00 a.m. to 4:00 p.m.</td></tr>
<tr><td>Sunday</td><td></td><td>8:00 a.m. to 5:00 p.m.</td><td></td><td></td></tr>
</table>
[1] “Not Noisy” work = 80 decibels or less at 100 feet; “Noisy” work = more than 80 decibels at 100 feet.
[2] Extended hours to be considered by UCSF Community and Government Relations with advance notice from the project manager.</td><td>Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will prepare a construction noise control plan to report on the implementation of the mitigation measure.</td><td>UCSF Project Manager and Construction Teams</td><td>Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for construction noise control through limitations on construction hours (may be incorporated into report for Mitigation Measure NOI-1a). Provide a report on construction noise control to Monitor upon request; but no less than quarterly after beginning each construction activity (may be incorporated into report for Mitigation Measure NOI-1a).</td></tr>
</table>

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.11 Noise and Vibration (cont.)				
Impact NOI-1 (cont.)	**CPHP Mitigation Measure NOI-1c: Pile-Installation Noise-Reducing Techniques.** Noise-reducing pile-installation techniques shall be employed during project construction. These techniques shall include: • Installing cast-in-place concrete piles. Noise from auger drilling is 17 dBA less than an impact pile driver. • Vibrating piles into place, and installing shrouds around the pile-driving hammer where feasible. • Implement "quiet" pile-installation technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile installation duration).	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate understanding of means of reducing pile-installation noise.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for construction noise control with respect to pile installation (may be incorporated into report for Mitigation Measure NOI-1a). Provide a report on construction noise control to Monitor upon request; but no less than quarterly after beginning each construction activity (may be incorporated into report for Mitigation Measure NOI-1a).
	Implement CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures–Construction Traffic Control Plan.	See CPHP Mitigation Measure TRANS-5.	See CPHP Mitigation Measure TRANS-5.	See CPHP Mitigation Measure TRANS-5.
Impact NOI-2: Implementation of the CPHP would generate substantial permanent increases in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	**CPHP Mitigation Measure NOI-2: Operational Noise Control.** For all development projects under the CPHP, mechanical equipment shall be selected and designed to meet the City's Police Code requirements of 8 dBA over existing ambient noise levels without the equipment operating as well as an interior noise standard at any sleeping or living room in any dwelling unit located on residential property of 45 dBA between 10:00 p.m. and 7:00 a.m., and 50 dBA between 7:00 a.m. and 10:00 p.m. A qualified acoustical consultant shall be retained to review mechanical noise as these systems are selected to determine specific noise reduction measures necessary to reduce noise to comply with the City's Police Code. Noise reduction measures could include, but are not limited to, selection of equipment that emits low noise levels; installation of noise barriers such as enclosures and parapet walls to block the line of sight between the noise source and the nearest receptors; and siting the mechanical equipment, including intake and exhaust portals for fixed mechanical equipment, as far as possible from the nearby existing sensitive receptors (i.e., west side of building).	Retain, or cause to be retained as part of the mechanical systems design for each new building or building renovation that includes installation of new mechanical equipment, a qualified acoustical consultant to evaluate noise generation characteristics of new mechanical systems and to ensure that noise levels comply with the City's Police Code. Following commissioning of new mechanical equipment, conduct noise measurements to ensure Police Code compliance.	UCSF Project Manager and Design Teams	Provide written verification in report form to the Monitor that the selected mechanical equipment will comply with the City's Police Code, including enumeration and evaluation of any required noise control or reduction measures. Following commissioning of new mechanical equipment, provide written verification in report form to the Monitor that the selected mechanical equipment does comply with the City's Police Code. If non-compliance is detected, identify and install additional noise reduction features.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.11 Noise and Vibration (cont.)				
Impact NOI-3: Construction activities under the CPHP could result in generation of excessive groundborne vibration or groundborne noise levels.	**CPHP Mitigation Measure NOI-3a: Limited Use of Vibratory Rollers.** UCSF shall require that contractors use (non- vibratory) excavator mounted compaction wheels mounted on an excavator or back-hoe and/or small, smooth drum rollers for final compaction of any asphalt base and asphalt concrete within 25 feet of a historic or older structure. If needed to meet compaction requirements, smaller, non-seated vibratory rollers shall be used to minimize vibration levels during repaving activities where needed to meet a vibration standard of 0.25 PPV at adjacent historic or older structures.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate the ability to limit use of vibratory rollers proximate to historic and older structures.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes provisions for limiting use of vibratory rollers (may be incorporated into report for Mitigation Measure NOI-1a). Provide a report on construction vibration control to Monitor upon request; but no less than quarterly after beginning each construction activity (may be incorporated into report for Mitigation Measure NOI-1a).
	CPHP Mitigation Measure NOI-3b: Assessment and Relocation/Retrofitting of Vibration-Sensitive Equipment. UCSF shall evaluate the presence of vibration-sensitive equipment within 150 feet of construction and demolition areas. Any sensitive equipment shall be evaluated for the existing extent of vibration isolation and relocated or further embellish isolation, as warranted. Alternatively, use of such equipment may be suspended during the substantial vibration-generating activities within 150 feet.	Prior to the start of any demolition or construction activity, identify vibration-sensitive equipment within 150 feet, assess the vibration isolation of such equipment, and enhance isolation if deemed necessary.	UCSF Project Manager	Provide written verification in report form to the Monitor that vibration-sensitive equipment within 150 feet of construction and demolition and, if deemed necessary, of provisions to enhance vibration isolation; or alternatively, that equipment is suspended during substantial vibration-generating activities within 150 feet.
Impact C-NOI-1: Implementation of the CPHP, combined with cumulative construction noise in the project area, would generate a substantial temporary increase in ambient noise levels from construction activity in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Implement CPHP Mitigation Measures NOI-1a, NOI-1b, and CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures.	See CPHP Mitigation Measures NOI-1a, NOI-1b, and TRANS-5.	See CPHP Mitigation Measures NOI-1a, NOI-1b, and TRANS-5.	See CPHP Mitigation Measures NOI-1a, NOI-1b, and TRANS-5.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.11 Noise and Vibration (cont.)				
Impact C-NOI-2: Implementation of the CPHP, combined with cumulative development in the project area, would generate substantial permanent increases in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Implement CPHP Mitigation Measure NOI-2.	See CPHP Mitigation Measure NOI-2.	See CPHP Mitigation Measure NOI-2.	See CPHP Mitigation Measure NOI-2.
Impact C-NOI-3: Implementation of the CPHP, combined with cumulative construction in the project area, would result in generation of excessive groundborne vibration or groundborne noise levels.	Implement CPHP Mitigation Measure NOI-3a.	See CPHP Mitigation Measure NOI-3a.	See CPHP Mitigation Measure NOI-3a.	See CPHP Mitigation Measure NOI-3a.
EIR Section 4.15 Transportation				
Impact TRANS-5: Construction activities under the CPHP could temporarily impact travel conditions along sidewalks and roadways serving the campus site.	**CPHP Mitigation Measure TRANS-5: Construction Coordination and Monitoring Measures** ***Construction Traffic Control Plan*** – In order to reduce potential conflicts between construction activities and pedestrians, transit and autos during construction activities at the Parnassus Heights campus site, UCSF shall require construction contractor(s) to prepare a traffic control plan for major phases of project construction (e.g., demolition, construction, or renovation of individual buildings). UCSF and their construction contractor(s) will meet with relevant City agencies to coordinate feasible measures to reduce traffic congestion, including temporary transit stop relocations (e.g., Parnassus Avenue) and other measures to reduce potential traffic and transit disruption and pedestrian circulation effects during major phases of construction of the CPHP projects. For any work within the public right-of-way, the contractor would also be required to comply with the City of San Francisco's *Regulations for Working in San Francisco Streets*, which establish rules and permit requirements so that construction activities can be done safely and with the least possible interference with pedestrians, bicyclists, transit, and vehicular traffic.	Issue instructions in each bid package of each construction project for contractors to incorporate the mitigation measure. The successful contractor will demonstrate the ability to prepare a complete and thorough Construction Traffic Control Plan that addresses traffic, transit, pedestrian, and bicycle movement; incorporates measures to limit single-occupancy vehicle travel by construction workers; and ensures minimal disruption of access for nearby residences, institutions, and businesses.	UCSF Project Manager and Construction Teams	Provide written verification in report form to the Monitor for each contract bid on each phase to certify that selected bid includes a complete and thorough Construction Traffic Control Plan. Provide a report on construction traffic control to Monitor upon request; but no less than quarterly after beginning each construction activity.

TABLE 9-1 (CONTINUED)
SUMMARY OF CPHP IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Implementation Procedure	Responsible Unit	Report Mechanism
EIR Section 4.15 Transportation (cont.)				
Impact TRANS-5 (cont.)	***Reduce Drive Alone Mode Share for Construction Workers*** – In order to minimize parking demand and vehicle trips associated with construction workers, UCSF shall require the construction contractor to include in the Construction Traffic Control Plan methods to encourage walking, bicycling, carpooling, and transit access to the campus site by construction workers. ***Project Construction Updates for Adjacent Residents and Businesses*** – In order to minimize construction impacts on access for nearby residences, institutions, and businesses, UCSF shall provide nearby residences and businesses with regularly-updated information regarding project construction, including construction activities, peak construction vehicle activities (e.g., concrete pours, excavation),and travel lane closures via a newsletter, website, and/or quarterly construction update meetings with neighbors.			

Appendix HR
Historic Resources Technical Memo

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memorandum

date	December 11, 2020
to	Diane Wong, UCSF
cc	ESA Project File D190291.00
from	Johanna Kahn and Amber Grady, ESA
subject	Historic Resources Comments and Responses Document Technical Memo - UCSF Parnassus Heights Campus Site

Environmental Science Associates (ESA) has prepared this technical memo to summarize information and analysis reflected in the Draft Environmental Impact Report (EIR) for the University of California, San Francisco Parnassus Heights Comprehensive Parnassus Heights Plan (UCSF Parnassus Heights CPHP), and to provide related information requested by comments received regarding the Draft EIR. The following includes summaries of each of the six previous historic resources technical studies relied upon for the Draft EIR analysis, as well as the Historic American Buildings Survey (HABS) documentation for UC Hall and the Langley Porter Psychiatric Institute (LPPI). This technical memo also details how each of the reports was used in the EIR analysis, ESA's professional qualifications, and statements of concurrence with the previous findings. In addition, this report summarizes character-defining features of identified historic resources and includes Department of Parks and Recreation (DPR) 523 Update form sets for four buildings (Millberry Union, Saunders Court, Health Sciences Instruction and Research (HSIR) West, and HSIR East). The information provided below has been used to inform the text changes to the Draft EIR included in Section 8.5 of the Comments and Responses Document. None of the new information presented (i.e. summary of character defining features and DPR523 Update form sets) alters the analysis or conclusions presented in the Draft EIR.

Qualifications and Methodology

ESA architectural historians who contributed to the EIR Chapter 4.4, Cultural Resources and Tribal Cultural Resources, were Johanna Kahn and Amber Grady. Ms. Kahn, who holds Bachelor of Architecture (B.Arch.) and Master of Architectural History (M.Ar.H.) degrees and has 11 years of professional experience, exceeds the Secretary of the Interior's (SOI) Professional Qualification Standards in architectural history, architecture, and historic architecture. Ms. Grady, who holds Bachelor of Art (B.A.) in Interior Design and Master of Art (M.A.) in Historic Preservation degrees and has 19 years of professional experience, exceeds the SOI Professional Qualification Standards in architectural history and history. Resumes are attached.

During the course of DEIR preparation, ESA architectural historians reviewed the archival record, conducted a site visit, and performed supplemental research as necessary to inform the CEQA analysis required to assess potential impacts from implementation of the CPHP.

Each piece of the archival record was examined to determine if it was relevant and accurate given the current baseline and the proposed actions described in Chapter 3, Project Description of the DEIR.

Previous UCSF Historic Resources Technical Studies

Summaries are provided below for each of the technical studies that were used to inform the impact analysis in the Draft EIR and that are included in the list of references in Section 4.4.5 of the Draft EIR. Those portions of the studies that are relevant to the proposed project are included below.

Cultural Resources Study of UCSF Medical Center/Children's Hospital Project: UCSF Medical Center/Children's Hospital (Moffitt Hospital) DPR523 Form (EBI Project #61097519 [FCC: 100413A]) (2010)

A comment was received on the DEIR that referenced SHPO's Built Environment Resource Directory (BERD) and stated that Buildings 2274 and 2275, listed at 501 Parnassus Avenue were studied in 2010 and were not included "in the Draft EIR or Carey & Co.'s technical reports."

The *Attachment to SHPO Review of Proposed FCC Undertaking* document for EBI Project #61097519 (FCC: 100413A) includes a concurrence of eligibility for Buildings 2274 and 2275 at 501-505 Parnassus Avenue, San Francisco, CA 94143. Building 2274 refers to Long Hospital and Building 2275 refers to Moffitt Hospital. The construction dates for both buildings are incorrect. The document states that Moffitt Hospital was constructed in 1976 when it was actually constructed in 1955. The document states that Long Hospital was constructed in ca 1950 when it was actually constructed in 1982. The *Attachment to SHPO Review of Proposed FCC Undertaking* document appears to confuse Moffitt Hospital with the LPPI, stating the following:

> *X Eligible:*
>
> > *UCSF Campus*
> > *Buildings 2274 and 2275 [Moffitt Hospital]*
> > *501-505 Parnassus Avenue, San Francisco, CA 94143*
> >
> > *Criterion A: For its association with the development of clinical research related to psychiatry*
> >
> > *Criterion B: For its association with noted physician Robert Langley Porter and his role in the development of the first state psychiatric research institute*
> >
> > *Criterion C: For its Modernist architectural design*
>
> *X Eligible:*
>
> > *UCSF Campus*
> > *Building 2290 [LPPI]*
> > *401-405 Parnassus Avenue, San Francisco, CA 94143*
> >
> > *Criterion A: For its association with the development of the UCSF campus and the integration of medical science into the university realm of teaching and education.*

Criterion C: For its association with the prominent San Francisco architectural firm of Timothy and Milton T. Pflueger.

Note: At this time, I do not concur in the eligibility of Building 2290 under Criterion B for its association with the career of Herbert C. Moffitt.

The Criterion discussion for Moffitt Hospital and the LPPI are apparently switched with the incorrect building identifiers (address and building number) indicated above.

There is a DPR 523 form for Moffitt Hospital (UCSF Medical Center/Children's Hospital, 501-505 Parnassus Avenue), prepared by Dana E. Supernowicz of Historic Resource Associates (HRA) in February 2010, on file at the Northwest Information Center that is associated with the EBI Project #61097519 (FCC: 100413A), but none for Long Hospital as indicated in the comment. Additionally, the DPR 523 form for Moffitt Hospital does not mention Long Hospital by name, and there is no history provided for this building. The Moffitt Hospital evaluation claims that it is "individual eligible for the National Register of Historic Places (NRHP) under Criteria A, B, and C, due to the buildings association with Moffitt and the Pfluegers'. *Attachment to SHPO Review of Proposed FCC Undertaking* document does not concur with the evaluation under Criteria B (see above). With regards to the evaluation under Criteria A, the 2010 HRA evaluation fails to provide sufficient context by which to evaluate this buildings contribution to the medical field. Merely being associated with Herbert C. Moffitt is not enough. Additionally, the building was constructed after Moffitt's retirement indicating that this was more likely a commemorative gesture, not that he was associated with the development of the facility. With regards to the evaluations under Criteria C, the HRA evaluation fails to include any comparative analysis in the context of Pfluegers' body of work. Per the *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, "The criterion is generally restricted to those properties that illustrate (rather than commemorate) a person's important achievements." The 2010 HRA analysis failed to provide a significant linkage between Herbert C. Moffitt's work and Moffitt Hospital. Finally, the evaluation lacks an integrity analysis using all seven aspects as discussed starting on page 44 of *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. For a resource to be eligible for the National Register of Historic Places it must be significant under one or more of the criteria as well as retain sufficient integrity to convey that significance.

There is no new information in the *Attachment to SHPO Review of Proposed FCC Undertaking* document or the associated DPRs, discussed above, that changes the analysis or conclusions in the Draft EIR. ESA concurs with Carey & Co.'s analysis of Moffitt Hospital as disclosed in the Draft EIR and its appendices.

University of San Francisco Parnassus Heights Campus, Historic Resource Evaluation Report (Carey & Co., September 2003)

This 2003 report prepared by Carey & Co. reviewed and evaluated the buildings and structures at the University of California San Francisco (UCSF) Parnassus Heights Campus that were at least 45 years old at the time "and would be directly affected by the UCSF Long Range Development Plan (LRDP) Amendment." The report concluded the following as it relates to the proposed CPHP:[1]

- **UC Hall** was recommended eligible under California Register Criterion 1 (Events) for its association with the broad pattern of development of medical research centers and hospitals in San Francisco. It was also recommended eligible under Criterion 3 (Architecture) is a fine example of the Beaux-Arts Style and is a significant work of master architect Lewis Parsons Hobart. The period of significance was identified as 1917 –

[1] The summary does not include buildings that have since been demolished.

1953. The report concluded that UC Hall retained sufficient integrity to convey its significance, but did not identify character-defining features of the building. The CPHP Draft EIR identifies UC Hall as an historical resource.

- **Moffitt Hospital** was recommended not eligible for listing in the California Register under any criteria, and the study included the following explanation:

  > *At the time of its completion, Moffitt Hospital was the largest and most modern teaching hospital in the western United States. The building is the work of renowned San Francisco architect, Milton Pflueger in conjunction with Blanchard & Maher. The building does not, however, appear to represent a master work of Pflueger's nor does it possess high artistic values in terms of mid-century Modern design. The building reflects a style more typical of its era. In addition, the building has undergone numerous alterations and several additions, and does not retain sufficient integrity to convey any historic associations as the West Coast's largest and most modern teaching hospital when constructed in 1955. The Long Hospital addition in 1983, and the new emergency room entrance soon thereafter, substantially altered not only this building's plan and setting, but also its internal organization and entry sequence. Therefore, in Carey & Co.'s opinion, this resource does not appear to be individually significant at the local, state, or national level under any of the four California Register criteria of evaluation* [2]

- The **Proctor Foundation building** was recommended not eligible for listing in the California Register under any criteria, and the study included the following explanation:

  > *However, Carey & Co. has not found that the foundation or Dr. Proctor have made contributions to the broad pattern of history significant enough to deem the building eligible for the California Register. The building reflects a style typical of its era, yet it does not embody the distinctive characteristics of a type, period, or method, represent the work of a master, or possess high artistic value. Therefore, in Carey & Co.'s opinion, this resource does not appear to be individually significant at the local, state, or national level under any of the four California Register criteria of evaluation.*[3]

In addition to the building evaluations, summarized above, the report included a historical overview of the campus and a discussion of master architects associated with the campus. The historical overview included the following themes/development periods: master plans and depression-era development, war time research and post-war expansion and development, and UCSF Long Range Development Plans (1964-2003).

ESA conducted a site visit in 2019 and confirmed that no substantial changes had occurred that would alter the eligibility of UC Hall, Moffitt Hospital, and Proctor Foundation buildings. It should be noted that the Moffitt Hospital and Proctor Foundation Building were slated for demolition under the 2014 LRDP and the effects of that action were evaluated in the 2014 LRDP EIR, which did not identify the buildings as historic resources under CEQA.

After a detailed review of the Carey & Company 2003 report and the 2014 LRDP EIR, verification of conditions on site, and completion of necessary additional research, ESA concurred with the findings of the prior analyses and used them in the course of preparing the current DEIR. Specifically, ESA concluded that UC Hall is an historical resource and neither Moffitt Hospital nor the Procter Building qualify as such.

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2 Carey & Co., *UCSF Parnassus Heights Campus Historic Resources Evaluation*, 2003, page 26.

3 Carey & Co., *UCSF Parnassus Heights Campus Historic Resources Evaluation*, 2003, page 27.

With regard to Moffitt Hospital, the UCSF LRDP Amendment #2 Draft EIR, stated, on page 4.3-12:

> Alterations to Moffitt Hospital include the visual connection on the north elevation to the Medical Science building by a bay of open-air stair landings, and interior modernization completed in 1974. The Joseph M. Long Hospital opened in 1983; it was constructed at the south side of Moffitt and functions as an addition to the building. The following year, a new three-story emergency entrance, matching the architectural style of Long, was added to the east end of the north elevation. Internally, Moffitt Hospital has had numerous renovations and remodeling over the years, and retains almost none of its original internal features, with the exception of its double-loaded corridor and most of its steel door frames. Moffitt Hospital does not appear to be individually significant at the local, state, or national level.

Moffitt Hospital was evaluated in 2003 and found to be ineligible for the California Register. In 2003 the building was 48 years old. In 2005, when the building was 50 years old, ESA concurred with this finding in the UCSF LRDP Amendment #2 Draft EIR that stated, on page 4.3-12, "Moffitt Hospital does not appear to be individually significant at the local, state, or national level." Both sources cite lack of integrity as a major factor in its ineligibility. As of 2020, Moffitt Hospital is 65 years old and no restoration has been performed in the intervening years and the building continues to lack sufficient integrity for eligibility as a historical resource per CEQA.

Constructed in 1956, the Proctor Building was 47 years old when it was evaluated by Carey & Co. in 2003. ESA concluded that sufficient information was known and provided by Carey & Co. in 2003 to adequately evaluate the building for significance. No new information has become available that leads ESA to a different conclusion. UC Hall was slated for demolition under earlier plans for Parnassus Heights and effects of its removal were evaluated in the 2005 UCSF LRDP Amendment #2 Draft EIR, which stated, on page 4.3-21, "Because UC Hall is eligible for listing in the California Register, its demolition would be considered a significant and unavoidable impact."

In addition, ESA is in receipt of comments on the CPHP Draft EIR and materials submitted by commenters that expand on the 2003 evaluation of UC Hall by providing information and commentary about the Zakheim Murals. Included in these comments and materials are information such as the following:

- The 1935-38 frescos "History of Medicine in California" are the largest single work by artist Bernard Zakheim, who was a major artist of his era and studied fresco painting with Diego Rivera;[4]

- The murals depict doctors, students, and patients throughout California's history, and Biddy Mason, a Black nurse who was born a slave in 1818 and went onto become a midwife, nurse, philanthropist, and founder of the First African Methodist Episcopal Church in Los Angeles;[5,6]

- The murals are "irreplaceable" from "both an artistic and historical perspective" and "remnants of an era when government exalted and funded the arts;[7]

4 San Francisco Board of Supervisors Resolution No. 355-20, adopted July 28, 2020.

5 Carol Mogash, "A Black Nurse Saved Lives. Today She May Save Art." *New York Times*, August 11, 2020, Updated September 25, 2020.

6 Nicholas Weiler, "The Open Hand: A Conversation with the Descendants of Buddy Mason," *UCSF Campus News*, September 2020.

7 Adam Gottstein, "UCSF Development Puts Murals at Risk," *The Fireside, News and Views from the Living New Deal*, July 2020.

Based on such materials, ESA continues to believe that UC Hall is an important historic resource, significant for its history and architecture as discussed by Carey and Company, and that this significance is enhanced by the importance of the Zakheim murals as a work of art with a social/political perspective that remains relevant in 2020.

Based on the information and analysis presented by Carey & Company and cited by the commenters, as well as ESA's own site visit and review of the record, ESA concurs with Carey & Company's conclusions recommending UC Hall as eligible for the California Register. Also, while ESA has not prepared an independent evaluation of UC Hall or the murals for eligibility on the National Register, ESA believes that the information in the record would support their listing if an evaluation were prepared. Their eligibility and/or listing in the National Register (and potentially as a San Francisco Landmark) would not alter the conclusions presented in the Draft EIR, which considers UC Hall and the murals as an historical resource pursuant to CEQA Section 21084.1.

Historic Assessment for Clinical Sciences Building (Page & Turnbull, 2005)

In this 2005 evaluation prepared by Page & Turnbull, the Clinical Sciences Building was recommended individually eligible for listing in the California Register under Criterion 1 (Events) for its status as the second oldest surviving building on the campus. Completed in 1933, the Clinical Sciences Building represents the expansion of the UC Hospital toward institutionalization. It was also recommended individually eligible for listing under Criterion 3 (Architecture) as the earliest known example of a steel-frame building with welded connections in San Francisco and as a significant work of master architect William C. Hays. Although a period of significance was not identified in the report, it can logically be presumed to be 1933 (the date of construction), and the report concluded that the building retained sufficient integrity to convey its significance. The report did not identify character-defining features of the Clinical Sciences Building.

While the Clinical Sciences Building is not slated for alteration or demolition as part of the CPHP, the historic context provided in the report contains valuable information about the overall campus history including the themes/development periods of origins of the University of California, San Francisco, School of Medicine; University of California Affiliated College; 1906 Earthquake and Fire; the New UC Hospital; World War I to the 1930s; Post-War to present; and William C. Hays, 1873-1963. This information was used to confirm the eligibility of other buildings on campus that were evaluated for potential impacts.

UCSF Historic Resources Survey (Carey & Co., February 2011)

This 2011 report prepared by Carey & Co. identified the following at the Parnassus Heights campus as it relates to the CPHP:

- **Millberry Student Union and Garage** (500 Parnassus Avenue): Carey & Co.'s evaluation was an update to the 2006 evaluation by Historic Resource Associates of the "Millberry Student Union Building" (referred to therein as the "Millberry Union complex") which identified the complex's components as the Millberry Union building, the women's residence hall, and the men's residence hall. The Millberry Union Garage was not previously identified as component of the complex, but appears to have been evaluated as such by Carey & Co. The complex was recommended eligible under Criteria A/1 (Events) for its association with UCSF's accommodation of student services beginning in the mid-20th century. No period of significance was identified. ESA has prepared an update to the DPR 523, attached to this memo, to clarify that the Millberry Union Garage is part of the Millberry Union complex. Impacts to the Millberry Union, which includes the Garage, are analyzed under Impact CUL-1, starting on page 4.4-12 of the CPHP DEIR. The impact was determined to be significant and unavoidable even with the implementation of CPHP Mitigation Measures CUL-1a through -1c.

Impacts to the Millberry Union resulting from proposed alterations to the garage portion as part of the Irving Street Arrival Project were analyzed starting on page 4.4-16 and were determined to be less than significant.

- **Medical Building 1 (Ambulatory Care Center)** was evaluated in 2011 and determined to be not eligible using Criterion G (Exceptional Significance) due to it being less than 50 years old at the time of evaluation. As of 2020 it is 48 years old; therefore, it is still under 50 years old and the Criterion G evaluation remains applicable and appropriate.

- **School of Dentistry (a.k.a. Dental Clinics Building, 707 Parnassus Avenue**) was recommended eligible under Criteria Consideration G (Properties that Have Achieved Significance Within the Last 50 Years) under both Criteria A/1 (Events) because it reflects the important period of late-20th-century development at the Parnassus Heights Campus and Criteria C/3 (Architecture) because it is an exceptional example of the International Style in and is an important work of master architect John Funk. The period of significance was identified as 1980. As of 2020 the School of Dentistry is 40 years old; therefore, the Criteria Consideration G (Properties that Have Achieved Significance Within the Last 50 Years) is still applicable.

- **Medical Sciences Building** (513 Parnassus Avenue) was recommended eligible under Criteria A/1 (Events) for its association with the rapid expansion and increasing enrollment of UCSF in the postwar years and Criteria C/3 (Architecture) as a good example of an International Style hospital and an important work of the architecture firm Blanchard and Maher. The period of significance for all criteria was identified as 1954.

- **School of Nursing** was evaluated in 2011 and determined to be not eligible using Criterion G (Exceptional Significance) due to being less than 50 years old at the time of evaluation. There are two sources for building dates, 1972 and 1979. As of 2020 it is a maximum of 48 years old; therefore, it is still less than 50 years old and the Criterion G evaluation remains applicable and appropriate.

- **Saunders Court**, constructed in 1967, had not yet reached historic age (i.e., 50 years) when it was evaluated in 2011, but was identified as likely to become individually eligible for listing in the National Register and California Register when it reached 50 years of age. As of 2020, Saunders Court is 53 years old. ESA has prepared a DPR update form, which is attached to this memo, and confirms Carey & Company's conclusion that Saunders Court is eligible for listing and is therefore an historical resource, as indicated in the CPHP Draft EIR.

- **HSIR East** (513 Parnassus Avenue), constructed in 1964/66, had not yet reached historic age (i.e., 50 years) when it was evaluated in 2011, but was identified as likely to become individually eligible for listing in the National Register and California Register when it reached 50 years of age. ESA's 2019 site visit confirmed that no major alterations have occurred that would change this earlier finding. As of 2020, HSIR East is 56 years old. ESA has prepared a DPR update form, which is attached to this memo, and confirms Carey & Company's conclusion that HSIR East is eligible for listing and is therefore an historical resource, as indicated in the CPHP Draft EIR.

- **HSIR West** (513 Parnassus Avenue), constructed in 1964/66, had not yet reached historic age (i.e., 50 years) but was identified as likely to become individually eligible for listing in the National Register and California Register when it reached 50 years of age. As of 2020, HSIR West is 56 years old. ESA's 2019 site visit confirmed that no major alterations have occurred that would change this earlier finding. ESA has prepared a DPR update form, which is attached to this memo, and confirms Carey & Company's conclusion that HSIR West is eligible for listing and is therefore an historical resource, as indicated in the CPHP Draft EIR.

- **Aldea San Miguel 8** (101 Behr Avenue), **Aldea San Miguel 10** (151-177 Johnstone Drive), and **Aldea San Miguel 12** (121 Johnstone Drive), constructed in 1960, were 51 years old in 2011. They were recommended eligible under Criteria C/3 (Architecture) as intact examples of the Second Bay Region Tradition. The period

of significance was identified as 1960. ESA's 2019 site visit confirmed that no major alterations have occurred that would change these earlier findings and ESA's concurs that these resources are still eligible as historical resources.

- **Surge** was 45 years old in 2011 when it was recommended eligible for listing in the National and California registers "under Criterion C/3 (Design/Construction) as an innovatively designed research laboratory and as the work of master architects Marquis & Stoller." [8] ESA's 2019 site visit confirmed that no major alterations have occurred that would change this earlier finding and ESA's concurs that Surge is still eligible as a historical resource. However, demolition of Surge was evaluated in the 2014 LRDP EIR and the CPHP does plan.

- **Woods** was 49 years old in 2011 when it was recommended not eligible for listing in the National or California registers under any of the criteria. The following explanation is taken from Carey & Co.'s 2010 DPR form.[9]

  > *The building does not appear to be associated with events or historic themes of significance under Criterion A/1, nor does it appear to be associated with the life of a significant person under Criterion B/3. While Nick Forell rose to the ranks of most prominent structural engineers in the San Francisco Bay, heading a practice that pursued work in the international area, this building does not appear to be associated with any significant aspect of that career and is not a good example of notable feats in engineering. William Gillis does not appear to have achieved much significance and the design, though typical of its era, does it not rise to the level of a sophisticated work that embodies high artistic values. Thus, th[e] building does not appear to be eligible for the NRHP/CRHR under Criterion C/3.*

  ESA's 2019 site visit confirmed that no major alterations have occurred that would change this earlier finding and ESA's concurs that Woods is still ineligible as a historical resource. However, demolition of Surge was evaluated in the 2014 LRDP EIR and the CPHP does plan.

Mount Sutro Open Space Reserve Cultural Landscape Evaluation Report (Denise Bradley and Knapp & VerPlanck Preservation Architects, January 2013)

The report completed in 2013 by Bradley, et al. recommended that the Mount Sutro Open Space Reserve (Reserve) is eligible for listing in the California Register as a cultural landscape under Criterion 1 (Events) for its association with the history of San Francisco and the informal development of this naturalistic landscape as a recreational area and green space for the City. The period of significance was identified as 1886 – present (i.e., 2013). It was also recommended eligible under Criterion 2 (People) for its association with Adolph Sutro and his development of the Sutro Forest. The period of significance under this criterion was identified as 1886 – 1898. The report concluded that the Reserve retained sufficient integrity to convey its significance. The following character-defining features of the Reserve were identified:

- the presence of a forest that covers the overwhelming majority of the land area and whose dominant species is eucalyptus;

[8] Carey & Co., *UCSF Parnassus Heights Campus Historic Resources Evaluation*, 2011, DPR523 form for Surge (90 Medical Center Way) in Appendix D.

[9] Carey & Co., *UCSF Parnassus Heights Campus Historic Resources Evaluation*, 2011, DPR523 form for Woods (1200 Medical Center Way) in Appendix D.

- the presence of the Historic and Fairy Gates trails as part of a consciously laid out trail system and the presence of informal or social trails which have developed over time related to land use activities and to provide connections into Mount Sutro from the surrounding neighborhoods; and
- the natural topographic characteristics of the site, including the steep terrain, the rock outcrops, Stanyan Canyon, and the summit.

ESA conducted a site visit in 2019 and confirmed that no substantial changes had occurred that would alter the eligibility of the Reserve. After a detailed review of the report, and verification of conditions on site, ESA concurred with the findings of this report and used it in the course of preparing the current DEIR.

Historic Evaluation for Langley Porter Psychiatric Institute (Donna Graves, April 2019)

In this 2019 evaluation prepared by Donna Graves, the Langley Porter Psychiatric Institute (LPPI) was recommended individually eligible for listing in the National Register and California Register under Criteria A/1 (Events) for its association with pioneering efforts by the University of California and the State of California to jointly address mental illness. The period of significance for this association was identified as 1943 – 1973. Additionally, the building was recommended individually eligible for listing under Criteria A/1 (Events) for its association with LGBTQ history, particularly related to developments in legal and medical perspectives and treatment. The period of significance for this association was identified as 1943 – ca. 1955. The report concluded that the LPPI retained sufficient integrity to convey its significance. The report did not identify character-defining features of the building.

ESA conducted a site visit in 2019 and confirmed that no substantial changes had occurred that would alter the eligibility of LPPI. After a detailed review of the report and verification of conditions on site, ESA concurred with the findings of this report and used it in the course of preparing the current DEIR.

Historic American Buildings Survey (HABS)-Like Documentation

In addition to the historic resources technical studies summarized above, three extant buildings on the Parnassus Heights campus have been documented according to the standards of the Historic American Buildings Survey (HABS). These are UC Hall (documented by Page & Turnbull in 2005), Surge (2016), and LPPI (documented by Donna Graves in 2019). As specified in the UCSF Comprehensive Parnassus Height Plan DEIR, HABS-like documentation (i.e., documentation completed to the standards of HABS but not submitted to the Library of Congress) is required as part of mitigation for the demolition of these two buildings, and these efforts provide a documentary record of the buildings in their existing condition and including the significant interior and exterior features of the buildings.

DPR523 Updates

DPR 523 update forms were prepared by ESA for the following resources. None of these forms alter conclusions presented in the Draft EIR.

- HSIR East
- HSIR West
- Millberry Union
- Saunders Court

Character-defining Features

At the request of a commenter, ESA has amplified information provided in the studies summarized above by providing a list of character-defining features for those historical resources that would be demolished or altered as part of the proposed CPHP. None of this information changes the conclusions presented in the Draft EIR.

Millberry Union Complex

- Complex composed of the one-story student union ("Millberry Union building"), five-story women's residence hall, five-story men's residence hall, and eight-story parking garage
- Flat roofs on the two residence halls
- Vertical orientation of the two residence halls
- Use of modern materials
- Large expanses of glass in aluminum-frame windows
- Primary historical function of providing housing, dining, and recreational facilities for students

Dental Clinics/School of Dentistry

- L-shaped plan
- Reinforced concrete-frame construction
- Exterior stucco cladding painted white and with regularly spaced horizontal and vertical expansion joints
- Stepped massing that conformed to idea that the west end of the campus should function as a "soft edge" between the residential neighborhood to the west and the high-rise nature of the UCSF campus
- Large window walls that provide natural light to and outward views from the interior
- Large overhangs/trellises on the east and west sides of the building that function as shade structures and to visually reduce the massive appearance of the building
- Flat roofs with garden terraces
- Main pedestrian entrance from Parnassus Avenue that is marked with a large trellis with cables for developing vines, red brick paving, and redwood and poplar trees whose vertical orientation counteract the horizontal massing of the building

Saunders Court

- paved walkways around the perimeter of the central lawn
- concrete steps
- columns from the old Medical Sciences Building
- cornerstone from one of the original Affiliated Colleges buildings
- various sculptures
- mature trees
- overall rectangular form of the courtyard, which is bordered by buildings on all four sides
- circulation through it

HSIR West

- Proximity to HSIR East, to which it is functionally related and physically joined
- Proximity to Saunders Court to the north, to which it is connected via a concrete staircase
- 13 stories in height
- Steel-frame and reinforced concrete construction; concrete floor slabs project beyond the wall planes
- Floor-to-ceiling, aluminum-sash windows on all stories
- T-shaped plan
- Main entrance on north façade marked by a canopy formed by curved concrete panels
- Flat roof with mechanical equipment
- Windowless tower on south façade that contains vertical circulation and mechanical services and is clad in cementitious panels
- Exterior decoration limited to the exposed steel frame, asymmetrically spaced exterior columns, and sheltered entrance stairways

HSIR East

- Proximity to HSIR West, to which it is functionally related and physically joined
- 16 stories in height
- Steel-frame and reinforced concrete construction; concrete floor slabs project beyond the wall planes
- Floor-to-ceiling, aluminum-sash windows on all stories
- T-shaped plan
- Flat roof with mechanical equipment
- Windowless tower on east façade that contains vertical circulation and mechanical services and is clad in cementitious panels
- Exterior decoration limited to the exposed steel frame, asymmetrically spaced exterior columns, and sheltered entrance stairways

Medical Sciences

- Stylistic elements of the International Style
- Proximity to Moffitt Hospital; the two buildings were designed and constructed concurrently and comprised the Medical Center and were intended to function as an integrated unit
- 17 stories in height
- L-shaped plan
- Primary (north) façade on Parnassus Avenue composed of 10 structural bays
- Masonry panel cladding
- Aluminum-sash, multi-lite windows in groups of three and four

Aldea San Miguel 8, 10, and 12

- Stylistic elements of the Second Bay Tradition, which combined the regional vernacular Bay Tradition with the International Style
- Steeply sloping and heavily wooded site
- Immediate access to the outdoors, particularly via sliding glass doors, large windows, and wide balconies
- Landscape design by Lawrence Halprin
- Three stories in height, with first story partially submerged below grade
- Rectangular plan
- Stucco and vertical wood cladding
- Shallow-pitched gable roof with deep eaves and rakes
- Cantilevered balconies

Mount Sutro Open Space

- Presence of a forest that covers the overwhelming majority of the land area and whose dominant species is eucalyptus
- Presence of the Historic and Fairy Gates trails as part of a consciously laid out trail system and the presence of informal or social trails which have developed over time related to land use activities and to provide connections into Mount Sutro from the surrounding neighborhoods
- Natural topographic characteristics of the site, including the steep terrain, the rock outcrops, Stanyan Canyon, and the summit

SOURCE: Google Earth, 2020; ESA, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.4-1
Historical Resources in North Portion of Parnassus Heights Campus Site

ESA

SFO/D190291.00 - UCSF CPHP EIR/2. Graphics/Illustrator

SOURCE: Google Earth, 2020; ESA, 2020

UCSF Comprehensive Parnassus Heights Plan EIR

Figure 4.4-2
Historical Resources in Southeast Portion of Parnassus Heights Campus Site (Aldea Housing Complex)

☐ Continuation ☒ Update **Recorded by:** ESA **Date:** October 2020

P6. Date Constructed/Age and Source:
☒ Historic ☐ Prehistoric ☐ Both
1966-67; UCSF records and 2010 Carey & Co. evaluation

P11. Report Citation: ESA. *University of California, San Francisco Comprehensive Parnassus Heights Plan Draft Environmental Impact Report.* Prepared for the City and County of San Francisco Planning Department, Environmental Planning Division, May 2020.

B10. Significance

When HSIR East was evaluated by Carey & Co. in 2010, it was not yet 50 years old and it was not evaluated under National Register of Historic Properties (National Register) Criteria Consideration G. The 2010 evaluation continues:

> HSIR East will likely be eligible for listing in the [National Register and California Register] under Criteria A/1 and C/3, for its association with postwar expansion of UCSF, for its modernist aesthetic, and as the "work of a master architect" (Reid and Tarics). Along with the Medical Sciences Building, HSIR East embodied and facilitated the development of state-of-the-art research, teaching, and medical practices that catapulted UCSF to the height of prestige in the United States during the postwar period. In addition, Reid and Tarics was an important pioneer in designing educational facilities and earthquake protection technology. The building's design also appears to possesses "high artistic values" and stands as an excellent and well-preserved example of the International Style. Overall, the building retains integrity displaying the character defining features of the style and possesses the aspects of design, materials, and workmanship, location, setting, feeling and association.[1]

No period of significance was identified in the 2010 evaluation.

At this writing (in 2020), HSIR East is 53 years old and age-eligible for consideration as a potential historical resource/historic property. ESA concurs with the previous evaluation that HSIR East appears to be individually eligible under Criteria A/1 and C/3. For the purposes of this updated evaluation, the period of significance is 1966-67, the years that HSIR East was constructed. Having undergone no known significant alterations, the building retains sufficient integrity to convey its historical and architectural significance.

Character-defining Features:

- Proximity to HSIR West, to which it is functionally related and physically joined
- 16 stories in height
- Steel-frame and reinforced concrete construction; concrete floor slabs project beyond the wall planes
- Floor-to-ceiling, aluminum-sash windows on all stories
- T-shaped plan
- Flat roof with mechanical equipment
- Windowless tower on east façade that contains vertical circulation and mechanical services and is clad in cementitious panels
- Exterior decoration limited to the exposed steel frame, asymmetrically spaced exterior columns, and sheltered entrance stairways

B12. References:

Carey & Co. *UCSF Historic Resources Survey, San Francisco, California.* Prepared for University of California, San Francisco, February 8, 2011.

[1] Carey & Co., California Department of Parks and Recreation (DPR) 523 Form-set for HSIR East, July 31, 2010. Included in appendix of Carey & Co., *UCSF Historic Resources Survey, San Francisco, California*, prepared for University of California, San Francisco, February 8, 2011.

☐ Continuation ☒ Update **Recorded by:** ESA **Date:** October 2020

P6. Date Constructed/Age and Source:
☒ Historic ☐ Prehistoric ☐ Both
1966-67; UCSF records and 2010 Carey & Co. evaluation

P11. Report Citation: ESA. *University of California, San Francisco Comprehensive Parnassus Heights Plan Draft Environmental Impact Report.* Prepared for the City and County of San Francisco Planning Department, Environmental Planning Division, May 2020.

B10. Significance

When HSIR West was evaluated by Carey & Co. in 2010, it was not yet 50 years old and it was not evaluated under National Register of Historic Properties (National Register) Criteria Consideration G. The 2010 evaluation continues:

> HSIR East [*sic*, should be West] will likely be eligible for listing in the [National Register and California Register] under Criteria A/1 and C/3, for its association with postwar expansion of UCSF, for its modernist aesthetic, and as the "work of a master architect" (Reid and Tarics). Along with the Medical Sciences Building, HSIR West embodied and facilitated the development of state-of-the-art research, teaching, and medical practices that catapulted UCSF to the height of prestige in the United States during the postwar period. In addition, Reid and Tarics was an important pioneer in designing educational facilities and earthquake protection technology. The building's design also appears to possesses "high artistic values" and stands as an excellent and well-preserved example of the International Style. Overall, the building retains integrity displaying the character defining features of the style and possesses the aspects of design, materials, and workmanship, location, setting, feeling and association.[1]

No period of significance was identified in the 2010 evaluation.

At this writing (in 2020), HSIR West is 53 years old and age-eligible for consideration as a potential historical resource/historic property. ESA concurs with the previous evaluation that HSIR West appears to be individually eligible under Criteria A/1 and C/3. For the purposes of this updated evaluation, the period of significance is 1966-67, the years that HSIR West was constructed. Having undergone no known significant alterations, the building retains sufficient integrity to convey its historical and architectural significance.

Character-defining Features:

- Proximity to HSIR East, to which it is functionally related and physically joined
- Proximity to Saunders Court to the north, to which it is connected via a concrete staircase
- 13 stories in height
- Steel-frame and reinforced concrete construction; concrete floor slabs project beyond the wall planes
- Floor-to-ceiling, aluminum-sash windows on all stories
- T-shaped plan
- Main entrance on north façade marked by a canopy formed by curved concrete panels
- Flat roof with mechanical equipment
- Windowless tower on south façade that contains vertical circulation and mechanical services and is clad in cementitious panels
- Exterior decoration limited to the exposed steel frame, asymmetrically spaced exterior columns, and sheltered entrance stairways

B12. References:

Carey & Co. *UCSF Historic Resources Survey, San Francisco, California.* Prepared for University of California, San Francisco, February 8, 2011.

[1] Carey & Co., California Department of Parks and Recreation (DPR) 523 Form-set for HSIR West, July 31, 2010. Included in appendix of Carey & Co., *UCSF Historic Resources Survey, San Francisco, California*, prepared for University of California, San Francisco, February 8, 2011.

☐ Continuation ☒ Update **Recorded by:** ESA **Date:** October 2020

P11. Report Citation: ESA. *University of California, San Francisco Comprehensive Parnassus Heights Plan Draft Environmental Impact Report.* Prepared for the City and County of San Francisco Planning Department, Environmental Planning Division, May 2020.

B10. Significance

When Saunders Court was evaluated by Carey & Co. in 2010, it was not yet 50 years old and was found to be ineligible under National Register of Historic Properties Criteria Consideration G. At that time, it was identified as "a significant cultural landscape on the UCSF campus and may become eligible for the [National Register and California Register] under Criteria A/1 and C/3 when it reaches fifty years of age." The 2010 evaluation continues:

> Saunders Court is the only space on campus that embodies both the original Affiliated Colleges campus and the postwar expansion of the university. Its footprint is that of the old Medical Sciences Building, the last of the original Affiliated Colleges buildings to be demolished, and the courtyard exists because postwar expansion of the campus resulted in dramatic alterations to campus architecture. For these reasons, the courtyard appears to be eligible for the [National Register and California Register] under Criterion A/1. Master landscape architect Robert Royston designed the courtyard. While more research would have to be completed to determine how significant this cultural landscape is within Royston's oeuvre, it may be eligible for the [National Register and California Register] under Criterion C/3 as the work of a master architect. The cultural landscape appears to retains excellent integrity in all seven categories, having undergone few alterations since its creation.[1]

No period of significance was identified in the 2010 evaluation.

At this writing (in 2020), Saunders Court is 53 years old and age-eligible for consideration as a potential historical resource/historic property. ESA concurs with the previous evaluation that Saunders Court appears to be eligible under Criteria A/1 and C/3 as a cultural landscape. For the purposes of this updated evaluation, the period of significance is 1967, the year that Saunders Court was designed and developed. Since 2016, the central lawn has been fenced off from the public and used as a construction staging area. There have been no other alterations, and all elements that compose Saunders Court (i.e., its character-defining features) remain, including the paved walkways around the perimeter of the central lawn, the concrete steps, the columns from the old Medical Sciences Building, the cornerstone from one of the original Affiliated Colleges buildings, various sculptures, mature trees, the overall rectangular form of the courtyard, and circulation through it. Saunders Court therefore retains sufficient integrity to convey its historical and architectural significance.

Character-defining Features:

- paved walkways around the perimeter of the central lawn
- concrete steps
- columns from the old Medical Sciences Building
- cornerstone from one of the original Affiliated Colleges buildings
- various sculptures
- mature trees
- overall rectangular form of the courtyard, which is bordered by buildings on all four sides
- circulation through it

B12. References:

Carey & Co. *UCSF Historic Resources Survey, San Francisco, California.* Prepared for University of California, San Francisco, February 8, 2011.

[1] Carey & Co., California Department of Parks and Recreation (DPR) 523 Form-set for Saunders Court, July 31, 2010. Included in appendix of Carey & Co., *UCSF Historic Resources Survey, San Francisco, California*, prepared for University of California, San Francisco, February 8, 2011.

☐ Continuation ☒ Update **Recorded by:** ESA **Date:** October 2020

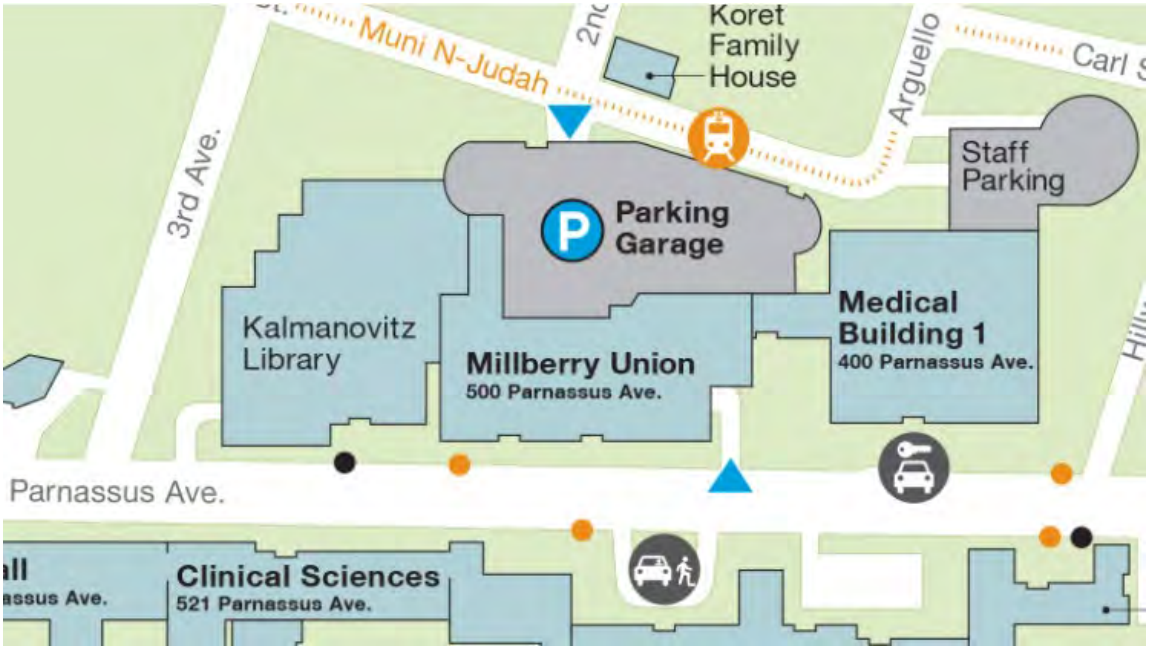
P3a. Description

The Millberry Union Garage, also known as the Main Parking Garage, is an eight-level parking garage located on the north side of the Millberry Union complex, of which it is a part. Vehicular access to the garage is from Irving Street and Parnassus Avenue. It is of reinforced concrete construction and features metal guardrails along the Irving Street façade. At the east and west ends of the north façade are curved concrete walls with staggered vertical openings; the vertical vehicular circulation is located in these areas.

P6. Date Constructed/Age and Source:

☒ Historic ☐ Prehistoric ☐ Both
Ca. 1956-58; UCSF records and historic aerial photographs

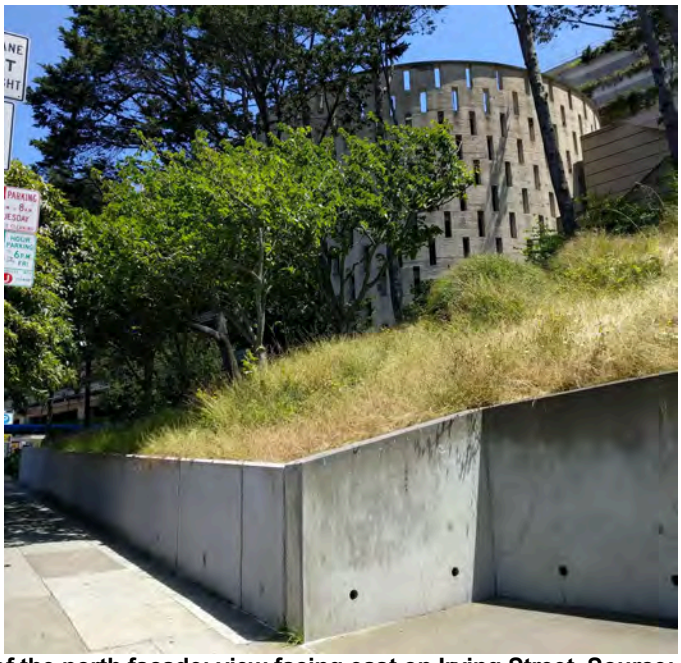
P11. Report Citation: ESA. *University of California, San Francisco Comprehensive Parnassus Heights Plan Draft Environmental Impact Report.* Prepared for the City and County of San Francisco Planning Department, Environmental Planning Division, May 2020.



Location map showing the Millberry Union Garage relative to the Millberry Union Complex.
Source: UCSF, 2020.

☐ Continuation ☒ Update **Recorded by:** ESA **Date:** October 2020

North façade of the Millberry Union Garage with vehicular access visible at the lower right. View facing east on Irving Street. Source: ESA, 2019.



West end of the north façade; view facing east on Irving Street. Source: ESA, 2019.

☐ Continuation ☒ Update **Recorded by:** ESA **Date:** October 2020

B10. Significance

Carey & Co.'s 2010 evaluation was an update to the 2006 evaluation by Historic Resource Associates of the "Millberry Student Union Building" (referred to therein as the "Millberry Union complex") which identified the complex's components as the Millberry Union building, the women's residence hall, and the men's residence hall. The Millberry Union Garage was not previously identified as part of the complex.

A parking garage was built in two phases concurrently with the rest of the Millberry Union complex, which opened in September 1958. The first phase contained 150 parking stalls and was in operation that month. The second phase, which contained an additional 680 parking stalls, was under construction at that time and opened at a later date.[1]

In contrast with the 2006 evaluation, Carey & Co. recommended the Millberry Union complex as eligible for listing in the National Register of Historic Places (National Register) and California Register of Historical Resources (California Register) under Criteria A/1 for its association with UCSF's accommodation of student services beginning in the mid-20th century:

> Since its inception, UCSF paid little attention to the residential and recreational needs of students. […] With the significant expansion of state, federal, and extramural funds for cutting edge research and academic programs in the postwar period, however, UCSF saw its student population rise rapidly and recognized the necessity of providing housing, dining, and recreational facilities for its graduate students. Millberry Student Union stands in direct response to this important trend in UCSF's mid-century history.[2]

No period of significance was identified in the 2010 evaluation.

ESA concurs with the previous evaluation that the Millberry Union complex appears to be individually eligible under Criteria A/1. Because the parking garage was constructed to serve students, faculty, and visitors, its function is clearly linked to the historic significance of the complex, though in a supporting role. For this reason, the Millberry Union Garage should be considered as part of the Millberry Union complex. For the purposes of this updated evaluation, the period of significance is 1956-ca. 1960, which represents the beginning of construction of the Millberry Union complex and the approximate completion of the garage addition (the exact date is unknown).

Character-defining Features:

- Complex composed of the one-story student union ("Millberry Union building"), five-story women's residence hall, five-story men's residence hall, and eight-story parking garage
- Flat roofs on the two residence halls
- Vertical orientation of the two residence halls
- Use of modern materials
- Large expanses of glass in aluminum-frame windows
- Primary historical function of providing housing, dining, and recreational facilities for students

[1] "UC Student Union Here Opens Today," *San Francisco Chronicle*, September 19, 1958: 3.

[2] Carey & Co., California Department of Parks and Recreation (DPR) 523 Update for Millberry Student Union, May 21, 2010. Included in appendix of Carey & Co., *UCSF Historic Resources Survey, San Francisco, California*, prepared for University of California, San Francisco, February 8, 2011.

☐ Continuation ☒ Update **Recorded by:** ESA **Date:** October 2020

B12. References:

Carey & Co. *UCSF Historic Resources Survey, San Francisco, California.* Prepared for University of California, San Francisco, February 8, 2011.

Historic Resource Associates. *Cultural Resources Study of the UCSF Millberry Student Union Project, Site No. SF-13007, 500 Parnassus Avenue, San Francisco, San Francisco County, California 94143*. Prepared for Archaeological Resources Technology. August 2006.

"UC Student Union Here Opens Today." *San Francisco Chronicle*, September 19, 1958: 3.

Amber L. Grady

Senior Architectural Historian

EDUCATION

M.A., Historic Preservation, Savannah College of Art & Design, Savannah, GA

B.A., Interior Design with a minor in Art History, California State University, Chico

Secretary of the Interior's Professional Qualifications – Architectural History and History

18 YEARS EXPERIENCE

PROFESSIONAL AFFILIATIONS

California Preservation Foundation

Preservation Sacramento

Society of Architectural Historians

National Trust for Historic Preservation

Amber Grady is an expert in NEPA, CEQA, and Section 106 of the National Historic Preservation Act (Section 106) compliance with over 18 years of experience in cultural resources management. Amber has extensive experience in California architectural history with an emphasis on northern California. Her cultural resources management experience includes archival research, historic building and structure surveys and evaluations, Secretary of the Interior's Standards compliance analysis and cultural resources documentation for NEPA/CEQA/Section 106 projects ranging from single building evaluations to district-wide surveys. Amber has worked on a variety of projects throughout California, Oregon, Washington, and Nevada completing projects for Cities, Counties, and school and utility districts as well as private sector clients. Amber's expertise includes all phases of environmental compliance from inventory and evaluation to compliance during construction.

Relevant Experience

Mayor's Office of Housing and Community Development On-Call, San Francisco, CA. *Senior Architectural Historian.* Under the on-call, ESA prepares cultural and architectural historical documents, under NHPA regulations, and has recently implemented resource evaluation for more than 15 locales. Amber serves as principal investigator for completion of DPR 523 Primary forms, historic resource evaluations (such as the 730 Stanyan project), Memoranda of Agreement, and assistance with implementation and revision of the Programmatic Agreement (PA) by and among the City and County of San Francisco, the California State Historic Preservation Officer, and the Advisory Council On Historic Preservation Regarding Historic Properties Affected by Use of Revenue from the Department Of Housing And Urban Development Part 58 Programs.

Potrero Power Station Mixed-Use Development Project, San Francisco CA. *Senior Architectural Historian.* Amber supervised the preparation of the historic architectural resources section of the EIR for this large mixed-use development along San Francisco's central bayshore waterfront within the City's Dogpatch neighborhood, on the site of the former PG&E Potrero Power Plant. Under the proposed land use program, the project would rehabilitate and convert the massive Unit 3 power block (which includes a 120-foot tall steel frame boiler structure and turbine-generator) into a hotel. Other structures on the project site would be demolished, including four properties that are contributors to the Third Street Industrial District. The proposed project would also include a range of transportation and circulation improvements, shoreline improvements, and utilities infrastructure improvements. Principal issues include transportation and circulation, historic resources, construction-related effects, and hazardous materials. As a senior architectural historian Amber provided QA/QC for this effort.

730 Stanyan, San Francisco, CA. *Senior Architectural Historian.* ESA assisted the MOHCD with Section 106 compliance for their 730 Stanyan project. Amber was the

Lead Architectural Historian on the project and was responsible for research, survey, and evaluation of the historic-age properties within the APE. ESA prepared the HRE in support of the Section 106 compliance.

San Francisco International Airport (SFO), Recommended Airport Development Plan EIR, San Francisco, CA. *Senior Architectural Historian.* ESA prepared the Historic Resource Evaluation in support of the EIR for SFO's next long-term master plan—the Recommended Airport Development Plan—that will support the strategic development of the airport over the next two decades. ESAs architectural historian surveyed, researched, and evaluated historic-age buildings located on the airport campus, developing an in-depth context of the airport's history and development since the beginning of the Jet Age. As a senior architectural historian Amber provided QA/QC for this effort.

Prologis, 749 Toland Street and 2000 McKinnon Avenue Historic Resource Evaluation, San Francisco, CA. *Senior Architectural Historian.* ESA prepared a Historic Resource Evaluation for four World War II-era warehouses that are remnants of the Marine Corps Depot of Supplies in the Bayview neighborhood. Amber conducted the site visit and provided QA/QC for this effort.

Reservoir Community Partners LLC, Balboa Reservoir Project Historic Resource Evaluation, San Francisco, CA. *Senior Architectural Historian.* ESA authored a Historic Resource Evaluation for the Balboa Reservoir site in the West of Twin Peaks neighborhood in support of the Initial Study for a mixed-use development. As a senior architectural historian Amber provided QA/QC for this effort.

San Francisco Public Utilities Commission, Biosolids Digester Facilities Project, San Francisco, CA. *Senior Architectural Historian.* ESA prepared Historic American Building Survey (HABS) documentation (both written and photographic components) for the SFPUC Central Shops and Building 870, a contributor to the Southeast Treatment Plant Streamline Moderne Industrial Historic District. As a senior architectural historian Amber provided QA/QC for this effort.

Oakland A's Ballpark EIR, Oakland, CA. *Senior Architectural Historian.* ESA is preparing the EIR for a proposed ballpark and multi-use redevelopment of the former Howard Terminal, located north of Jack London Square. This project involves assessing over two dozen known and potential historic resources, ranging from early architectural remnants of the city's original period of development to industrial landscapes related to railroad and shipping at the Port of Oakland as well as CEQA impact analysis and development of mitigations measures. As a senior architectural historian Amber is providing QA/QC for this effort.

City of Oakland On Call, Oakland, CA. ESA currently serves as the on call preservation planning consultants to the City of Oakland. In addition to serving as staff for environmental review of major projects involving historic resources, ESA assists the City with landmarks nominations, CEQA and NEPA review, Planning Code modifications, State Historic Building Code applications, and other services related to historic resources throughout the city. Amber assists with tasks as needed.

1100 Broadway, Oakland, CA. *Senior Architectural Historian.* As part of an addendum to the CEQA analysis for a proposed project located at 1100 Broadway in Downtown Oakland, ESA staff evaluated the design for the rehabilitation of the historic Key System Building and adjacent high-rise commercial tower for consistency with the Secretary of the Interior's Standards for Rehabilitation. The Key System Building, which was constructed in 1911 and has stood vacant since

1989, is individually listed in the National Register of Historic Places and the City of Oakland Local Register. The proposed project was analyzed for potential effects on the significance of the Key System Building as well as the locally designated Downtown Oakland Historic District, to which the historic building is a contributor. As part of this evaluation, character-defining features of the Key System Building were also identified. As a senior architectural historian Amber provided QA/QC for this effort.

City of Oakland, 412 Madison Street Project Historic Resource Evaluation, Oakland, CA. *Architectural Historian.* ESA authored a Historic Resource Evaluation for a project site comprised of six parcels in the Jack London Square neighborhood in support of the CEQA checklist for a mixed-use development. As a senior architectural historian Amber provided QA/QC for this effort.

Kaiser Center, Oakland, CA. *Senior Architectural Historian.* ESA prepared the CEQA documentation for the Kaiser Center project, which is a historic resource under CEQA. Amber was the Lead Architectural Historian on the project and was responsible for evaluating potential impact to historic resource that could result from the project.

San Jose State University, HABS-Like Documentation of Bud Winter Field, San Jose, CA. Senior *Architectural Historian.* As required mitigation of the demolition of Bud Winter Field and construction of a new parking facility in the south campus, ESA architectural historians documented the historic running track and associated grounds according to Historic American Buildings Survey (HABS)-like specifications. Constructed in 1968, Bud Winter Field is named for SJSU's men's track and field coach Lloyd "Bud" Winter. During his tenure (1940-70), the track and field team became known as "Speed City," a nickname bestowed on record-setting sprinters who were coached by Winter. Bud Winter Field replaced an earlier track and field facility, which was the site most closely associated with significant events and individuals. Amber managed this project including managing internal staff and the photographer, a subconsultant to ESA; managing the scope and budget; coordinating with the client; and senior reviewing the deliverables.

Niles Gateway Mixed-Use Project, Fremont, CA. *Architectural Historian.* ESA analyzed several iterations of the proposed project, which is located within the Niles Historic Overlay District, for conformance with the Niles Design Guidelines and Regulations. Design Review Reports were prepared in support of the EIR and a public presentation to the Historic Architectural Review Board was given. As a senior architectural historian Amber provided QA/QC for this effort.

City of Burlingame, SFO@Technology Center, Burlingame, CA. Senior *Architectural Historian.* As part of the Initial Study/Mitigated Negative Declaration for the proposed SFO@Technology Center located at 1300 Bayshore Highway, Amber supervised the staff that surveyed, researched, and evaluated a collection of mid-20th-century buildings for potential historic significance and reviewed the technical report.

Soquel Creek Water District, Advanced Purified Groundwater Replenishment Project, Soquel and Santa Cruz, CA. *Senior Architectural Historian.* The proposed advanced purified groundwater replenishment project – Pure Water Soquel – is intended to supplement natural recharge of the Santa Cruz Mid-County Groundwater Basin with purified water. ESA researched and evaluated residential properties and a wastewater treatment plant for potential historic significance. A

cultural resources report was prepared in support of the EIR. As a senior architectural historian Amber provided QA/QC for this effort.

City of Sacramento, Central City Specific Plan, Sacramento, CA. *Senior Architectural Historian.* For the City of Sacramento, ESA prepared a Specific Plan, associated technical reports, an environmental impact report, and an update to an existing historic district. Amber and her staff prepared a cultural resources technical background report, updated the R Street Historic District evaluation, and prepared the Cultural Resources section of the EIR. The historic resources survey for the technical background report and historic district report included surveying and documenting hundreds of parcels as well as archival research and evaluation of resources.

Sacramento Q Street LLC, Q Street Commons, Sacramento, CA. *Architectural Historian.* ESA completed a Cultural Resources Survey and Inventory Report for a commercial warehouse and office located at 6779 Q Street in support of the Initial Study/Mitigated Negative Declaration for a proposed student housing development. As a senior architectural historian Amber provided QA/QC for this effort.

Twin Rivers EIR, Sacramento Housing and Redevelopment Agency (SHRA). *Senior Architectural Historian.* ESA assisted the SHRA with environmental review of the Twin Rivers project relating to compliance with CEQA, NEPA, and Section 106 of the NHPA on an as needed basis for projects where SHRA. Amber was responsible for research, survey, and evaluation of the historic-age properties within the APE, which included the existing Twin Rivers Housing Complex and Loaves and Fishes. The technical documents were accepted by the City of Sacrament as well as the SHPO.

California Department of Water Resources (DWR), Oroville Spillway Emergency Repair Project, Oroville Dam, CA. *Senior Architectural Historian.* Amber and her staff have been assisting DWR with Section 106 compliance for built environment resources for the emergency spillway repair project. ESA routinely advises DWR staff on portions of the project that affect contributing elements of the National Register eligible Oroville Division Historic District, and preparing Finding of Effect documents to ensure construction is not delayed.

Marin County Flood Control and Water Conservation District, San Anselmo Flood Protection EIR, San Anselmo and Fairfax, CA. *Senior Architectural Historian.* ESA is working with the client team and its modelers and design consultants to develop and analyze a project to reduce flood risk in the Town of San Anselmo without simultaneously increasing it in downstream communities. ESA architectural historians surveyed, researched, and evaluated a collection of buildings in San Anselmo and Fairfax for potential historic significance in support of the EIR. As a senior architectural historian Amber provided QA/QC for this effort.

Alameda Marina Master Plan EIR, Alameda, CA. *Senior Architectural Historian.* ESA prepared the EIR for the controversial redevelopment of the 44-acre Alameda Marina property on the Oakland Estuary. The comprehensively redeveloped property will include a mix of 779 new housing units, 150,000 square feet of retail and office uses, 550 boat slips, and 4.5 acres of public open space, including a new segment of the San Francisco Bay Trail. A significant component of the project will include the complete revitalization of the existing dock and shoreline

infrastructure. Amber peer reviewed the historic resources report and prepared the Draft EIR section.

City of Long Beach, Local Landmark Evaluations, Long Beach, CA. *Senior Architectural Historian.* For the City of Long Beach, ESA evaluated properties at 260 E San Antonio Road, the VIP Records Sign, and Fly DC Jets Sign for Local Landmark status. As Senior Architectural Historian, Amber was responsible for the historical research, survey, evaluation for local eligiblity, and report completion.

260 E San Antonio Road Local Landmark Evaluation, Long Beach, CA. *Senior Architectural Historian.* ESA evaluated the property for City of Long Beach Local Landmark status. Amber was the Lead Architectural Historian on the project, who was responsible for the research, survey, evaluation, and report completion.

VIP Records Sign Local Landmark Evaluation, Long Beach, CA. *Senior Architectural Historian.* ESA evaluated the property for City of Long Beach Local Landmark status. Amber was the Lead Architectural Historian on the project, who was responsible for the research, survey, evaluation, and report completion.

City of Long Beach, Local Landmark Evaluations, Long Beach, CA. For the City of Long Beach, ESA evaluated properties at 260 E San Antonio Road, the VIP Records Sign, and Fly DC Jets Sign for Local Landmark status. As Senior Architectural Historian, Amber was responsible for the research, survey, evaluation, and report completion.

California High Speed Rail Project, Environmental Compliance for Merced to Fresno Construction Package 1 (CP1), Merced to Fresno, CA. *Senior Architectural Historian*. As a subconsultant to the Tutor Perini Zachary Parsons (TPZP) Joint Venture, ESA is providing environmental compliance support services for the Merced to Fresno Construction Package 1 (CP1), the 29-mile first segment of the California High Speed Rail design/build project. ESA is leading pre-construction surveys and providing all biological and cultural monitoring during construction. ESA is providing real time documentation of surveys and habitat disturbance via field tablets and tailored online GIS applications. Amber is involved in documentation and report writing as it related to historic architectural resources for the project.

Los Angeles Unified School District (LAUSD) – Various Campuses, Los Angeles, CA. *Senior Architectural Historian*. As Senior Architectural Historian, Amber has led ESA staff in several historic resource evaluations for the LAUSD on various campuses, all of which occurred prior to modernization efforts, including the 6th Avenue Elementary School, President Elementary School, Thomas Jefferson High School, Burroughs Middle School, and San Pedro High School. LAUSD has a number of campuses that are eligible historic resources. In addition to preparing historic resource evaluation reports this work has involved consulting with LAUSD and their architectural/construction team to design their project to avoid impacts to the character-defining features of important resources as well as the preparation of HAB-like documentation to fulfill CEQA mitigation. Amber also translates her technical documents into support text for Environmental Compliance documents.

Los Angeles Unified School District, San Pedro High School Comprehensive Modernization Project, San Pedro, CA. *Architectural Historian.* Johanna authored a Historic Resource Technical Report for the San Pedro High School campus in support of the Initial Study for a comprehensive school modernization project.

Los Angeles Unified School District, John Burroughs Middle School Comprehensive School Modernization Project, Los Angeles, CA. *Architectural Historian.* Johanna authored a Historic Resource Technical Report for the John Burroughs Middle School campus in support of the EIR for a comprehensive school modernization project.

Los Angeles Unified School District (LAUSD) President Elementary School Historic Resources Evaluation, Harbor City, CA. *Senior Architectural Historian*. This is one of many historic resources evaluations that ESA has done for LAUSD. Amber assisted in the completion of the Historic Resources Evaluation report, which will be used in support of the Environmental Compliance documents.

Los Angeles Unified School District (LAUSD) President Elementary School Historic Resources Evaluation, Harbor City, CA. *Senior Architectural Historian*. As Senior Architectural Historian, Amber has led ESA staff in several historic resource evaluations for the LAUSD, all of which occurred prior to modernization efforts. This includes a campus in Harbor City, the 6th Avenue Elementary School, and the Thomas Jefferson High School. Part of this work involves consulting with LAUSD and their architectural/construction team to design their project to avoid impacts to the character-defining features of important resources. Amber also translates her technical documents into support text for Environmental Compliance documents.

LAUSD 6th Avenue Elementary School, Los Angeles, CA. *Senior Architectural Historian*. This is one of many historic resources evaluations that ESA has done for LAUSD. Amber assisted in the completion of the Historic Resources Evaluation report, which will be used in support of the Environmental Compliance documents.

LAUSD Thomas Jefferson High School Comprehensive Modernization Project, Los Angeles, CA. *Senior Architectural Historian.* ESA is in the process of preparing an IS/MND for this project. Thomas Jefferson High School is eligible for the National Register of Historic Places. In addition to writing the Cultural Resources portion of the IS/MND Amber is consulting with LAUSD and their architectural/ construction team to design their project to avoid impacts to the character-defining features of the campus.

Los Cerritos Road Bridge, County of Merced. *Architectural historian.* The project includes bridge replacement and road improvements. It is receiving federal funding and is considered a federal undertaking pursuant to 36 CFR Part 800.16(y). Therefore, ESA was tasked with preparing the necessary documents to comply with the Caltrans PA. Amber surveyed and evaluated a farming complex in the APE and prepared the HRER and HPSR for this project.

Burchell Avenue Bridge, County of Merced. *Architectural historian.* The project includes bridge replacement and road improvements. It is receiving federal funding and is considered a federal undertaking pursuant to 36 CFR Part 800.16(y). Therefore, ESA was tasked with preparing the necessary documents to comply with the Caltrans PA. Amber surveyed and evaluated a farming complex in the APE and prepared the HRER and HPSR for this project.

Johanna Kahn

Senior Architectural Historian

EDUCATION

M.Ar.H. (Master of Architectural History) + Certificate in Historic Preservation, University of Virginia

B.Arch. (Bachelor of Architecture), California Polytechnic State University, San Luis Obispo

International Program in Florence, Italy, Art & Architectural History, California State University

10 YEARS EXPERIENCE

CERTIFICATIONS/ REGISTRATION

Section 106 training, National Preservation Institute

CPR and First Aid

PROFESSIONAL AFFILIATIONS

American Institute of Architects

National Trust for Historic Preservation

California Preservation Foundation

San Francisco Heritage

Preservation Sacramento

Johanna is an accomplished technical writer who has researched historic buildings, structures, and districts in California, Oregon, and Washington. She authors reports that exceed federal, state, and local requirements, documenting and evaluating historic resources for eligibility for the National Register of Historic Places and state-level registers of historic significance. Johanna is well-versed in targeted and expedited archival research and routinely prepares historic resource evaluations and specialized reports such as HABS/HALS documentation, tax credit applications, peer reviews, and design guidelines and consultation. Johanna meets the Secretary of the Interior's Professional Qualification Standards for architectural history, architecture, and historic architecture. She is also experienced in museum operations, grant writing, and fundraising for non-profits.

Relevant Experience

2017 Projects

Ellis Partners, LLC, 1100 Broadway, Oakland, CA. *Architectural Historian.* As part of an addendum to the CEQA analysis for a proposed project located at 1100 Broadway in Downtown Oakland, Johanna evaluated the design for the rehabilitation of the historic Key System Building and adjacent high-rise commercial tower for consistency with the Secretary of the Interior's Standards for Rehabilitation. The Key System Building is individually listed in the National Register of Historic Places and the City of Oakland Local Register. The proposed project was analyzed for potential effects on the significance of the Key System Building as well as the locally designated Downtown Oakland Historic District, to which the historic building is a contributor.

Metro Parks Tacoma, National Register of Historic Places Nomination for Titlow Lodge, Tacoma, WA. *Architectural Historian.* Johanna prepared documentation to nominate Titlow Lodge for listing in the National Register of Historic Places. Originally known as Hotel Hesperides and constructed in 1911 as a 3-½-story building near the shore of Puget Sound, the lodge was reduced to 1 ½ stories in 1937 as a project of the Works Progress Administration. ESA provided a detailed architectural description of the building's exterior as well as interior spaces, a construction chronology, and a statement of significance under Criterion C (Design/Construction).

San Francisco International Airport (SFO), Recommended Airport Development Plan EIR, San Francisco, CA. *Architectural Historian.* Johanna prepared the Historic Resource Evaluation in support of the EIR for SFO's next long-term master plan—the Recommended Airport Development Plan—that will support the strategic development of the airport over the next two decades. Johanna surveyed, researched, and evaluated historic-age buildings located on the airport campus, developing an in-depth context of the airport's history and development since the beginning of the Jet Age.

San Francisco Mayor's Office of Housing and Community Development, Section 106 Studies, San Francisco, CA. *Architectural Historian.* Johanna has surveyed, researched, and evaluated buildings identified as proposed sites for federally funded, high-density residential development in the City and County of San Francisco as well as buildings within the areas of potential effect.

City of Union City, Masonic Homes Skilled Nursing Facility, Union City, CA. *Architectural Historian.* Johanna surveyed the Masonic Home at Union City campus to confirm the continued existence of contributing features. She prepared an Updated Historic Resources Evaluation Memo that in turn informed the Initial Study.

LeLand Properties, LLC, 2200 Stockton Boulevard, Sacramento CA. *Architectural Historian.* In support of a historic resource evaluation previously prepared by ESA of the 1930s Coca Cola bottling factory at 2200 Stockton Boulevard, Johanna surveyed, researched, and evaluated adjacent properties for potential historic significance.

City of Sacramento, Central City Specific Plan, Sacramento, CA. For the City of Sacramento, ESA is preparing a Specific Plan, associated technical reports, an environmental impact report, and an update to an existing historic district. Cultural resources staff prepared a technical background report, updated the R Street Historic District evaluation, and prepared the Cultural Resources section of the EIR. The historic resources survey for the technical background report and historic district report included surveying and documenting hundreds of parcels as well as archival research and evaluation of resources. The project is ongoing and expected to extend through 2017.

Brown & Caldwell, North Bay Water Reuse Program, San Francisco Bay Area, CA. *Architectural Historian.* As part of a feasibility study comprising a dozen sanitary districts, cities, and counties in the North San Pablo Bay region, Johanna surveyed, researched, and evaluated two wastewater treatment plants in Novato and Napa for potential historic significance.

City of Fremont, Niles Gateway Mixed-Use Project, Fremont, CA. *Architectural Historian.* Johanna analyzed several iterations of the proposed project, which is located within the Niles Historic Overlay District, for conformance with the Niles Design Guidelines and Regulations. Design Review Reports were prepared in support of the EIR. She also gave a public presentation to the Historic Architectural Review Board.

Kilroy Realty, Interim Flower Mart Project, San Francisco, CA. *Architectural Historian.* While a new permanent location for the San Francisco Flower Mart is being constructed in the South of Market neighborhood, the operation would temporarily relocate to Piers 19, 19 ½, and 23 on The Embarcadero. In support of the EIR addendum, Johanna analyzed the proposed project for consistency with the Secretary of the Interior's Standards for Rehabilitation. Piers 19 and 23 are contributors to the Port of San Francisco Embarcadero Historic District, which is listed on the National Register of Historic Places. A Part 2 Historic Resource Evaluation was prepared.

City of Burlingame, SFO@Technology Center, Burlingame, CA. *Architectural Historian.* As part of the Initial Study/Mitigated Negative Declaration for the proposed SFO@Technology Center located at 1300 Bayshore Highway, Johanna surveyed, researched, and evaluated a collection of mid-20th-century buildings for potential historic significance.

Soquel Creek Water District, Advanced Purified Groundwater Replenishment Project, Soquel and Santa Cruz, CA. *Architectural Historian.* The proposed advanced purified groundwater replenishment project – Pure Water Soquel – is intended to supplement natural recharge of the Santa Cruz Mid-County Groundwater Basin with purified water. Johanna researched and evaluated residential properties and a wastewater treatment plant for potential historic significance. A cultural resources report was prepared in support of the EIR.

Marin County Flood Control and Water Conservation District, San Anselmo Flood Protection EIR, San Anselmo and Fairfax, CA. *Architectural Historian.* ESA is working with the client team and its modelers and design consultants to develop and analyze a project to reduce flood risk in the Town of San Anselmo without simultaneously increasing it in downstream communities. Johanna surveyed, researched, and evaluated a collection of buildings in San Anselmo and Fairfax for potential historic significance in support of the EIR.

2018 Projects

Potrero Power Station Mixed-Use Development Project, San Francisco CA. *Architectural Historian.* Johanna wrote the historic architectural resources section of the EIR for a large mixed-use development along San Francisco's central bayshore waterfront within the City's Dogpatch neighborhood, on the site of the former PG&E Potrero Power Plant. The proposed mixed-use development would consist of 5.4 million gsf of uses, including approximately 2.7 million gsf of residential, 1.5 million gsf of commercial, over 900,000 gsf of parking, 100,000 gsf of community facilities; and 6.3 acres of open space. Under the proposed land use program, the project would rehabilitate and convert the massive Unit 3 power block (which includes a 120-foot tall steel frame boiler structure and turbine-generator) into a hotel. Other structures on the project site would be demolished, including four properties that are contributors to the Third Street Industrial District. The proposed project would also include a range of transportation and circulation improvements, shoreline improvements, and utilities infrastructure improvements. Principal issues include transportation and circulation, historic resources, construction-related effects, and hazardous materials.

Eastern Oregon Regional Airport Unmanned Aircraft System Development Area Cultural Resources Assessment, Pendleton, OR. *Architectural Historian.* Johanna conducted a historic properties survey of the entire Eastern Oregon Regional Airport as well as the adjacent Oregon Army National Guard facility and the Airport Industrial Park in order to determine if a World War II-era historic district was present. She authored a Cultural Resources Assessment and completed a Section 106 documentation form of the airport.

Los Angeles Unified School District, San Pedro High School Comprehensive Modernization Project, San Pedro, CA. *Architectural Historian.* Johanna authored a Historic Resource Technical Report for the San Pedro High School campus in support of the Initial Study for a comprehensive school modernization project.

Los Angeles Unified School District, John Burroughs Middle School Comprehensive School Modernization Project, Los Angeles, CA. *Architectural Historian.* Johanna authored a Historic Resource Technical Report for the John Burroughs Middle School campus in support of the EIR for a comprehensive school modernization project.

City of Oakland, 412 Madison Street Project Historic Resource Evaluation, Oakland, CA. *Architectural Historian.* Johanna authored a Historic Resource

Evaluation for a project site comprised of six parcels in the Jack London Square neighborhood in support of the CEQA checklist for a mixed-use development.

Prologis, 749 Toland Street and 2000 McKinnon Avenue Historic Resource Evaluation, San Francisco, CA. *Architectural Historian.* Johanna authored a Historic Resource Evaluation for four World War II-era warehouses that are remnants of the Marine Corps Depot of Supplies in the Bayview neighborhood.

San Francisco Day School, 350 Masonic Avenue, 2120-2122 Golden Gate Avenue, and 2130 Golden Gate Avenue Historic Resource Evaluation, San Francisco, CA. *Architectural Historian.* Johanna authored a Historic Resource Evaluation for the San Francisco Day School and two adjacent residential properties in the North of the Panhandle neighborhood.

Urban Land Development LLC, 1320 Washington Street Historic Resource Evaluation, San Francisco, CA. *Architectural Historian.* Johanna authored a Historic Resource Evaluation for a 1920 parking garage in the Nob Hill neighborhood.

Reservoir Community Partners LLC, Balboa Reservoir Project Historic Resource Evaluation, San Francisco, CA. *Architectural Historian.* Johanna authored a Historic Resource Evaluation for the Balboa Reservoir site in the West of Twin Peaks neighborhood in support of the Initial Study for a mixed-use development.

San Francisco Public Utilities Commission, Biosolids Digester Facilities Project, San Francisco, CA. *Architectural Historian.* Johanna prepared Historic American Building Survey (HABS) documentation (both written and photographic components) for the SFPUC Central Shops and Building 870, a contributor to the Southeast Treatment Plant Streamline Moderne Industrial Historic District.

AG-SCH 8150 Sunset Boulevard Owner LP, 8150 Sunset Mixed-Use Project, Los Angeles, CA. *Architectural Historian.* Johanna prepared Historic American Building Survey (HABS) written documentation for the former Lytton Savings and Loan Association in Beverly Hills.

Elkwood LLC,1764 N. Las Palmas Avenue Historical Resource Assessment, Los Angeles, CA. *Architectural Historian.* Johanna prepared a Historic Resource Assessment for a bungalow court in Hollywood.

Harald Kloser, 1830 N. Sierra Bonita Avenue Historical Resource Assessment, Los Angeles, CA. *Architectural Historian.* Johanna prepared a Historic Resource Assessment for a large residential property in Hollywood.

Los Angeles Department of Water and Power, Manhattan Wellfield On-Site Hypochlorite Generation Station Project Cultural Resources Assessment, Los Angeles, CA. *Architectural Historian.* Johanna authored a Cultural Resources Assessment for a chlorination station.

California High Speed Rail Merced to Fresno Construction Package 1, Fresno and Merced Counties, CA. *Architectural Historian.* As a subconsultant to the Tutor Perini Zachary Parsons (TPZP) Joint Venture, ESA is providing environmental compliance support services for the Merced to Fresno segment of the California High Speed Rail project. Tasks included conducting pre-construction surveys for biological and cultural resources, compliance monitoring during construction, compliance tracking and reporting. Approximately 29 miles in length, the Merced to Fresno segment includes cultural resources such as the historic Chinatown in downtown Fresno, and sensitive prehistoric areas in the crossings of the San Joaquin and Fresno Rivers. Kathy serves as historian and deputy project manager

for the project where she conducts pre-construction historic architectural resource surveys and Built Environment Treatment Plan compliance documentation, including pre-construction conditions assessment and building protection plans. Johanna has assisted in development and design of an interpretive exhibit for the Belmont Traffic Circle and Subway within the project alignment.

Sacramento Q Street LLC, Q Street Commons, Sacramento, CA. *Architectural Historian.* Johanna authored a Cultural Resources Survey and Inventory Report for a commercial warehouse and office located at 6779 Q Street in support of the Initial Study/Mitigated Negative Declaration for a proposed student housing development.

City of Eureka, City of Eureka General Plan Update EIR, Eureka, CA. *Architectural Historian.* Johanna authored the Cultural and Historic Resources section of the EIR, which addressed potential adverse impacts of the proposed Eureka 2040 General Plan.

California Department of Water Resources, DWR TO39 2017 Storm Damage-DWR Emergency. *Architectural Historian*. High flow conditions occurring during the winter of 2016/2017 resulted in erosion and other damage at multiple levees managed by the California Department of Water Resources (DWR). In response, DWR implemented the 2017 Storm Damage DWR Rehabilitation Program at several critical repair sites. Johanna contributed to Phase 4 and Phase 5 of the 2017 Storm Damage DWR Rehabilitation Program cultural resources analysis. This project included a fast turnaround analysis of over thirty levee repair sites located throughout the Central Valley and Delta regions, from Chico to Stockton. Johanna assisted in the field survey and recordation of the levee segments and completed the evaluation of impacts to the levees as cultural resources.

Washington State Department of Transportation, State Route 203 Loutsis Creek Fish Passage Improvements Project, Duvall, WA. *Architectural Historian.* As part of an on-call with WSDOT, Johanna contributed to the cultural resources assessment by researching and evaluating two historic-age farmsteads.

2019 Projects

Sutro Tower, Inc., 1 La Avanzada Street Historic Resource Evaluation, San Francisco, CA. *Architectural Historian.* Johanna authored a Historic Resource Evaluation for the prominent hilltop property that includes Sutro Tower (a 977-foot-tall communications tower constructed in the early 1970s that was the subject of considerable public discourse), a Brutalist transmission building, and several accessory buildings. Sutro Tower and the transmission building were determined to be exceptionally important to have achieved significance within the past 50 years, and the two buildings contribute to the Sutro Tower Historic District which is eligible under California Register Criterion 1 (Events) for its significant association with the history of broadcast across the Bay Area between 1973 and 1998. Additionally, Sutro Tower was determined to be individually eligible for listing under Criterion 3 (Architecture) with a period of significance of 1971-73 because it embodies distinctive characteristics of a high-tech broadcast tower, possesses high artistic values, and is the product of a collaboration between two masters.

City of Los Angeles, Point Fermin Light Station Historic District Nomination to the National Register of Historic Places, San Pedro, CA. *Architectural Historian.* The 1874 Point Fermin Lighthouse was listed on the National Register of Historic Places in 1972. As a condition of conveyance of the Point Fermin Light Station property (which includes the lighthouse) by the U.S. General Services

Administration to the City of Los Angeles for use as a museum and park, the National Register nomination for the Point Fermin Lighthouse was updated to include all buildings, objects, structures, and sites that comprise the larger Point Fermin Light Station. Johanna authored the updated nomination by compiling previous documentation and supplementing it with new research. At this writing, the nomination is being reviewed by the California Office of Historic Preservation.

Oakland Athletics Investment Group, LLC, Oakland A's Ballpark District EIR, Oakland, CA. *Architectural Historian.* Located north of Jack London Square in Oakland, Howard Terminal is a part of Oakland characterized by warehouses and low-scale, 19th- and 20th-century industrial development. It is adjacent to the Port of Oakland, along an active railroad corridor, and with a section of the city slated for significant redevelopment. As part of the project's cultural resources team, Johanna assessed known and potential historic resources, ranging from early architectural remnants of the city's original period of development (1860s) to industrial landscapes related to railroad and shipping at the Port of Oakland (modern era). Based on this work, ESA developed a comprehensive CEQA impact analysis and developed a variety of mitigations measures responding to the proposed project and its variants. artistic values, and is the product of a collaboration between two masters.

City of West Sacramento, Washington Historic District Design Guidelines. *Architectural Historian.* The 2014 Washington District Historic Resources Survey identified 67 historically significant buildings in the Washington Specific Plan area. Through a 2019 reconnaissance survey, ESA identified a total of 30 contributors to the Washington Historic District.overlay, an area bounded roughly by D, F, Third, and Fourth streets. Johanna was the primary author of design guidelines that addressed alterations to historic buildings as well as infill development to create a cohesive streetscape and community character. Historic architectural styles in the historic district include Queen Anne, Folk Victorian, Craftsman, and Vernacular buildings.

Oakland Museum of California, Oakland Museum of California Historic Resource Evaluation and Standards Compliance Review, Oakland, CA. *Architectural Historian.* The Oakland Museum of California was constructed in 1967 and designated a City of Oakland Landmark in 1995. As part of proposed modifications, ESA was asked to formally document the museum in a historic resource evaluation report and evaluate the proposed changes for compliance with the Secretary of the Interior's Standards for Rehabilitation. Johanna was the primary author of both documents. ESA worked with representatives from the City, the Museum, and the design team to assess the building and the project, including making recommendations for design alterations. ESA also provided support to the City and the Museum through the local landmarks board approval process.

Santa Clara Valley Transportation Authority, BART Silicon Valley Phase II Extension Project, San Jose and Santa Clara, CA. ESA will conduct architectural conditions surveys for 40+ properties along a six-mile segment to extend BART service from the Barryessa Station to downtown Santa Clara through downtown San Jose. The work is to be completed under a condensed timeline to provide both a baseline and a final record of building conditions. Working with VTA and city representatives and utilizing state-of-the-art digital data capture methods, ESA will develop a streamlined, yet thorough, documentation strategy to allow VTA to monitor changes throughout the proposed six-year construction period. This work is slated to begin Q4 2019.

San Jose State University, HABS-Like Documentation of Bud Winter Field, San Jose, CA. *Architectural Historian.* As required mitigation of the demolition of Bud Winter Field and construction of a new parking facility in the south campus, ESA architectural historians documented the historic running track and associated grounds according to Historic American Buildings Survey (HABS)-like specifications. Constructed in 1968, Bud Winter Field is named for SJSU's men's track and field coach Lloyd "Bud" Winter. During his tenure (1940-70), the track and field team became known as "Speed City," a nickname bestowed on record-setting sprinters who were coached by Winter. Bud Winter Field replaced an earlier track and field facility, which was the site most closely associated with significant events and individuals.

Kennedy Wilson, 136 S. El Camino Drive Historic Resource Assessment and Standards Compliance Review, Beverly Hills, CA. *Architectural Historian.* As part of proposed modifications, ESA was asked to evaluate the office building at 136 S. El Camino Drive for historic significance and assess the proposed changes for compliance with the Secretary of the Interior's Standards for Rehabilitation (Standards). Johanna led research efforts related to the history of the locally prominent Doheny family, who commissioned Pereira and Luckman in 1955 to design the subject building building as the headquarters for the family's growing business ventures (namely oil production and real estate). The building was determined eligible for designation as a Beverly Hills Landmark as a significant example of post-World War II modern architecture and for significant associations with the business ventures of the Doheny family. Furthermore, ESA worked with the design team to recommend design alterations that would bring the proposed project into full compliance with the Standards.

Chehalis River Basin Flood Control Zone District, Built Environment Evaluation of Chehalis-Centralia Airport Levee, Chehalis, WA. *Architectural Historian.* Johanna was among the ESA team that provided Section 106 cultural resources support for the Chehalis River Basin Flood Damage Reduction Project. Specifically, she researched and prepared the updated built environment evaluation of the historic-age levee surrounding the Chehalis-Centralia Airport.

City of Renton, Cedar River Levees Improvements Project, King County, WA. *Architectural Historian.* Johanna contributed to the cultural resources assessment by researching and evaluating commercial properties in Renton.

Appendix HMA
Hydrologic Modeling Analysis

ESA

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memorandum

date December 10, 2020

to Diane Wong, Paul Franke: UCSF

from James Gregory, PE, ESA
Rebecca Gates, EIT, ESA

subject **Hydrologic Modeling Analysis for Existing and Future Site Conditions within the Parnassus Heights Campus Core under the CPHP**

The Parnassus Heights campus site property consists of approximately 107 acres, including an approximate 30-acre developed northern portion of the campus site along both sides of Parnassus Avenue (i.e., the campus core), in addition to the approximate 61-acre Mount Sutro Open Space Reserve, and the Aldea Housing complex. The study area for this modeling analysis consists of the campus core, as this is the portion of the campus site where increases in impervious surfaces under the CPHP would occur.[1] ESA conducted a hydrologic modeling analysis to evaluate the effect on discharge due to proposed changes in landcover within the UCSF Parnassus Heights campus core under the CPHP. A hydrologic model was developed to quantify flow for existing conditions and proposed conditions for 2030 and 2050 on the campus core. Acres of impervious and pervious areas tabulated by UCSF were used as input to the model. This memorandum summarizes the methods and results of the analysis.

Methodology

ESA used the US Army Corps of Engineers program HEC-HMS v4.4.1 to model rainfall-runoff processes for existing conditions, and proposed 2030, and 2050 conditions. To reflect infiltration for impervious and pervious portions of the campus core under each scenario, the SNS Curve Number (CN) method was used to model the 30-acre UCSF campus project site. Total impervious and pervious area for each scenario were tabulated by UCSF in support of the Draft EIR and are summarized in Table 1.

Table 1. Impervious and Pervious Areas for Parnassus Heights Campus Core: Existing, and Proposed 2030 and 2050 Conditions

	Existing	2030	2050
Impervious	85.8%	89.4%	89.2%
Pervious	14.2%	10.6%	10.8%

[1] No substantial new development would occur within the Reserve under the CPHP. With respect to the Aldea Housing complex area, while new housing is proposed under the CPHP at this location, the CPHP proposes to rebuild on the existing building footprints. As such, there would not be a notable increase in impervious surfaces (or corresponding increase in peak stormflows) from these portions of the campus site under the CPHP.

The campus core is located on hydrologic soil group C (USDA web soil survey[2]). With the hydrologic soil group and referencing Table 2-2a from *USDA Urban Hydrology for Small Watersheds TR-55*, weighted curve numbers were computed from the pervious and impervious land cover for each modeling condition.

Runoff was modeled for the 1-year, 2-year, and 5-year 24-hour design storms. The San Francisco Public Utilities Commission (SFPUC) published design rainfall time series were used for the 1-year, and 2-year events[3]. The 5-year event was developed using National Oceanic and Atmospheric Administration (NOAA) Atlas 14 rainfall depths at from the online precipitation data frequency server[4].

The Soil Conservation Service (SCS) hydrograph method was applied to compute the shape of the hydrograph resulting from the portion of rainfall that is not infiltrated. This method requires estimation of the lag time (T_L), which is related to the length of time it takes for a unit of rainfall to traverse the site. Rainfall landing on the site will tend to flow initially as sheet flow, transitioning to shallow concentrated flow, and ultimately, pipe or open-channel flow. The longest flowpath was delineated on the site using local topography and the UCSF Utility Master Plan (UCSF, 2019). The pipe size and slope was estimated from the Utility Master Plan which indicates a minimum 0.5% pipe slope and 12-inch pipe diameter. ESA estimated that flow would travel approximately 114 feet as sheet flow before entering the pipe system and traveling approximately 909 feet. A Manning's value of 0.011 for the surface runoff and a Manning's value of 0.013 for the pipe were used according to roughness coefficients (Manning's n) for sheet flow, and roughness coefficients for pipe surfaces based on typical values (Chow, 1959). Following the Manning's kinematic solution (Overton and Meadows, 1976) for sheet flow, and Manning's equation for pipe flow, the estimated travel time is 7.5 minutes. Per the SCS methodology, T_L is equal to 0.6 times the travel time thus the estimated T_L is 4.5 minutes.

In the HEC-HMS model, the study site was represented using a single subbasin for each landcover scenario (existing, 2030 and 2050). The SCS Curve Number was used for the loss method, along with the SCS Unit Hydrograph for the transform method. No Baseflow was implemented. Meteorological models were set up for the 1-, 2-, and 5-year 24-hour storms. The model was run for the three landcover scenarios and the three design storm events. Results are summarized below.

Results

The changes from pervious to impervious area in 2030 and 2050 in the campus core would be relatively minor. At 2030, 1.1 of the 30-acre campus core (approximately 4%) would be converted to impervious relative to existing conditions, while in 2050, 1.0 of the 30-acre campus core (~3%) would be converted to impervious. This would have a relatively small effect on discharge for these development scenarios. A summary of peak flow and volume for each scenario and change relative to existing conditions is provided in Table 2.

2 https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

3 https://sfwater.org/index.aspx?page=446

4 https://hdsc.nws.noaa.gov/hdsc/pfds/

Table 2. Peak Flow and Volume Results for Parnassus Heights Campus Core: Existing, and Proposed 2030 and 2050 Scenarios

Event	Peak flow (cfs)			Change in peak flow (cfs)		Change in peak flow %	
	Existing Conditions	2030	2050	2030	2050	2030	2050
1 year storm	36.5	36.8	36.8	0.3	0.3	0.8%	0.8%
2 year storm	44.2	44.4	44.4	0.2	0.2	0.5%	0.5%
5 year storm	49.4	49.6	49.6	0.2	0.2	0.4%	0.4%
Event	Volume (ac-ft)			Change in Volume (ac-ft)		Change in Volume %	
	Existing Conditions	2030	2050	2030	2050	2030	2050
1 year storm	6.4	6.5	6.5	0.1	0.1	1.2%	1.2%
2 year storm	6.9	7.0	7.0	0.1	0.1	1.1%	1.1%
5 year storm	7.9	8.0	8.0	0.1	0.1	0.9%	0.6%

As this table shows, changes in peak flow from the campus core would be relatively minor, with changes less than 1% for the three storm events analyzed. Similarly, change in flow volume is close to 1% for all events analyzed. As the event size increases, the change between existing and future development scenarios decrease because the proportional volume of infiltrated water decreases.

REFERENCES

Chow, V.T., 1959, Open-channel hydraulics: New York, McGraw-Hill Book Co., 680 p.

Overton, D.E. and Meadows, M.E., Stormwater Modeling, Academic Press, New York, 1976.

San Francisco Public Utilities Commission, "SFPUC Design Storms: 1-Year and 2-Year 24-Hour Design Storms.", Hydrologic Calculation Methods and Background Information, San Francisco, Dec. 2010.

University of California San Francisco, *UCSF Parnassus Heights Master Plan*, prepared by Arup, October 1, 2019.

Appendix PS
Wastewater/Stormwater Performance Standards

Subject:	**Wastewater/Stormwater Performance Standards**
Project:	UCSF CPHP EIR
Prepared By:	Beth Goldstein, PE
Reviewed By:	**Final**
Date:	December 10, 2020
Reference:	200011

1 Introduction

The proposed CPHP would increase both daily diurnal wastewater flows, and stormwater flows during larger storms (greater than 2-year), from the Parnassus Heights campus site to the San Francisco Public Utilities Commission's (the "SFPUC'") combined sewer system (CSS). Potential impacts to the CSS and treatment plants due to increased wastewater flows from the CPHP during dry weather were considered in the Draft EIR in section 4.16, Utilities (p. 4.16-22). Potential impacts to the CSS and treatment plants due to increases in stormwater flows as a result of the CPHP during wet weather were considered in UCSF CPHP Draft EIR section 4.9, Hydrology and Water Quality (p. 4.9-14) and section 4.16, Utilities and Service Systems (p. 4.16-14).

A mitigation measure meeting the following performance standards will ensure that, in addition to the consideration of potential impacts described above, the combined wastewater and stormwater flows (combined sewer discharges (CSD)) from the proposed CPHP during wet weather will not increase the likelihood of surcharges from the combined sewer system, will not exacerbate the extent or duration of any potential ponding or overland flow, and will not increase the frequency, duration, or volume of discharges from the CSS and treatment plants to the receiving waters.

2 Background/Purpose

Although UCSF is not required to comply with the City's Stormwater Management Ordinance (SMO), the University plans to conform with the ordinance when developing new facilities on the Parnassus Heights campus site pursuant to the CPHP. Conformance with the City's SMO, through preparation of a Stormwater Control Plan, would require implementation of LID site design measures such as green roofs, permeable paving, or other infiltration-based stormwater features (e.g., flow-through planters). These measures would be required in project designs to reduce stormwater runoff rate and volume under the CPHP by 25% for the 1-and 2-year, 24-hour design storm.[1] However, stormwater management measures

[1] Based on the existing campus core imperviousness of 86% (CPHP Draft EIR page 4.9-11)

designed to meet this criterion would likely not have an effect on the peak stormwater runoff rate during greater than a 1- or 2-year design storms. Furthermore, the increase of wastewater flows has the potential to reduce the capacity of the CSS during wet weather. A mitigation measure meeting the performance standards presented below would ensure that the CPHP will not exacerbate the extent or duration of any potential flooding, and will not increase the frequency, duration, or volume of CSDs.

3 Mitigation and Performance Standards

When UCSF's connections to the SFPUC's CSS are being designed for projects at the Parnassus Heights campus site, both the hydraulic and hydrologic capacity (broken out below) of the adjoining sewer system must be analyzed to ensure that the system can accommodate UCSF's increased wastewater and stormwater flows and/or modified connection points. Because both wastewater and stormwater flows are carried in the same pipes, increasing the volume of either flow can affect the available storage, pumping, and treatment capacity of the CSS. During a large storm, both the primary and secondary treatment capacity of the treatment plants can be exceeded, resulting in releases from the combined overflow structures. Conformance with the SMO will require a reduction in stormwater flows to the CSS during smaller storms, however, this reduction may not be enough to offset the increase in wastewater flows during larger storms that could cause an increase in CSDs. This reduction may also not be sufficient to avoid an increase in flooding (ponding of flows that can't get into the CSS, or surcharge of flows from the CSS) as this typically occurs during larger storm events, and would not address the potential that flows would increase the frequency, duration, or volume of discharges from the CSS and treatment plants to the receiving waters.

To address the potential for flooding, surcharge, or contributions to increased wet weather discharges, UCSF will need to design the buildings, infrastructure, and site improvements proposed as part of the CPHP to meet specific hydraulic and hydrologic performance standards and demonstrate conformance using the SFPUC's citywide Integrated Catchment Model (ICM) model.

UCSF may choose to conduct the modeling analysis on its own and submit the analysis to the SFPUC for review, or request that the SFPUC conduct the analysis on UCSF's behalf, subject to reimbursement of the SFPUC's costs by UCSF. If, based on such analysis, UCSF determines that increased flows will not meet the hydraulic performance standards defined below, UCSF will pay its proportional share of the costs of expanding the CSS to accommodate the increased flows from the Parnassus Heights campus site. If, based on the analysis, UCSF determines that flows will not meet the hydrologic performance standard defined below, UCSF will modify its designs to incorporate additional retention/detention features until the performance standard is met.

3.1 Hydraulic Performance Standards

Do not increase the likelihood of surcharges.

In order to demonstrate conformance, run the City-wide model using the 5-year, 24-hour design storm and identify any pipes with a maximum hydraulic gradient line (HGL) less than 2 feet below grade (that previously met this criteria). If, based on such analysis, UCSF determines that this performance standard is not met, UCSF will pay its proportional share of the costs of expanding the CSS to accommodate the increased flows or modify its designs to incorporate additional retention/detention features until the performance standard is met.

Do not increase the extent or duration of ponding or overland flow.

In order to demonstrate conformance, run the City-wide model using 100-year, 3-hour design storm and compare the extent and duration of ponding and/or overland flow caused by stormwater that is unable to enter the CSS before and after project construction. If, based on such analysis, UCSF determines that this performance standard is not met, UCSF will pay its proportional share of the costs of expanding the CSS to accommodate the increased flows or modify its designs to incorporate additional retention/detention features until the performance standard is met.

3.2 Hydrologic Performance Standards

Do not increase the frequency, duration, or volume of combined sewer discharges (CSD) to the receiving waters.

In order to demonstrate conformance, run the City-wide model using either the typical year or long term annual average rainfall to identify any increase in CSD to either the San Francisco Bay or Pacific Ocean resulting from increased flows from the implementation of the CPHP at the Parnassus Heights campus site. If, based on such analysis, UCSF determines that this performance standard is not met, UCSF will pay its proportional share of the costs of expanding the CSS to accommodate the increased flows or modify its designs to incorporate additional retention/detention features until the performance standard is met.

4 Frequency of Analysis

The performance standards described above will be met throughout development of the CPHP, and should be based on pre-development (“baseline”) model runs. Compliance can be demonstrative via modeling at every major phase of the CPHP beginning with the Initial Phase.

5 Conclusions

Quantitative modeling will be required to confirm adherence to the performance standards above.[2] However, there are several qualitative indicators that the performance standards can be feasibly met.

Firstly, the proposed CPHP includes a 0.11 MG onsite emergency sewer effluent storage tank. [3] This represents over 60% of the average daily wastewater production at full CPHP build out (0.18 MG). This also indicates that construction of additional storage is an option (given ground conditions, available area, etc.)

Secondly, a cumulative analysis performed in conjunction with the Parkmerced Draft EIR, determines that overall flows to the CSS on the Westside will decrease over time due to the construction of several major projects that will include separation of sewers (from combined to separate system).[4] Furthermore, the City has enacted several ordinances (e.g., Non-potable Ordinance, Water Efficient Irrigation Ordinance, Residential Water Conservation and Commercial Water Conservation Ordinance), requiring new and redevelopment projects City-wide reduce potable water use, and secondarily decrease wastewater flow to the CSS.

Finally, the CPHP is located along the north-south ridge that separates the Western and Eastern drainage basins. Being at the upstream end of each basin increases the likelihood that the increased flows will have less of a volumetric impact than at the downstream end as there is more opportunity for balancing of available storage. It also allows for allocating flow by basin to minimize overall impact.

[2] It is recommended that UCSF request model results for existing conditions for use in comparing future model runs.
[3] UCSF CPHP Draft EIR Project Description (page 3-31)
[4] Hydroconsult Engineers, Inc., Technical Memorandum, 19th Avenue Corridor Study Area – Cumulative Utilities Analysis, January 14, 2010, Table 4.2.

Appendix TR
Supplemental Transportation Appendix

Travel Demand Analysis

TABLE 1
EXISTING CONDITIONS PERSON AND VEHICLE TRIPS

Population Group	Population[1]	Absentees[2]	Daily Person Trip Rate[3]	Daily Person Trips	Proportion of Internal UCSF Campus Trips[4]	Net External Daily Person Trips	Percent of Trips during PM Peak Hour[5]	Daily External Vehicle Trips	PM Peak Period External Vehicle Trips
Faculty/Staff/Students	11,114	10%	2.23	22,286	10%	20,058	17%	6,446	1,137
Patients/Visitors	6,359	0%	2.00	12,717	0%	12,717	9%	8,305	708
Residents	434	0%	4.27	1,852	30%	1,267	15%	482	74
Total	**17,906**			**36,856**		34,042		15,233	1,919

Sources:
1 Faculty/Staff/Students and Patient/Visitor population estimates based on Table 4.12-2; Faculty/Staff/Students also includes a separate estimate for Childcare Staff. Resident population based on existing staff and student housing population estimates (including visitors to housing).
2 UCSF 2018 Employee Commute Survey
3 UCSF LRDP FEIR (1997) and UCSF LRDP Amendment #1 FSEIR (2002)
4 UCSF LRDP TIS (2014)
5 UCSF LRDP TIS (2014)

TABLE 2
EXISTING MODE SPLIT (2018)

Population Group	Drive Alone	Drop-Off	Taxi/ Uber/ Lyft	Car-pool	Van-pool	Public Transit	UCSF Shuttle	Bicycle	Motor-cycle/ Scooter	Walk/ Run	Tele-com-mute	Other
Faculty/Staff/Students	23%	2%	4%	3%	1%	32%	10%	6%	1%	16%	2%	0%
Patients/Visitors	22%	7%	7%	37%	1%	17%	3%	1%	0%	5%	0%	0%
Residents	31%	3%	2%	0%	0%	25%	25%	4%	0%	9%	0%	0%

Source: UCSF 2018 Employee Commute Survey & UCSF 2017/2018 Patient-Visitor Survey

TABLE 3
INITIAL PHASE PERSON AND VEHICLE TRIPS

Population Group	Population[1]	Absentees[2]	Daily Person Trip Rate[3]	Daily Person Trips	Proportion of Internal UCSF Campus Trips[4]	Net External Daily Person Trips	Percent of Trips during PM Peak Hour[5]	Daily External Vehicle Trips	PM Peak Period External Vehicle Trips
Faculty/Staff/Students	12,554	10%	2.23	25,196	10%	22,676	17%	7,355	1,299
Patients/Visitors	6,564	0%	2.00	13,128	0%	13,128	7%	8,928	625
Residents	596	0%	4.25	2,531	24%	1,882	15%	643	99
Total	**19,714**			**40,855**		**37,686**		**16,926**	**2,023**

Sources:
1 Faculty/Staff/Students and Patient/Visitor population estimates based on Table 4.12-2; Faculty/Staff/Students also includes a separate estimate for Childcare Staff. Initial Phase transportation analysis reflects populations associated with the Irving Street Arrival, Research and Academic Building, and initial Aldea Housing Densification projects and other Initial Phase improvements. Initial Phase transportation population estimates do not include populations associated with the New Hospital (which is analyzed at a program-level in the CPHP EIR and will be analyzed at a project-level in a future, separate EIR), and therefore differ from the Projected 2030 population presented in Table 4.12-2, which includes population associated with the New Hospital. Resident population based on existing staff and student housing population estimates and population associated with the proposed Initial Aldea Housing Densification project (and including visitors to housing).
2 UCSF 2018 Employee Commute Survey
3 UCSF LRDP FEIR (1997) and UCSF LRDP Amendment #1 FSEIR (2002)
4 UCSF LRDP TIS (2014)
5 UCSF LRDP TIS (2014)

TABLE 4
INITIAL PHASE MODE SPLIT (2030)

Population Group	Drive Alone	Drop-Off	Taxi/ Uber/ Lyft	Car-pool	Van-pool	Public Transit	UCSF Shuttle	Bicycle	Motor-cycle/ Scooter	Walk/ Run	Tele-com-mute	Other
Faculty/Staff/Students	19%	2%	5%	3%	1%	32%	11%	6%	1%	18%	2%	0%
Patients/Visitors	20%	9%	9%	34%	1%	16%	3%	1%	0%	6%	0%	0%
Residents	25%	3%	1%	0%	0%	19%	44%	3%	0%	5%	0%	0%

Source: Fehr & Peers, 2020.

TABLE 5
FUTURE PHASE PERSON AND VEHICLE TRIPS

Population Group	Population[1]	Absentees[2]	Daily Person Trip Rate[3]	Daily Person Trips	Proportion of Internal UCSF Campus Trips[4]	Net External Daily Person Trips	Percent of Trips during PM Peak Hour[5]	Daily External Vehicle Trips	PM Peak Period External Vehicle Trips
Faculty/Staff/Students	16,322	10%	2.23	32,758	10%	29,482	17%	10,480	1,878
Patients/Visitors	9,031	0%	2.00	18,063	0%	18,063	7%	16,488	1,154
Residents	979	0%	4.17	4,085	18%	3,294	15%	1,630	249
Total	**26,332**			**54,905**		**50,839**		**28,598**	**3,281**

Sources:
1 Faculty/Staff/Students and Patient/Visitor population estimates based on Table 4.12-2; Faculty/Staff/Students also includes a separate estimate for Childcare Staff. Resident population based on expected staff and student housing population estimates under the CPHP (including visitors to housing), based on existing and projected staff and student housing population under full buildout of the CPHP. Resident population excludes population associated with proposed market-rate housing and hotel uses; travel demand for market-rate housing and hotel uses was estimated separately based on San Francisco's *Transportation Impact Analysis Guidelines For Environmental Review*, and are reflected in the daily external person trip, daily external vehicle trip, and PM peak period vehicle trip estimates.
2 UCSF 2018 Employee Commute Survey
3 UCSF LRDP FEIR (1997) and UCSF LRDP Amendment #1 FSEIR (2002)
4 UCSF LRDP TIS (2014)
5 UCSF LRDP TIS (2014)

TABLE 6
FUTURE PHASE MODE SPLIT (2050)

Population Group	Drive Alone	Drop-Off	Taxi/ Uber/ Lyft	Car-pool	Van-pool	Public Transit	UCSF Shuttle	Bicycle	Motor-cycle/ Scooter	Walk/ Run	Tele-com-mute	Other
Faculty/Staff/Students	13%	5%	8%	2%	1%	33%	12%	6%	1%	16%	2%	0%
Patients/Visitors	12%	20%	20%	23%	1%	15%	2%	1%	0%	5%	0%	0%
Residents	31%	3%	2%	0%	0%	25%	25%	4%	0%	9%	0%	0%

Source: Fehr & Peers, 2020.

VEHICLE MILES OF TRAVEL ANALYSIS

VMT Summary

UCSF Parnassus Heights Site
Daily VMT Summary

Scenario	Daily Population		Daily Vehicle Miles of Travel		Average Daily VMT per capita	
	Employees, Vendors & Services	Residents & Hotel guests	Employees, Vendors & Services	Residents & Hotel guests	Employees, Vendors & Services	Residents & Hotel guests
Parnassus Heights Campus						
Existing Conditions	11,666	434	110,011	2,999	9.4	6.9
Existing + Initial Projects	13,731	596	131,613	4,043	9.6	6.8
Existing + CPHP Future Phase	17,769	1,475	194,190	12,493	10.9	8.5
Parnassus Heights Area [a]						
-Existing					8.9	9.8
- Year 2040					8.7	9.5
SF Bay Area Region minus 15% [b]						
-Existing					16.2	14.6
- Year 2040					14.5	13.7

[a] Aggregated data for TAZs 226, 227, 545, 546, and 547; includes adjacent residential, retail, medical and other office uses unrelated to UCSF
[b] SF Guidelines 2019

Sources: Adavant Consulting, Fehr & Peers, SFCTA, UCSF

SFCTA Forecasting Model Data

Residential and Work-related Vehicle Miles of Travel

	RESIDENTIAL				OFFICE			
	Population		Resid. VMT per person		Jobs		Work VMT per employment	
TAZ	Existing	2040	Existing	2040	Existing	2040	Existing	2040
226	1,163	1,245	8.8	8.4	501	501	8.8	8.5
227	1,427	1,521	8.3	8.0	618	618	8.8	8.5
545	1,455	1,560	12.7	12.6	135	135	12.3	14.9
546	750	804	8.5	8.3	1,181	1,181	8.7	8.4
547	174	193	9.1	8.7	1,826	1,826	8.9	8.5
Total	**4,969**	**5,323**	**9.8**	**9.5**	**4,261**	**4,261**	**8.9**	**8.7**
SF Bay Area			17.2	16.1			19.1	17.0
Regional minus 15%			**14.6**	**13.7**			**16.2**	**14.5**

Source: SFCTA

Existing Conditions

Vehicle Trip Distribution
UCSF Parnassus Heights Site
Existing Conditions

Population Group	User Population [a]	Daily External Vehicle Trips [b]	Origins/Destinations [c]								
			San Francisco SD1	San Francisco SD2	San Francisco SD3	San Francisco SD4	East Bay	North Bay	South Bay	Outside Bay Area	All Origins
STAFF											
Faculty/Physicians	1,057	960	2%	14%	21%	8%	14%	22%	19%	1%	100%
Staff/Nurses	6,338	4,363	3%	9%	15%	10%	19%	13%	30%	1%	100%
Students/Trainees	3,683	1,095	5%	19%	18%	26%	8%	1%	23%	2%	100%
Total staff	*11,078*	*6,418*	*3%*	*11%*	*16%*	*13%*	*17%*	*12%*	*27%*	*1%*	*100%*
PATIENTS & VISITORS											
Inpatients	407	546	5%	5%	13%	7%	17%	14%	17%	22%	100%
Visitors to Inpatients	1,018	1,633	4%	10%	14%	13%	13%	7%	13%	24%	100%
Outpatients and companions	4,382	5,809	5%	5%	13%	7%	17%	14%	17%	22%	100%
Total patients and visitors	*5,806*	*7,988*	*5%*	*6%*	*13%*	*8%*	*16%*	*13%*	*16%*	*23%*	*100%*
OTHER VISITORS											
Vendors/Services	552	317	14%	14%	14%	14%	14%	7%	19%	2%	100%
Total other visitors	*552*	*317*	*15%*	*15%*	*14%*	*15%*	*15%*	*7%*	*19%*	*2%*	*100%*
Subtotal Staff+Patients+Visitors	***17,437***	***14,724***	***4%***	***8%***	***14%***	***10%***	***16%***	***12%***	***21%***	***13%***	***100%***
CHILDCARE											
Childcare staff	36	27	3%	9%	15%	10%	19%	13%	30%	1%	100%
Total childcare	*36*	*27*	*4%*	*7%*	*19%*	*11%*	*19%*	*11%*	*30%*	*0%*	*100%*
RESIDENTIAL											
Aldea	172	276	25%	10%	50%	10%	2%	1%	2%	0%	100%
Other existing campus housing	222	151	25%	10%	50%	10%	2%	1%	2%	0%	100%
Building B (Student Housing)	-	-	25%	10%	50%	10%	2%	1%	2%	0%	100%
Building C (156 units; market rate)	-	-	4%	21%	11%	44%	2%	4%	14%	0%	100%
Visitors/ Vendors/Services	40	55	14%	14%	14%	14%	14%	7%	19%	2%	100%
Total residential	*434*	*482*	*24%*	*11%*	*45%*	*11%*	*4%*	*2%*	*4%*	*0%*	*100%*
HOTEL (120 rooms)											
Hotel - Workers			5%	19%	13%	37%	1%	4%	22%	0%	100%
Hotel - Guests			2%	9%	22%	46%	2%	1%	17%	0%	100%
Total hotel	-	-	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Total employees, vendors and services	11,666	6,763	3%	11%	16%	13%	17%	12%	27%	1%	100%
Total patients and visitors	5,806	7,988	5%	6%	13%	8%	16%	13%	16%	23%	100%
Total residents and hotel guests	434	482	24%	11%	45%	11%	4%	2%	4%	0%	100%
GRAND TOTAL	17,906	15,233	5%	8%	15%	10%	16%	12%	20%	13%	100%

[a] UCSF CPHP, August 2019
[b] Fehr & Peers, August 2019
[c] Origin/Destination % for staff based on UCSF Transportation Services Annual Commute Survey 2018 for the Parnassus site; data for patients, visitors, vendors and services obtained from 2018 UCSF Patient and Visitor survey at Parnassus; data for UCSF residents based on UCSF 2014 LRDP EIR data (2013); data for market rate residential and hotel uses taken from 2019 SF Guidelines.

Vehicle Trip Distribution
UCSF Parnassus Heights Site
Existing Conditions

Population Group	Project Daily Vehicle Distribution [d]								
	S. Francisco SD1	S. Francisco SD2	S. Francisco SD3	S. Francisco SD4	East Bay	Norh Bay	South Bay	Outside Bay Area	All Origins
	5.5 miles	2 miles	4 miles	3 miles	28 miles	28 miles	23 miles	51 miles	20.3 miles
STAFF									
Faculty/Physicians	16	132	202	72	135	209	183	11	960
Staff/Nurses	109	375	648	453	849	559	1,312	58	4,363
Students/Trainees	53	203	194	280	83	15	250	17	1,095
Total staff	*178*	*710*	*1,044*	*805*	*1,067*	*783*	*1,745*	*86*	*6,418*
PATIENTS & VISITORS									
Inpatients	26	26	69	40	93	78	91	123	546
Visitors to Inpatients	73	171	232	207	219	122	219	390	1,633
Outpatients and companions	274	274	741	430	990	834	964	1,302	5,809
Total patients and visitors	*373*	*471*	*1,042*	*677*	*1,302*	*1,034*	*1,274*	*1,815*	*7,988*
OTHER VISITORS									
Vendors/Services	46	46	45	46	46	22	60	6	317
Total other visitors	*46*	*46*	*45*	*46*	*46*	*22*	*60*	*6*	*317*
Subtotal Staff+Patients+Visitors	*597*	*1,227*	*2,131*	*1,528*	*2,415*	*1,839*	*3,079*	*1,907*	*14,723*
CHILDCARE									
Childcare staff	1	2	5	3	5	3	8	-	27
Total childcare	*1*	*2*	*5*	*3*	*5*	*3*	*8*	-	*27*
RESIDENTIAL									
Aldea	69	28	136	28	6	3	6	-	276
Other existing campus housing	38	15	75	15	3	2	3	-	151
Building B (Student Housing)	-	-	-	-	-	-	-	-	-
Building C (156 units; market rate)	-	-	-	-	-	-	-	-	-
Visitors/ Vendors/Services	8	8	7	8	8	4	11	1	55
Total residential	*115*	*51*	*218*	*51*	*17*	*9*	*20*	*1*	*482*
HOTEL (120 rooms)									
Hotel - Workers	-	-	-	-	-	-	-	-	-
Hotel - Guests	-	-	-	-	-	-	-	-	-
Total hotel	-	-	-	-	-	-	-	-	-
Total employees, vendors and services	225	758	1,094	854	1,118	808	1,813	92	6,762
Total patients and visitors	373	471	1,042	677	1,302	1,034	1,274	1,815	7,988
Total residents and hotel guests	115	51	218	51	17	9	20	1	482
GRAND TOTAL	713	1,280	2,354	1,582	2,437	1,851	3,107	1,908	15,232

[d] Approximate number of one-way miles between the Parnassus site and the population center of gravity of each geographical area.

Vehicle Trip Distribution
UCSF Parnassus Heights Site
Existing Conditions

Population Group	Project Daily Vehicle Miles of Travel								
	San Francisco SD1	San Francisco SD2	San Francisco SD3	San Francisco SD4	East Bay	Norh Bay	South Bay	Outside Bay Area	All Origins
STAFF									
Faculty/Physicians	88	264	808	216	3,780	5,852	4,209	561	15,778
Staff/Nurses	600	750	2,592	1,359	23,772	15,652	30,176	2,958	77,859
Students/Trainees	292	406	776	840	2,324	420	5,750	867	11,675
Total staff	*979*	*1,420*	*4,176*	*2,415*	*29,876*	*21,924*	*40,135*	*4,386*	*105,311*
PATIENTS & VISITORS									
Inpatients	143	52	276	120	2,604	2,184	2,093	6,273	13,745
Visitors to Inpatients	402	342	928	621	6,132	3,416	5,037	19,890	36,768
Outpatients and companions	1,507	548	2,964	1,290	27,720	23,352	22,172	66,402	145,955
Total patients and visitors	*2,052*	*942*	*4,168*	*2,031*	*36,456*	*28,952*	*29,302*	*92,565*	*196,468*
OTHER VISITORS									
Vendors/Services	253	92	180	138	1,288	616	1,380	306	4,253
Total other visitors	*253*	*92*	*180*	*138*	*1,288*	*616*	*1,380*	*306*	*4,253*
Subtotal Staff+Patients+Visitors	*3,284*	*2,454*	*8,524*	*4,584*	*67,620*	*51,492*	*70,817*	*97,257*	*306,032*
CHILDCARE									
Childcare staff	6	4	20	9	140	84	184	-	447
Total childcare	*6*	*4*	*20*	*9*	*140*	*84*	*184*	-	*447*
RESIDENTIAL									
Aldea	380	56	544	84	168	84	138	-	1,454
Other existing campus housing	209	30	300	45	84	56	69	-	793
Building B (Student Housing)	-	-	-	-	-	-	-	-	-
Building C (156 units; market rate)	-	-	-	-	-	-	-	-	-
Visitors/ Vendors/Services	44	16	28	24	224	112	253	51	752
Total residential	*633*	*102*	*872*	*153*	*476*	*252*	*460*	*51*	*2,999*
HOTEL (120 rooms)									
Hotel - Workers	-	-	-	-	-	-	-	-	-
Hotel - Guests	-	-	-	-	-	-	-	-	-
Total hotel	-	-	-	-	-	-	-	-	-
Total employees, vendors and services	1,238	1,516	4,376	2,562	31,304	22,624	41,699	4,692	110,011
Total patients and visitors	2,052	942	4,168	2,031	36,456	28,952	29,302	92,565	196,468
Total residents and hotel guests	633	102	872	153	476	252	460	51	2,999
GRAND TOTAL	3,922	2,560	9,416	4,746	68,236	51,828	71,461	97,308	309,477

Existing Conditions plus Initial Projects

Vehicle Trip Distribution
UCSF Parnassus Heights Site
CPHP - Existing+ Initial Projects

Population Group	User Population [a]	Daily External Vehicle Trips [b]	Origins/Destinations [c]								
			San Francisco SD1	San Francisco SD2	San Francisco SD3	San Francisco SD4	East Bay	North Bay	South Bay	Outside Bay Area	All Origins
STAFF											
Faculty/Physicians	1,191	1,089	2%	14%	21%	8%	14%	22%	19%	1%	100%
Staff/Nurses	7,143	5,014	3%	9%	15%	10%	19%	13%	30%	1%	100%
Students/Trainees	4,184	1,224	5%	19%	18%	26%	8%	1%	23%	2%	100%
Total staff	*12,518*	*7,327*	*3%*	*11%*	*16%*	*12%*	*17%*	*12%*	*27%*	*1%*	*100%*
PATIENTS & VISITORS											
Inpatients	390	566	5%	5%	13%	7%	17%	14%	17%	22%	100%
Visitors to Inpatients	975	1,678	4%	10%	14%	13%	13%	7%	13%	24%	100%
Outpatients and companions	4,022	5,887	5%	5%	13%	7%	17%	14%	17%	22%	100%
Total patients and visitors	*5,387*	*8,131*	*5%*	*6%*	*13%*	*8%*	*16%*	*13%*	*16%*	*23%*	*100%*
OTHER VISITORS											
Vendors/Services	1,177	797	14%	14%	14%	14%	14%	7%	19%	2%	100%
Total other visitors	*1,177*	*797*	*14%*	*14%*	*14%*	*14%*	*14%*	*7%*	*19%*	*2%*	*100%*
Subtotal Staff+Patients+Visitors	***19,082***	***16,255***	***4%***	***9%***	***15%***	***11%***	***16%***	***12%***	***21%***	***12%***	***100%***
CHILDCARE											
Childcare staff	36	27	3%	9%	15%	10%	19%	13%	30%	1%	100%
Total childcare	*36*	*27*	*4%*	*7%*	*15%*	*11%*	*19%*	*15%*	*30%*	*0%*	*100%*
RESIDENTIAL											
Aldea	314	409	25%	10%	50%	10%	2%	1%	2%	0%	100%
Other existing campus housing	222	151	25%	10%	50%	10%	2%	1%	2%	0%	100%
Building B (Student Housing)			25%	10%	50%	10%	2%	1%	2%	0%	100%
Building C (156 units; market rate)			4%	21%	11%	44%	2%	4%	14%	0%	100%
Visitors/ Vendors/Services	60	83	14%	14%	14%	14%	14%	7%	19%	2%	100%
Total residential	*596*	*643*	*24%*	*11%*	*45%*	*11%*	*4%*	*2%*	*4%*	*0%*	*100%*
HOTEL (120 rooms)											
Hotel - Workers			5%	19%	13%	37%	1%	4%	22%	0%	100%
Hotel - Guests			2%	9%	22%	46%	2%	1%	17%	0%	100%
Total hotel	-	-	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Total employees, vendors and services	13,731	8,152	4%	11%	16%	13%	16%	12%	26%	1%	100%
Total patients and visitors	5,387	8,131	5%	6%	13%	8%	16%	13%	16%	23%	100%
Total residents and hotel guests	596	643	24%	11%	45%	11%	4%	2%	4%	0%	100%
GRAND TOTAL	19,714	16,926	5%	9%	16%	11%	16%	12%	21%	12%	100%

[a] Fehr & Peers, October 2020

[a] Fehr & Peers, October 2020

[c] Origin/Destination % for staff based on UCSF Transportation Services Annual Commute Survey 2018 for the Parnassus site; data for patients, visitors, vendors and services obtained from 2018 UCSF Patient and Visitor survey at Parnassus; data for UCSF residents based on UCSF 2014 LRDP EIR data (2013); data for market rate residential and hotel uses taken from 2019 SF Guidelines.

Vehicle Trip Distribution UCSF
Parnassus Heights Site
CPHP - Existing+ Initial Projects

Population Group	Project Daily Vehicle Distribution [d]								
	S. Francisco SD1	S. Francisco SD2	S. Francisco SD3	S. Francisco SD4	East Bay	Norh Bay	South Bay	Outside Bay Area	All Origins
	5.5 miles	2 miles	4 miles	3 miles	28 miles	28 miles	23 miles	51 miles	19.8 miles
STAFF									
Faculty/Physicians	19	150	228	82	153	237	208	12	1,089
Staff/Nurses	125	431	746	520	975	642	1,508	67	5,014
Students/Trainees	60	227	216	313	93	17	279	19	1,224
Total staff	*204*	*808*	*1,190*	*915*	*1,221*	*896*	*1,995*	*98*	*7,327*
PATIENTS & VISITORS									
Inpatients	27	27	72	42	96	81	94	127	566
Visitors to Inpatients	75	175	239	213	225	125	225	401	1,678
Outpatients and companions	277	277	752	436	1,003	845	977	1,320	5,887
Total patients and visitors	*379*	*479*	*1,063*	*691*	*1,324*	*1,051*	*1,296*	*1,848*	*8,131*
OTHER VISITORS									
Vendors/Services	115	115	114	115	115	56	151	16	797
Total other visitors	*115*	*115*	*114*	*115*	*115*	*56*	*151*	*16*	*797*
Subtotal Staff+Patients+Visitors	*698*	*1,402*	*2,367*	*1,721*	*2,660*	*2,003*	*3,442*	*1,962*	*16,255*
CHILDCARE									
Childcare staff	1	2	4	3	5	4	8	-	27
Total childcare	*1*	*2*	*4*	*3*	*5*	*4*	*8*	-	*27*
RESIDENTIAL									
Aldea	102	41	205	41	8	4	8	-	409
Other existing campus housing	38	15	75	15	3	2	3	-	151
Building B (Student Housing)	-	-	-	-	-	-	-	-	-
Building C (156 units; market rate)	-	-	-	-	-	-	-	-	-
Visitors/ Vendors/Services	12	12	11	12	12	6	16	2	83
Total residential	*152*	*68*	*291*	*68*	*23*	*12*	*27*	*2*	*643*
HOTEL (120 rooms)									
Hotel - Workers	-	-	-	-	-	-	-	-	-
Hotel - Guests	-	-	-	-	-	-	-	-	-
Total hotel	-	-	-	-	-	-	-	-	-
Total employees, vendors and services	320	925	1,308	1,033	1,341	956	2,154	114	8,151
Total patients and visitors	379	479	1,063	691	1,324	1,051	1,296	1,848	8,131
Total residents and hotel guests	152	68	291	68	23	12	27	2	643
GRAND TOTAL	851	1,472	2,662	1,792	2,688	2,019	3,477	1,964	16,925

[d] Approximate number of one-way miles between the Parnassus site and the population center of gravity of each geographical area.

Vehicle Trip Distribution
UCSF Parnassus Heights Site
CPHP - Existing+ Initial Projects

Population Group	Project Daily Vehicle Miles of Travel								
	San Francisco SD1	San Francisco SD2	San Francisco SD3	San Francisco SD4	East Bay	Norh Bay	South Bay	Outside Bay Area	All Origins
STAFF									
Faculty/Physicians	105	300	912	246	4,284	6,636	4,784	612	17,879
Staff/Nurses	688	862	2,984	1,560	27,300	17,976	34,684	3,417	89,471
Students/Trainees	330	454	864	939	2,604	476	6,417	969	13,053
Total staff	*1,122*	*1,616*	*4,760*	*2,745*	*34,188*	*25,088*	*45,885*	*4,998*	*120,402*
PATIENTS & VISITORS									
Inpatients	149	54	288	126	2,688	2,268	2,162	6,477	14,212
Visitors to Inpatients	413	350	956	639	6,300	3,500	5,175	20,451	37,784
Outpatients and companions	1,524	554	3,008	1,308	28,084	23,660	22,471	67,320	147,929
Total patients and visitors	*2,085*	*958*	*4,252*	*2,073*	*37,072*	*29,428*	*29,808*	*94,248*	*199,924*
OTHER VISITORS									
Vendors/Services	633	230	456	345	3,220	1,568	3,473	816	10,741
Total other visitors	*633*	*230*	*456*	*345*	*3,220*	*1,568*	*3,473*	*816*	*10,741*
Subtotal Staff+Patients+Visitors	*3,839*	*2,804*	*9,468*	*5,163*	*74,480*	*56,084*	*79,166*	*100,062*	*331,066*
CHILDCARE									
Childcare staff	6	4	16	9	140	112	184	-	471
Total childcare	*6*	*4*	*16*	*9*	*140*	*112*	*184*	-	*471*
RESIDENTIAL									
Aldea	561	82	820	123	224	112	184	-	2,106
Other existing campus housing	209	30	300	45	84	56	69	-	793
Building B (Student Housing)	-	-	-	-	-	-	-	-	-
Building C (156 units; market rate)	-	-	-	-	-	-	-	-	-
Visitors/ Vendors/Services	66	24	44	36	336	168	368	102	1,144
Total residential	*836*	*136*	*1,164*	*204*	*644*	*336*	*621*	*102*	*4,043*
HOTEL (120 rooms)									
Hotel - Workers	-	-	-	-	-	-	-	-	-
Hotel - Guests	-	-	-	-	-	-	-	-	-
Total hotel	-	-	-	-	-	-	-	-	-
Total employees, vendors and services	1,760	1,850	5,232	3,099	37,548	26,768	49,542	5,814	131,613
Total patients and visitors	2,085	958	4,252	2,073	37,072	29,428	29,808	94,248	199,924
Total residents and hotel guests	836	136	1,164	204	644	336	621	102	4,043
GRAND TOTAL	4,681	2,944	10,648	5,376	75,264	56,532	79,971	100,164	335,580

EXISTING PLUS CPHP – FUTURE PHASE

Vehicle Trip Distribution
UCSF Parnassus Heights Site
CPHP - Future Phase

Population Group	User Population [a]	Daily External Vehicle Trips [b]	Origins/Destinations [c]								
			San Francisco SD1	San Francisco SD2	San Francisco SD3	San Francisco SD4	East Bay	North Bay	South Bay	Outside Bay Area	All Origins
STAFF											
Faculty/Physicians	1,725	1,632	2%	14%	21%	8%	14%	22%	19%	1%	100%
Staff/Nurses	10,349	7,533	3%	9%	15%	10%	19%	13%	30%	1%	100%
Students/Trainees	4,187	1,267	5%	19%	18%	26%	8%	1%	23%	2%	100%
Total staff	*16,262*	*10,432*	*3%*	*11%*	*16%*	*12%*	*17%*	*13%*	*27%*	*1%*	*100%*
PATIENTS & VISITORS											
Inpatients	675	1,240	5%	5%	13%	7%	17%	14%	17%	22%	100%
Visitors to Inpatients	1,688	3,609	4%	10%	14%	13%	13%	7%	13%	24%	100%
Outpatients and companions	5,330	10,279	5%	5%	13%	7%	17%	14%	17%	22%	100%
Total patients and visitors	*7,692*	*15,128*	*5%*	*6%*	*13%*	*9%*	*16%*	*13%*	*16%*	*23%*	*100%*
OTHER VISITORS											
Vendors/Services	1,339	1,360	14%	14%	14%	14%	14%	7%	19%	2%	100%
Total other visitors	*1,339*	*1,360*	*14%*	*14%*	*14%*	*14%*	*14%*	*7%*	*19%*	*2%*	*100%*
Subtotal Staff+Patients+Visitors	***25,293***	***26,920***	***4%***	***8%***	***14%***	***10%***	***16%***	***12%***	***21%***	***13%***	***100%***
CHILDCARE											
Childcare staff	60	48	3%	9%	15%	10%	19%	13%	30%	1%	100%
Total childcare	*60*	*48*	*2%*	*8%*	*17%*	*10%*	*19%*	*13%*	*29%*	*2%*	*100%*
RESIDENTIAL											
Aldea	504	810	25%	10%	50%	10%	2%	1%	2%	0%	100%
Other existing campus housing	222	151	25%	10%	50%	10%	2%	1%	2%	0%	100%
Building B (Student Housing)	125	201	25%	10%	50%	10%	2%	1%	2%	0%	100%
Building C (156 units; market rate)	312	291	4%	21%	11%	44%	2%	4%	14%		100%
Visitors/ Vendors/Services	128	179	14%	14%	14%	14%	14%	7%	19%	2%	100%
Total residential	*1,291*	*1,631*	*20%*	*13%*	*39%*	*17%*	*3%*	*2%*	*6%*	*0%*	*100%*
HOTEL (120 rooms)											
Hotel - Workers	108	27	5%	19%	13%	37%	1%	4%	22%		100%
Hotel - Guests	184	263	2%	9%	22%	46%	2%	1%	17%		100%
Total hotel	*292*	*289*	*2%*	*10%*	*22%*	*46%*	*2%*	*1%*	*17%*	*0%*	*100%*
Total employees, vendors and services	17,769	11,867	4%	11%	16%	12%	17%	12%	27%	1%	100%
Total patients and visitors	7,692	15,128	5%	6%	13%	9%	16%	13%	16%	23%	100%
Total residents and hotel guests	1,475	1,893	18%	12%	37%	21%	3%	2%	7%	0%	100%
GRAND TOTAL	26,936	28,888	5%	9%	16%	11%	16%	12%	20%	13%	100%

[a] Fehr & Peers, October 2020
[b] Fehr & Peers, October 2020
[c] Origin/Destination % for staff based on UCSF Transportation Services Annual Commute Survey 2018 for the Parnassus site; data for patients, visitors, vendors and services obtained from 2018 UCSF Patient and Visitor survey at Parnassus; data for UCSF residents based on UCSF 2014 LRDP EIR data (2013); data for market rate residential and hotel uses taken from 2019 SF Guidelines.

Vehicle Trip Distribution
UCSF Parnassus Heights Site
CPHP - Future Phase

Population Group	Project Daily Vehicle Distribution [d]								
	S. Francisco SD1	S. Francisco SD2	S. Francisco SD3	S. Francisco SD4	East Bay	Norh Bay	South Bay	Outside Bay Area	All Origins
	5.5 miles	2 miles	4 miles	3 miles	28 miles	28 miles	23 miles	51 miles	20.0 miles
STAFF									
Faculty/Physicians	28	224	341	122	230	356	312	19	1,632
Staff/Nurses	188	647	1,121	781	1,465	965	2,266	100	7,533
Students/Trainees	62	235	224	324	96	17	289	20	1,267
Total staff	*278*	*1,106*	*1,686*	*1,227*	*1,791*	*1,338*	*2,867*	*139*	*10,432*
PATIENTS & VISITORS									
Inpatients	58	58	159	92	211	178	206	278	1,240
Visitors to Inpatients	162	377	511	458	485	269	485	862	3,609
Outpatients and companions	484	484	1,313	761	1,752	1,475	1,705	2,305	10,279
Total patients and visitors	*704*	*919*	*1,983*	*1,311*	*2,448*	*1,922*	*2,396*	*3,445*	*15,128*
OTHER VISITORS									
Vendors/Services	196	196	196	196	196	95	258	27	1,360
Total other visitors	*196*	*196*	*196*	*196*	*196*	*95*	*258*	*27*	*1,360*
Subtotal Staff+Patients+Visitors	*1,178*	*2,221*	*3,865*	*2,734*	*4,435*	*3,355*	*5,521*	*3,611*	*26,920*
CHILDCARE									
Childcare staff	1	4	8	5	9	6	14	1	48
Total childcare	*1*	*4*	*8*	*5*	*9*	*6*	*14*	*1*	*48*
RESIDENTIAL									
Aldea	202	81	406	81	16	8	16	-	810
Other existing campus housing	38	15	75	15	3	2	3	-	151
Building B (Student Housing)	50	20	101	20	4	2	4	-	201
Building C (156 units; market rate)	12	62	31	129	4	12	41	-	291
Visitors/ Vendors/Services	26	26	24	26	26	13	34	4	179
Total residential	*328*	*204*	*637*	*271*	*53*	*37*	*98*	*4*	*1,632*
HOTEL (120 rooms)									
Hotel - Workers	1	5	4	10	-	1	6	-	27
Hotel - Guests	5	24	59	122	6	3	44	-	263
Total hotel	*6*	*29*	*63*	*132*	*6*	*4*	*50*	-	*290*
Total employees, vendors and services	476	1,311	1,894	1,438	1,996	1,440	3,145	167	11,867
Total patients and visitors	704	919	1,983	1,311	2,448	1,922	2,396	3,445	15,128
Total residents and hotel guests	333	228	696	393	59	40	142	4	1,895
GRAND TOTAL	1,513	2,458	4,573	3,142	4,503	3,402	5,683	3,616	28,890

[d] Approximate number of one-way miles between the Parnassus site and the population center of gravity of each geographical area.

Vehicle Trip Distribution
UCSF Parnassus Heights Site
CPHP - Future Phase

Population Group	Project Daily Vehicle Miles of Travel								
	San Francisco SD1	San Francisco SD2	San Francisco SD3	San Francisco SD4	East Bay	Norh Bay	South Bay	Outside Bay Area	All Origins
STAFF									
Faculty/Physicians	154	448	1,364	366	6,440	9,968	7,176	969	26,885
Staff/Nurses	1,034	1,294	4,484	2,343	41,020	27,020	52,118	5,100	134,413
Students/Trainees	341	470	896	972	2,688	476	6,647	1,020	13,510
Total staff	*1,529*	*2,212*	*6,744*	*3,681*	*50,148*	*37,464*	*65,941*	*7,089*	*174,808*
PATIENTS & VISITORS									
Inpatients	319	116	636	276	5,908	4,984	4,738	14,178	31,155
Visitors to Inpatients	891	754	2,044	1,374	13,580	7,532	11,155	43,962	81,292
Outpatients and companions	2,662	968	5,252	2,283	49,056	41,300	39,215	117,555	258,291
Total patients and visitors	*3,872*	*1,838*	*7,932*	*3,933*	*68,544*	*53,816*	*55,108*	*175,695*	*370,738*
OTHER VISITORS									
Vendors/Services	1,078	392	784	588	5,488	2,660	5,934	1,377	18,301
Total other visitors	*1,078*	*392*	*784*	*588*	*5,488*	*2,660*	*5,934*	*1,377*	*18,301*
Subtotal Staff+Patients+Visitors	***6,479***	***4,442***	***15,460***	***8,202***	***124,180***	***93,940***	***126,983***	***184,161***	***563,847***
CHILDCARE									
Childcare staff	6	8	32	15	252	168	322	51	854
Total childcare	*6*	*8*	*32*	*15*	*252*	*168*	*322*	*51*	*854*
RESIDENTIAL									
Aldea	1,111	162	1,624	243	448	224	368	-	4,180
Other existing campus housing	209	30	300	45	84	56	69	-	793
Building B (Student Housing)	275	40	404	60	112	56	92	-	1,039
Building C (156 units; market rate)	66	124	124	387	112	336	943	-	2,092
Visitors/ Vendors/Services	143	52	96	78	728	364	782	204	2,447
Total residential	*1,804*	*408*	*2,548*	*813*	*1,484*	*1,036*	*2,254*	*204*	*10,551*
HOTEL (120 rooms)									
Hotel - Workers	6	10	16	30	-	28	138	-	228
Hotel - Guests	28	48	236	366	168	84	1,012	-	1,942
Total hotel	*33*	*58*	*252*	*396*	*168*	*112*	*1,150*	-	*2,169*
Total employees, vendors and services	2,618	2,622	7,576	4,314	55,888	40,320	72,335	8,517	194,190
Total patients and visitors	3,872	1,838	7,932	3,933	68,544	53,816	55,108	175,695	370,738
Total residents and hotel guests	1,832	456	2,784	1,179	1,652	1,120	3,266	204	12,493
GRAND TOTAL	8,322	4,916	18,292	9,426	126,084	95,256	130,709	184,416	577,421

Appendix O-EBPA

The Next Major Fire in the East Bay Hills

March 2016

by Dave Maloney

Dave Maloney is the former Chief of Fire Prevention for the U.S. Army at the Oakland Army Base. His is a retired firefighter from the Oakland Fire Department. He holds lifetime certification from the California State Fire Marshal's Office as a Fire Investigator, and lifetime certification from the U.S. Dept.of Defense as a Fire Inspector. He was a member of the 19911992 Emergency Preparedness and Community Restoration Task Force, also known as the OaklandBerkeley Mayors' Firestorm Task Force, which investigated the 1991 Oakland Hills Fire and made recommendations to prevent a recurrence of a major fire in the East Bay hills. He is currently a wildland fire prevention consultant.

On September 27, 2013, the U.S. Forest Service issued a report that said the removal of Eucalyptus trees from the East Bay Hills would increase the risk of fire there.

In 1987 I was severely burned fighting a fire in Oakland. I know that unimaginable pain. Both my hands received moderate and severe seconddegree burns. I have carried a scar from that burn for 28 years. It will be with me for the rest of my life. Every time I hear of a firefighter being burned to death, I go into a depression that lasts for hours. I know the pain that young man or woman went through in the beginning stages of his or her death. This article is dedicated to those firefighters who have lost their lives in the line of duty, and to those who will lose their lives if U.C. Berkeley (UCB), East Bay Regional Parks District (EBRPD), and the City of Oakland are allowed to implement their plans to cut down approximately 500,000 trees in the East Bay hills.

The next fire in the East Bay Hills has the potential of killing more than 1,000 people and destroying over 100,000 homes if the above three publicly funded agencies are allowed to enact their fallacious "Fire Hazard Mitigation Plans" — which in reality are plans to remove non-

native trees from the East Bay Hills under the guise of reducing the risk of fire.

The plans:
• ignore the U.S. Forest Service analysis dated September 27, 2013, which recommends against removing Eucalyptus trees.
• violates the recommendations made by the 1991/1992 Task Force on Emergency Preparedness and Community Restoration, commonly known as the Oakland/Berkeley Mayors' Fire Storm Task Force, of which I was a member.
• has no basis in fire science;

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• violates fundamental principles of Wildland Fire Prevention; • is ideologically motivated;
• creates the conditions for a perfect firestorm

This firestorm could destroy all of Oakland down to the 880 freeway, (The Montclair district of Oakland, with its delightful Montclair Village shopping area, could be incinerated; and the Claremont Hotel would not be saved in this fire.) All of Berkeley down to Fourth street could be burned, as well all of Piedmont, Albany, El Cerrito, most of Richmond and Emeryville, all of San Leandro, Hayward, Castro Valley and Fremont.

This fire would not be restricted to the west side of the East Bay hills, but could, for the first time, due to the removal of hundreds of thousands of trees, move down the east side of the hills to incinerate Orinda, then move deep into Contra Costa County consuming Lafayette, Moraga, Walnut Creek and Concord. While burning to the East it could also spread south and destroy Alamo and Danville. Unlike the cities on the Alameda County side of the Caldecott Tunnel, the cities on the Contra Costa County side cannot even hope to receive the cool air and fog that comes through the Golden Gate most nights, which would lower the temperature of the fire, thereby allowing firefighters to contain it.

Tens of thousands of people will be forced to evacuate their homes. Freeways would be clogged. People will have to abandon their cars and run down the freeway between the rows of stalled vehicles, carrying only the possessions they could flee with. A valiant attempt will be made to stop the fire at the intersection of freeways 680 and 580 near Dublin, and use all of 580 as a fire break. This attempt will fail, just as highways 13 and 24 in 1991 failed to stop the Oakland Hills fire in 1991. The fire will jump 580 and continue south, consuming Dublin and Pleasanton, then continue further South, East and West to become the worst catastrophe in American history.

Thisisnotdoomsdaysciencefiction. *T his happenedinAustraliaonFebruary7,2009*, theday the Black Saturday Fires began. The Black Saturday Fires consumed 1,100,000 (one million one hundred thousand acres), 750 times more land than was burned in the 1991 Oakland Hills fire. The Black Saturday fires destroyed 25 towns, killed 173 people and released the energy equivalent of 1,500 atomic bombs exploding.

In Australia, logging had replaced forests with grasses, and chaparral, (land covered with bushes and shrubs (woody plants). Australians use “bush” for what we call chaparral). This is exactly what the three above agencies want to do here. These taxpayer funded agencies want to convert our East Bay forests into the same predominantly grass, and chaparral terrain of nearby rural Lake and Amador Counties where the disastrous Valley, Rocky and Butte fires occurred this

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past summer (2015). These fires burned 76,067, 69,438 and 70,868 acres, respectively, destroyed many homes and buildings and killed six people.

The EBRPD, UC Berkeley (UCB), and the City of Oakland (Oakland) deforestation plan will create an enormous belt of grass and chaparral that will stretch from Richmond to Castro Valley to the eastern edge of Contra Costa County. This grassland belt will be many times more

flammable than wooded terrain. In Australia, the Black Saturday fires occurred 30 miles from Melbourne, in land that once was rife with trees.

Australian fire scientists, after an exhaustive two year study, concluded that logging, which removed moisture collecting trees from the terrain, contributed greatly to the devastation caused by the fires. This was reported in the August 4, 2014 Melbourne Herald Sun: which stated,

"Professor David Lindenmayer, Australia's leading scientist of forest ecology said, 'Our findings show the severity of the fires on Black Saturday was significantly higher in the areas that had been logged.' The scientists say the study showed conclusively that logging prior to Black Saturday made the deadly blaze much more extreme."

On April 21, 2009, two months after the Black Saturday fires began, and one month after they were suppressed, the Australian Royal Commission investigating the fire issued the following findings, reported in the Herald Sun:

"The heat of the fire reached 100,000 kilowatts per meter. The maximum intensity at which a forest fire can be controlled is 4,000 kilowatts per meter. Not only the intensity of the fire, the heat of the fire, but its speed was phenomenal. Black Saturday's 173 victims were defenseless in the face of an inferno that created fireballs of atomic force."

The energy created by the Black Saturday fire was 1,500 times greater than the energy of the Atomic bomb dropped on Hiroshima — It was equivalent to 43 pounds of TNT exploding in each square yard of the one million one hundred thousand acre fire. (For comparison, the Oakland Hills fire burned 1,500 acres; the equivalent of two Hiroshima sized atomic bombs.)

The April 7, 2009 issue of the Sydney Herald reported, "Kevin Tolhurst, a professor of Fire Ecology at Melbourne University, concluded a study that showed that wind speeds generated by the fire

reached 170 kilometers per hour (75 miles per hour). This accounted for the incredible speed of the fire."

This is the future that the East Bay Regional Parks District, U.C. Berkeley and Oakland have in store for us.

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Wellknown buildings and businesses would be destroyed, including: Macy's, Nordstroms, Traders Joes, Whole Foods and Safeway in downtown Walnut Creek; the Orinda theater; Whole Foods, Safeway, Big O Tires, Peet's Coffee in downtown Lafayette — and all the other businesses. The jobs they provide will disappear. This catastrophe would not only destroy the economy of the Bay Area, but also have an immense cost in human suffering.

We constantly we hear from people with no training or experience in Fire Science — whose actual goal is to "restore" the East Bay hills to how they appeared in 1776 — how dangerous Eucalyptus trees are.

In an interview with Lucy Kang of KPFA, broadcast August 14, 2015, representatives of the Sierra Club, EBRPD and the Claremont Canyon Conservancy claimed that removing half a million "nonnative" trees — in effect decimating our 150yearold East Bay forests — and "restoring" the land to its what it was like in 1776 would make us all safe from wildfire.

Carolyn Jones, Public Information Supervisor for the EBRPD said, "Removing these trees would make us fire safe. Historically speaking the East Bay Hills looked much like, um, the other hills in California, mostly grassy with pockets of Oak groves and, you know, riparian streams and so forth."

In other words, deforest our public land and convert it into hundreds of thousands of acres of grass fields — replicating the vegetation of Lake and Amador counties where the disastrous Valley, Rocky and Butte grass wildfires occurred in 2015.

Michelle Myers Director of the San Francisco Bay chapter of the Sierra Club said, “We firmly believe the best way to encourage a healthy and vibrant ecosystem that is also fire safe is to allow the native grasses, the native chaparral, the riparian habitat, allow that to come back. That will be much more fire resistant.”

The C alifornia Chaparral Institute, the foremost authority on chaparral in California, states on its website, ”There is no question chaparral provides the perfect fuel for wildfires.” And, “Being dense, impenetrable and prone to infrequent, huge wildfires is the natural condition of chaparral.” And, “There is no question chaparral is extremely flammable, especially during dry weather conditions.”

Ms. Myers also described a Eucalyptus tree and what happens when one catches fire. “When they light, the fire goes up and creates something called a crown fire.” She spoke as if Eucalyptus trees are unique in how they react to being on fire, and that only Eucalyptus trees

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have crown fires. All trees with crowns are capable of having crown fires. She also didn’t say which species of Eucalyptus she was talking about, or mention that there are three different species predominant in the East Bay Hills, each with different flammability levels. Or that there are over 700 species of Eucalyptus in the genus of Eucalyptus. She lumped them all together. She also implied that only Eucalyptus trees throw off embers. In fact, trees of all species throw off embers.

In the early 1960’s the California State Fire Marshall’s office described a group of people who were making erroneous pronouncements about fire prevention methods, and who were members of well known organizations, by saying, “they typified opinionated misinformation being spread by those with quotable positions.”

It is mind boggling that in the San Francisco Bay Area, a place with so many institutions of higher learning, and rich in intellectual resources, such a lack of knowledge of fire science by public servants and leaders

of well known environmental organizations exerts so much influence, which threatens public resources, public safety and exponentially increases the probability of a mega disaster. Have any members of the organizations represented in the KPFA interview have taken a fire science course, fought a fire or received training to prevent a wildland fire?

What Michelle Myers and Carolyn Jones don't understand is that our world is very different than the world of 1776. Today, ten million people live in the Bay Area, as opposed to about a thousand in 1776. 2.5 million people live in the East Bay, where there are hundreds of thousands of buildings and residences which weren't here in 1776. This residential and commercial building density represents a tremendous fuel load. If a fire advances into this fuel load there will be no stopping it. What they and many other people also don't understand is that grasses are more flammable than chaparral, and that one species of Eucalyptus, the Blue Gum, (*Eucalyptus Globulus*,) which is prevalent in the East Bay hills, is highly fire resistant much more fire resistant than any "native" tree, other than Redwood or Douglas Fir.

All trees perform three vital functions in preventing or slowing the spread of grass and chaparral fires: they collect, with their leaves, moisture from the night air and drip it on the natural vegetation beneath them; the tops (canopies) of the trees create shade so this moisture is not evaporated by the sun by mid day, they act as windbreaks which slow the velocity of the wind that pushes grass and chaparral fires.

Removing trees of any species and wanting grasses and chaparral to replace them greatly increases the chance of a catastrophic, unstoppable fire.

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The plan of U.C. Berkeley, the City of Oakland and EBRPD is Catastrophically Flawed because it contains fundamental errors that would not reduce wildland fire hazard but create the conditions that

would dramatically increase the likelihood of a severe fire in the East Bay Hills.

a.

The importance of moisture in precluding, and/or modifying the size and scope of a wildland fire is completely ignored. The wetter grasses are, the harder it is for them to catch fire, and remain on fire. The West, Alameda County, side of the East Bay hills directly faces the Golden Gate and/or San Francisco Bay. The leaves of the approximately half a million trees the plans would cut down, collect about 20 inches of moisture a year *p er tree* from the fog and cool air that comes through the Golden Gate and over the Bay, then drip this moisture on the ground and grasses beneath the trees. Every night of the year these trees collect and drip moisture on the ground. The annual rainfall per year is 24 inches in the East Bay HIlls; each tree almost **d oubles** the amount of water dropped on the grasses beneath it per year. Remove these trees, and the grasses beneath them dry out by midday in the spring, summer and early fall. This will be especially devastating in drought years.

These trees also produce shade which prevents the sun's rays from evaporating moisture on the grasses.
Additionally, these trees act as windbreaks, dramatically slowing the spread of a fire should one occur. UC Davis, in an article about Eucalyptus, states, they are "an excellent wind break."

b. c.

2) Moist living trees will be logged and left on the ground to dry out and decompose. These dried logs, coupled with the dry grasses in the hills, will become the most explosive fuel available in a wildland fire. *T he plans creates the conditions for a perfect firestorm.*

NOTE: The East Bay Municipal Utility District (EBMUD), which supplies water to Alameda and Contra Costa counties, practices sound wildland fire prevention policies. It refuses to cut down any healthy tree, "native" or "nonnative," because it recognizes the value of the moisture

collected and dripped by these trees on its property. Its wildland fire mitigation practice is to clear the grasses, brush and shrubs beneath its trees.

EBMUD is also well aware of the enormous amount of water needed to fight a fire. Modern fire engines pump onto a fire eighteen hundred gallons of water per minute. Three hundred seventy fire engines were used to fight the Oakland Hills fire in 1991, which had a perimeter of 5.25 miles. ("Oakland Hills Fire An Overview" by Captain Don Parker, Oakland Fire Dept Office of Fire Services) The amount of water used by these fire engines was almost *f orty million gallons per hour.* If hundreds of thousands of trees are cut down, the next fire will be much larger than the '91 fire, and require many more fire engines. This will increase, by millions of

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gallons, the amount of water needed to attempt to contain and suppress it. Water supplies are becoming chronically short in the California and the East Bay. We cannot allow unsound, unsafe actions that pretend to be wildland fire prevention strategies but actually *i ncrease* the chance of wildland fire which will further deplete our water supplies.)

The EBRPD, UCB and the City of Oakland display a tremendous lack of knowledge of wildland fire science. Instead, they share a seemingly fanatical desire to eradicate any species of tree that wasn't here when the Spanish sailed through the Golden Gate in 1776. They are exploiting the public's fear of wildfire and misrepresenting fire hazard mitigation as a strategy to achieve their goals.

One example of their true intentions is revealed by their refusal to tell the public that the California Bay Laurel tree, which they consider "native" to the Bay Area has more volatile oil than any Eucalyptus tree. For years we've been hearing that the volatile oils of the Eucalyptus trees make them a supreme fire hazard. Yet *t he Bay Laurel contains 7.6% volatile oils of the samples tested,* a ccording to the Journal of Agricultural and Food Chemistry (1974). The amount of volatile oils in

Eucalyptus trees range from 1 to 7% of the samples tested. But no Bay Laurel trees are to be cut down — nor ever mentioned. Only trees labeled “nonnative” are discussed and targeted for elimination.

Again, it’s important to emphasize — because the proponents of the deforestation plan repeatedly ignore or misrepresent well documented, publicly available official reports — *The 1991 Oakland Hills fire originated in grass and brush (a dense growth of bushes.) This grass and brush fire ignited trees and residences. As this was happening the fire was expanding its perimeter, igniting more grasses, brush, houses and trees. The Oakland Fire Dept. then declared the fire out of control. House fires burn at about 1,500 degrees for about an hour. The heat and embers radiating from the house fires ignited still more trees. This began a chain reaction of trees igniting houses and houses in turn igniting more trees.*

The Oakland Hills fire of 1991 was not slowed down by fire suppression. It was slowed down by cool night air coming in through the Golden Gate, and the natural decrease of air temperature associated with night. (It’s a law of thermodynamics that heat always travels from a higher source to a lower source.) This mass of cold air drew heat from the fire, which caused it to dramatically decrease its rate of spread to the point that fire suppression could contain it.

People in Contra Costa county will **n ot** receive any cool air coming through the Golden Gate. The Contra Costa county side of the our East Bay hills faces away from the Golden Gate and San Francisco Bay. *Almost always, the Alameda County side of the hills acts as a barrier, preventing Contra Costa County from receiving the cool air and fog from the Golden Gate and San*

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Francisco Bay . And the night temperature in Contra Costa county from April through mid November is almost always significantly higher than in Alameda County. This is why Contra Costa is at very high risk if the

deforestation plan is implemented. A large fire in Contra Costa will not get the benefit of nature's nocturnal help.

The 1991 fire initially was pushed southwest, away from Contra Costa county, by strong winds coming from the northeast. But the fire became a firestorm, which is a fire so large that it generates its own winds. The fire, pushed by its own wind, started moving outward in all directions, including toward Contra Costa County. This firegenerated wind reached a speed of 29 miles per hour. ("FireInduced Winds in the 20 October 1991 Oakland Hills Fire," by J. Trelles and P. Pagni) As night fell the movement of fire from Oakland toward Contra Costa was slowed, as mentioned, by the cool air coming through the Golden Gate, and a significant decrease in air temperature in Oakland.

But the speed of grass fires can be at least twice that of fires involving trees, e specially if there are only a few trees, or none, to act as windbreaks. So If there had been no trees, or only a few, on the hillsides and ridgeline of the East Bay Regional Park in 1991, it is quite possible that the '91 fire would have reached Orinda and other cities in Contra Costa County *b efore* the air on the Alameda side of the hills cooled it to the point that it could be contained, and restricted to the Oakland side of the hills.

Any living tree, no matter what its species, is much less flammable than grass. Every living tree due to its moisture content and canopy coverage of ground fuels contributes to wildfire hazard mitigation.

"In grass fuels, moisture content is a critical factor in determining flammability. Fires spread only at a low rate, or not at all, in grasses that are green, but when the same grasses become cured and dry, fires will race through them at an extremely rapid rate." National Fire Protection Handbook (N FPA) .

"Live trees contain a great deal of moisture while dead logs contain very little. Lighter, thinner fuels such as grasses, leaves, and needles

quickly lose moisture and therefore burn rapidly." **San Diego Wildfires Education Project**

Eucalyptus trees are the main target of those who would cut down trees and put us in grave danger. (They use the "blue car" propaganda tactic, which is explained later in this article.) They claim that Eucalyptus trees are more flammable than other trees — and more flammable than grasses — is untrue and now dangerously misleading. *T here is not one shred of fire science to support this claim.* T his beginnings of this myth coincided with the founding of the

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California Native Plant Society in 1965. It has been repeated so often it is now taken by many as fact. The reality is that one genus of tree, the Eucalyptus, which has over 700 species, is being targeted for removal by "native" plant extremists. Their strategy? Concoct, repeat, and sell to the public the falsehood that it is the only tree on Earth that explodes in fires, the only tree that throws embers long distances in fires, the only tree with volatile oils, and so on.

Let's dispel these myths. All species of trees can explode in fires. Put into the You Tube search bar "exploding trees in fires." You will see olive trees, pine trees and other species of trees exploding when on fire. Type into your browser search bar "eyewitness trees exploding in fires" to read eyewitness accounts of trees from all over North America exploding in fires.

All natural vegetation, grasses, shrubs, brush and trees throw burning embers when on fire. No species of tree has a monopoly on this. And all species of trees can throw burning embers long distances.

Saying that the volatile oils in Eucalyptus trees make it highly flammable is the biggest stretch of truth, and maybe the most glaring example of a word or phrase being misused with the intent of eradicating Eucalyptus trees and scaring the public to accomplish what the truth won't allow removal of Eucalyptus trees. Volatile oils have nothing to

do with the flammability of a tree. Sound counterintuitive? Volatile oils and essential oils are two terms that are synonymous and represent the same oil in a plant or tree. **T he essential oil of any tree or plant is named that because it's essential to the fragrance of the tree or plant. The same oil is also called volatile because after going through manufacturing processes it is turned into a flammable liquid**. Terpene is a very common essential/volatile oil. After going through a manufacturing process it becomes turpentine. The term volatile oil is used to scare the public by those who ignore fire science, want to eradicate Eucalyptus trees, and turn our East Bay Hills into highly flammable grasslands.

Why are the essential/volatile oils of any tree irrelevant to the flammability of a tree? Because of the moisture content in all trees, the thickness of its bark, and the density of its wood, most tree species require 800o to 1200o F (Fahrenheit) of heat to ignite. A few, like the Redwood tree, Douglas Fir and Blue Gum Eucalyptus can withstand more than 1500 F heat if the fire moves rapidly past them. All trees contain water — approximately 30% of a tree is water. Every species of tree in the East Bay hills is at least 30% water. This moisture is far greater than the amount of essential/volatile oil in any tree. It overwhelms by far any chance the essential/volatile oil has to set the tree on fire.

Also, the volatile/essential oil in any tree cannot sustain heat long enough to ignite the highly dense wood of the tree. (There is an inverse proportion between temperature and amount of time

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it takes for all combustibles, including trees, to catch fire. The lower the temperature the longer it must be applied to a tree; the higher the temperature the less time is needed for the tree to catch fire.) This is an evolutionary mechanism that trees developed to survive. The amount of essential/volatile oil in a Eucalyptus depends on what species of Eucalyptus is being sampled. Across the 700 species of Eucalyptus the

range is between 1% to 7.0% As stated previously, the California Bay Laurel tree contains approximately 7.6% volatile oils.

Additionally, essential/volatile oils rise to the top (the canopy) of trees as the air temperature of the day warms. In nonmountainous regions like the SF Bay Area, (as opposed to mountain ranges like the Sierra Nevada where lightning strikes are more typical), 99.999% of the time the canopy (top) of a tree catches fire, is because a fire ascends the tree from its trunk or branches. In other words the tree is already on fire before its essential/volatile oils are involved.

If the top of any tree is going to catch fire before its lower parts, it's usually due to lightning. The amount of energy in a lightning bolt that strikes the top of a tree is so great that it dwarfs the ability of the wood of the tree to withstand it. The wood catches fire first and *t hen* ignites the tree's essential/volatile oils. So even at the top of the tree the volatile oils are irrelevant in the tree's ignition. In the East Bay Hills we don't have to worry that lightning will ignite the canopy of a tree. The assertion that the essential/volatile oils in Eucalyptus trees make their canopies more flammable than other trees is nonsense.

Sometimes in a wildland fire burning embers from grasses, brush, shrubs, or trees are swept by wind onto the tops of other trees and ignite them. *T his can happen with any species of tree.* Additionally, burning houses in the wildland/urban interface, such as we have in the East Bay, make major contributions in terms of size and quantity to the total amount of embers. We learned this from the 1991 fire.

Constantly pretending that characteristics common to all trees are unique to Eucalyptus trees is like saying, "If a blue car crashes into a house at 100 mph, the damage to the house is because the car is blue." Any car hitting a house at 100 mph is going to do extensive damage regardless of its color.

The propaganda used against the Eucalyptus is threefold.

1) Therearemorethan700speciesoftreesinthegenus*E ucalyptus*. Lumpingall700 *Eucalyptus* species into one category is like saying all fish in the ocean are one species with the same characteristics and attributes. Each species of Eucalyptus has different characteristics and attributes. For example: *E ucalpytus g lobulus*, the Blue Gum species of thegenus*E ucalyptus*, ishighlyfireresistant. Maturetreesaretall,rangingfrom80to150

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feet. Its bark is thick and moist, and its lowest branches start about 25 to 30 feet above the ground. It has long ,relativity broad leaves that collect much moisture from the air and drip in on the ground beneath. It is dominant in the East Bay hills.

(We have many pictures of Blue Gum Eucalyptus trees surviving wildland fires while others species of trees labeled “native” were incinerated. One of the most dramatic examples of this phenomenon are the photographs we have have of Blue Gum trees alive and well after enduring the heat of the Scripps Ranch fire in San Diego, CA, in 2003. Everything around these Blue Gums has been incinerated. We have another profound picture. This is of a Blue Gum that withstood the 2000 degree heat of the ‘91 Oakland Hills Fire, standing tall and alive while all around it trees “native” to the Bay Area have been reduced to ash.) The DwarfBlueGum,*E ucalyptus c ompacta*, isnotasfireresistant. Itisshort,about25to30 feet tall and its branches grow low to the ground. Yet it is still more fire resistant than any grass, brush or shrub. But lumping these two very different species together to condemn both is convenient if your goal is to get rid of trees that weren’t here in 1776.

2) Deliberate use of militant language that strongly biases discussion thereby disallowing reasonable discourse . Any species tree that wasn’t here in 1776 is labeled “nonnative” — and then “invasive.” A tree that *w as* here in 1776 is “native.” “Invasive” trees “encroach” on “native” tree land. This use of militant language to describe Eucalyptus trees began around the time the California Native Plant Society was formed.

Choosing the date of Europeans arrival into San Francisco Bay as the determinant of whether a tree is “native” or “nonnative” is arbitrary and has nothing to do with a scientific determination of its flammability.

3) Omitting information needed to have a balanced viewpoint. For example, let’s enter a pretend world where we all know that cars exist but we don’t know much about cars. Then a group of people who hate the color blue assert, “All blue cars are very dangerous. Blue cars can go 100 mph and when they crash horrible things happen. Their hoods crumple and they can even crash at 10 mph. Their tires go flat at inopportune times. They can run out of gas. If you make a turn going too fast they will flip over, their engines quit without warning, they crash into other nonblue, safer cars. And they kill people.

We don’t know about cars in our pretend world so we believe what we are told, and assume only blue cars have these characteristics, when in fact all cars do.

The Eucalyptus trees are like the blue cars. When they catch fire they react like all trees do.
But most people understandably don’t know the details about what happens to trees when they catch fire. And they don’t know there is more than one species of Eucalyptus trees in the East Bay hills. *T he public has been bombarded with misinformation for over f ifty years* and believes

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trees are more flammable than grasses, that all Eucalyptus trees are one species and that Eucalyptus trees have fire characteristics different from and more dangerous than other trees.

We have many examples of facts destroying myths. California’s Oak trees, which were here in 1776, have branches lower to the ground than Blue Gum Eucalyptus tree and are therefore more likely to be ignited from grass and shrub fires. Almost all the Oak trees in the Oakland Hills fire of 1991 were burned to ash, while many,many Blue Gum Eucalyptus

with their longer trunks, thicker moist trunks, and branches high from the ground survived the fire. There is photographic evidence of this, showing Blue Gum Eucalyptus trees alive and standing tall after fire burned all the neighboring Oak Trees and houses to a crisp.

The people who want all trees that weren't here in 1776 removed like to state that Eucalyptus trees drop strips of bark to the ground which are flammable. *T his is another red herring used to divert attention away from fact.* Singling out eucalyptus litter with such statements is propagandistic, designed to mislead and frighten the public. It is the "blue car" tactic. And It doesn't differentiate the species of Eucalyptus. It lumps all the 700 plus species of Eucalyptus i n t o o n e . *A l l t r e e s d r o p l i t t e r o n t o t h e g r o u n d t h a t i s f l a m m a b l e .*

I n many cases the strips of bark the Blue Gum and Red Gum produce and drop on the ground are less flammable than the litter that "native" trees produce. Why? Because they are thicker, so it takes more heat for them to catch fire. For practical purposes though it can be said that the litter that all trees in the East Bay produce are equivalent in flammability, including the litter "native" trees produce.

The U.S. National Park Service confirms this when, describing how a ground fire burns tree litter on the forest floor, eliminating for several years its capability to fuel a fire says,

"In five to eight years enough litter can accumulate in a forest to return ground quantity fuel to the pre fire level."

The U.S. Forest Service doesn't differentiate species of trees when talking about how litter can f u e l a f i r e . I n o t h e r w o r d s , *a l l* t r e e s p e c i e s p r o d u c e l i t t e r t h a t i s f u e l f o r a f i r e .

It takes about 68 years for Eucalyptus strips to accumulate to the point that they pose a fire threat. But during this same time grasses, brushes and shrubs are growing at a much faster rate. An inexpensive plan that would preserve our forests is to have crews go and clear out the brushes, shrubs, bark strips, fallen branches (inevitably dried out) and dead leaf

litter from *a ll* trees. It would also be environmentally safe. (The Environmental Impact Statement for the City of Oakland, U.C. Berkeley, and EBRPD plans lists toxic Dow GarlonTM and Monsanto

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RoundupTMto be applied twice a year, for up to ten years, *o r more, as needed*, to tree stumps to prevent them from resprouting. These thousands of gallons of herbicides, will leach into the ground water, and then Bay.)

The highly fire resistant Blue Gum eucalyptus is very efficient at using water. (This is another pin in the balloon of misinformation has been spread for 50 years.) The Blue Gum evolved in Southeastern Australia where there is little rainfall and six or more grass fires a year. To survive, it evolved fire resistant qualities and an efficient use of water. It is, ironically, not only highly fire resistant, but is perfectly adapted to survive in California in drought years. It will fare better than many "native" tree species. Many "native," trees, particularly oaks, due to the drought, are drying out, causing their branches to crack and fall to the ground to become kindling for any fire. The plan would cut down almost 1⁄2million eucalyptus trees that retain more moisture than many "native" tree species..

For over 50 years the people who want to get rid of trees based on their species have had a monopoly on dispensing information. Few challenged what seemed a harmless eccentricity. Now, however, it is serious misinformation that endangers our precious forests and public safety.

(On a side note: Eucalyptus trees were brought here in 1850, 170 years ago. At the same time Monterey Pine trees were brought by settlers from Monterey county, 80 miles south of San Francisco to the SF Bay Area. Monterey Pine is "nonnative" because it originated in Monterey county, 80 miles south of the East Bay! Because neither species originated in the SF Bay Area the California Native Plant Society and its allies refer to Monterey Pine and Eucalyptus as "invasive." How many years does a

tree species have to be here before it's considered "native"? Is this whole "native" vs. "non native" tree schism getting silly?)

"T he National Fire Protection Association (NFPA) is a global nonprofit organization established in 1896 and devoted to eliminating, death, injury, property and economic loss due to fire, electrical and related hazards." Its mission is to "help save lives and reduce loss with information, knowledge and passion. Its "information and knowledge comes in many forms" including extensive "research and data analysis, technical training and certification." (From the NFPA's website.)

In the NFPA's Fire Protection Handbook, on page 1361 of Volume II, it is stated, *" Cured (dry) grass, if present in large and uniform volume, provides the most flammable ground fuel in the region."* The word region refers to any area any where in the world that is under discussion. The above statement was based on rigorous scientific research and analysis. And there are no conditions to the statement. No if, ands, or buts. It's a flat out truth. In Australia this fundamental principle was ignored and the results were disastrous. In the East Bay

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wildland/urban interface, where our population and housing density is much more than in Australia where the Black Saturday fires occurred, ignoring this principle will cause a devastating fire that will take years to recover from.

The role of trees and moisture in preventing wildland fires is so crucial it is worth repeating in the next three short paragraphs using slightly different language.

All living trees, regardless of their species, perform important Wildland fire prevention functions and are far less flammable than grasses.

1) Their leaves collect moisture from the air and drip it onto the ground. On the west side of the East Bay hills this is especially true. Trees there collect from the fog and cool air coming through Golden Gate and drip

about 20 inches of moisture a year on the grasses underneath. (Average annual rainfall is 24” a year). Think of this moisture drip as rain. In drought years this moisture drip is especially important. Each tree removed represents an average loss of 20 inches of water dripped on the ground per tree each and every year.

2) The shade provided by the leaves and branches of the trees either prevents this moisture from being dried out by the sun, or on very hot days, significantly delays the time it takes for the grasses to dry. Without trees the grasses, especially in the East Bay, dry out by 10 or 11 AM. The grasses are then ripe for fire. With trees, in non drought years, the grasses are almost always moist. Without trees, the grasses will always be dry, whether or not it’s a drought year. The role of trees in delaying or preventing the drying out of grasses is very critical.

Fire science has shown that the species of a tree is irrelevant in determining its flammability. The structure of a tree determines its flammability. This is why we have photos of Blue Gum eucalyptus trees alive and well and standing tall in the Oakland Hills Fire zone, while all around them Oak trees had been reduced to ashes.

In a landmark study by S.T. Michaletz and E.A. Johnson entitled, “Heat transfer Processes Linking Fire Behavior and Tree Mortality,” it was proven that the flammability of a tree is determined by three characteristics of the tree, regardless of its species:

1) The thickness of its bark. This is important because any species of tree resists fire as long as its bark protects the inside of the tree. When the fire burns through the bark it starts to burn the inside of the tree. That is when the tree succumbs to the fire, loses all of its moisture, then emits massive amounts of radiant heat and dies.

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2) The amount of moisture in the trees bark. Moisture is water. The more water in a trees bark, the longer the bark can resist the damage caused by fire and the longer this “shield” can protect the life processes which exist inside the tree. The thicker the bark the more moisture it can hold. And

the longer it takes for the tree to catch fire and produce massive amounts of radiant heat.

The height from the ground of the lowest branches of a tree. Ninetynine percent (99%) of

3)
the time trees catch fire because they are ignited by grasses, bushes, shrubs, or, in the wildland/urban interface, houses. Every blade of grass in a grass fire has what's called a "flame length." Every bush and every shrub on fire also produce a flame length. The flame length is the height of the flame produced by the burning fuel. Grasses in a grass fire and brush in a brush fire can ignite tree branches. The higher above the ground the branches of a tree are, the farther they are from the flames of burning grass and brush, and therefore less likely to ignite. As noted earlier, the lowest branches of a mature Blue Gum Eucalyptus tree are 2530 feet above the ground. This feature, combined with its thick, fire-resistant bark, make Blue Gum Eucalyptus trees very fire resistant.

Bushes, shrubs and vines also produce "fire ladders." A fire ladder is natural vegetation that connects the ground to the branches of a tree, and transmits fire upward from the ground to the tree. The more removed from the ground the lowest branches are, the less chance of a fire ladder attaching itself to that tree. Oak trees, which are"native" to the EAST Bay hills, have thick barks, but very low hanging branches. This is why oak trees have low fire resistance, and why the majority of oak trees in the Oakland Hills fire burned to a crisp. Yet oak trees, as well as Bay Laurel trees, both species with lower branches and therefore more susceptible to fire, are not scheduled to be cut down in the "fire mitigation plans."

There are those who argue that the species of a tree determines its structure. There is some truth in this. But by emphasizing structure, Fire Science precludes focusing on species as the determining characteristic. The National Fire Protection Associations says, "fuel types are classified on the basis of the physical characteristics of the fuels themselves."

By contrast, preoccupation with species can lead to erroneous conclusions, which then would allow dangerous, misleading actions such as that proposed by the EBRPD, U.C. Berkeley and the City of Oakland.

Natural vegetative fuels are grasses, brush, shrubs and trees. Class A fuels are fuels which turn to ash when burned. Natural vegetation is a Class A fuel. A fundamental principle which determines the inherent flammability of all class A fuels is its ratio of surface area to its density.

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Because of this fundamental principle that applies to all Class A fuels, *d ried grasses are the most flammable natural vegetative fuel.*

Why are grasses much more flammable than any species of tree? Their ratio of surface area to density is very high. Compared to grasses, trees are very dense and therefore have a low surface area to density ratio.

To illustrate how volatile grasses are, take a single sheet of 8.5 x 11" copy paper. . The surface area of each side of it is 93.5 square inches. So the total surface area of the paper is 187 square inches. But its density, which is its thickness, is only about 4/100's of an inch. It has a very high ratio of surface area to density. This is why it burns so fast.

Hold a second sheet of copy paper. Twist each end in opposite directions, as you would to light kindling in a fireplace. You have *d ecreased* its surface area and *i ncreased* its density. — dramatically decreasing its surface areatodensity ratio. This is why it now burns much more slowly.

Another example is a page from a newspaper. If the entire page is put into a fireplace without being crinkled it burns rapidly. If the ends are twisted in opposite directions it burns much slower.

(Those who want to cut down 500,000 trees criticize this example by saying, "It's not scientific." **Of course it's not scientific!** It's an illustration of a principle. It is not a laboratory experiment to prove a

principle. The criticism is another red herring designed to divert attention away from fact.)

Blades of grass, especially of wild grasses are very thin, about 4/100 of an inch. Their lengths vary, but because they are so thin they have very low density. There surface areatodensity ratio is very high. Because trees are much denser, they have a much lower surface area to density ratio. This is one reason trees are much harder to ignite in a wildfire than grasses. (They also contain water whereas dry grasses don't.)

Trees also act as windbreaks. In a grass fire, the velocity of the wind is a critically important factor in determining the fire's speed. Even slight differences in wind velocity can greatly affect the rapidity of a grass fire

The difference in the average speed of a grass fire and a fire involving trees is dramatic. Normally, a grass fire moves about 2 and 1⁄4 times faster than a tree fire. A large grass fire can move at a rate of about 14 mph, a wildland fire involving trees can move at about 6.7 mph. A

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grass fire starting in Oakland will reach Castro Valley or Walnut Creek in an hour, very little time for evacuation or effective fire suppression. A fire involving trees, should it get out of control, will reach Castro Valley in two hours. (A catastrophic grass fire, like the Black Saturday fires, will spread at a much faster rate).

As stated above only 1% of all wildland fires start in trees. The other 99% start in grasses, bushes and shrubs. (The Oakland Hills fire of 1991 started in grass.) And only 8% of all wildland fires catch trees on fire. *T his means that 91% of all wildland fires do not involve trees at all but are restricted to grasses, bushes and shrubs. I f we decrease the amount of trees in the hills and replace them with grasses we will have dramatically increased the chances of a wildland fire occurring.*

The first NFPA principle violated by the deforestation plan is the logging of trees. Living trees contain much more moisture than dead ones. (Note the logged trees will not be removed from the hillsides.) When a tree

dies its moisture evaporates. It's trunk and the tree are almost always replaced by grasses, and/or shrubs, which are the most flammable natural vegetative fuel.

Trees, because of their thick bark, ability to collect moisture from the air, especially in foggy areas, and branches away from the ground, are the *m ost* fire resistant natural vegetation. Grasses, which will grow in place of the logged trees, are the *l east* fire resistant and most flammable natural vegetation.

The N FPA's Fire Prevention Handbook (Vol II, page 1361) states, "Cured (dry) grass, if present in large and uniform volume, provides the most flammable ground fuel in the region.". There are no modifying conditions in this statement. There are no ifs, ands, or buts. If the most fire resistant vegetation is removed, less fire resistant vegetation (e.g., grasses)will take its place. The second principle violated is leaving dead wood on the ground. It will dry out and become highly flammable.

The worst fire in the history of Angel Island in the San Francisco Bay occurred in 2008. Several years before, dozens of highly fire resistant Blue Gum Eucalyptus trees that were almost directly in the path of the fog and cool air that regularly comes through the Golden Gate were cut down. These trees collected and dripped onto the ground 59" of moisture each year – almost six feet of water — which kept the island's grasses moist. When they were removed, the grasses dried out by midday. The ground where the trees were logged for the first time in decades resembled dry ground in Lake County. The people responsible for the removal of these trees proved how little they know about fire science and the role of trees in preventing wildland fires twice. Once by removing the trees, and again by saying, after the fire, that it would have been worse if the "flammable" trees weren't removed. These are the same people and institutions that are

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advocating the removal of trees from the East Bay Hills, which will make the East Bay Hills become like the dry, flammable, grassy terrain in Lake County where large, destructive grass fires destroyed Middletown last summer (2015),

What determines the fire resistance of a tree? It has nothing to do with what species a tree is. The structure of a tree determines its fire resistance. Trees that have their lowest branches high above the ground, thick bark, and high moisture content are the most fire resistant. Because most wildland fires begin as grass fires, fires moves rapidly past trees with these qualities. But a grass fire will not blow right past a house. The radiant heat from a grass fire will start a fire on the exterior walls of a wood house and build up heat underneath the eaves of a house and start fires there, which will go to the roof. This is exactly what happened in the Oakland Hills fire of 1991. The burning grasses ignited houses and then the prolonged house fires ignited trees. This was researched and reported by the Oakland and Berkeley Mayors' Task Force, which I served on. But this important fact has been consistently and systematically ignored by those who want to eradicate eucalyptus, Monterey Pine and acacia trees.

Without the hundreds of thousands of trees that have grown in the past 160 years that today act as windbreaks, any grass fire will spread even more rapidly than in 1991. And that fire wasn't contained until the winds dropped and cooling night fog (moisture) moved into the Bay. Grass fires move fast. Relatively small grass fires can reach a speed of 7.5 miles per hour. Large grass fires can attain speeds of 45 miles per hour. These speeds were reached in Australia's Black Saturday fire. This means that if the socalled" fire mitigation" plan is implemented, a grass fire in the Oakland Hills could reach Castro Valley to the South, or Walnut Creek to the East, both *1 5 miles away, in 20 minutes*. Imagine being in your home in Castro Valley or Walnut Creek and being told to evacuate immediately because of a fire burning 15 miles away.

Grasses are flat, about the same thickness as a piece of copy paper, and long. They have a much higher ratio of surface area to density than trees. So grasses catch fire much more easily than trees.

In 1991 I was asked to serve on the Task Force on Emergency Preparedness and Community Restoration, commonly known as the 1991 Oakland/Berkeley Mayors' Fire Storm Task Force. Our mission was to investigate the causes of the '91 fire and make recommendations to prevent its recurrence. The committee spent hundreds of hours analyzing data and examining the burned areas.

In February, 1992, we issued our report to the Mayors and the public. Our recommendations were:

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"The most important factor in reducing fire danger from vegetation is not removing specific species but regular ongoing maintenance,

The high density of flammable structures contributed significantly to the spread in intensity of the Oakland hills fire. Trees did play a role in spreading the fire, but in many cases the trees caught fire from the houses, not viceversa. The current emphasis on blue gum eucalyptus and Monterey Pine as culprits in the cause of the fire and calls for removal of them are an oversimplification that can lead to negative environmental consequences.

Develop a clearly illustrated vegetation management program based on scientific principles and accepted wildfire management practices.

Provide regular brush removal as well as mulching/composting to encourage residents to maintain vegetation. Particular tree species do not pose a significant fire danger when properly maintained."

All of these recommendations have been ignored by U.C. Berkeley, the City of Oakland and the East Bay Regional Park District.

The behavior of the governmental agencies over the years relative to this discussion has been mysterious. The agency funding the removal of the trees, FEMA, (Federal Emergency Management Agency) received 14,000 comments when it asked for public input on its idea to finance the so called “fire mitigation plans”. 13,000 of the comments, over 90% of them, opposed the project. Most of these were comments from people who live in the affected area. These comments were ignored, and FEMA went ahead and funded the plan. **F EMA even ignored the analysis sent to it by the U.S. Forest Service which stated that the fire hazard mitigation plans calling for removing Eucalyptus trees would increase the chance of a fire.** Initially, FEMA rejected funding the plan, saying it would not reduce fire hazard in the proposed area.

There are over 700 species of Eucalyptus trees. Some of them are extremely fire resistant, e.g., the Blue Gum, and some are not, like the Dwarf Blue Gum. Some of California’s native trees are very fire resistant, like the Redwood and Douglas Fir; some are not, like the Oak tree, which has branches low to the ground which catch fire from a grass fire or fire ladders. But none of the oak trees are to be cut down in the EBRPD plan. But all of the Eucalyptus trees including the highly fire resistant Blue Gum are slated to be removed.

I’m often asked at presentations,, “Why are there so few firefighters and fire departments in the East Bay speaking out against against this plan?” Or, “If these plans are so bad, wouldn’t more

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firefighters speak out against it?” Or, “I know a fireman who says Eucalyptus trees are more flammable than any other tree, and you’re saying their not. Who am I to believe?” And, “Why are fire departments in the East Bay silent about it, as if they have no opinion? It seems like the only people speaking in favor of the plan are those who want to get rid of “nonnative trees.”

These are good questions and I like when they’re asked. The short answer to all of them is that the U.S. Forest Service supports my views,

and .The National Fire Prevention Association (NFPA) supports my views. I tell them, “Everything I have said is based on sound scientific research and analysis.”

I also answer, “Right off the bat you know that anybody who talks about Eucalyptus trees as if they are all the same species with the same characteristics and attributes is not familiar with what makes a tree flammable. Ask him or her what studies he/she can cite validating their claim that eucalyptus trees are especially flammable.

When I hear innuendo like, “Australian firefighters call them ‘gasoline’ trees.” My response is twofold: 1) Australians don’t use the word “gasoline.” They use the word “petrol.” So I know that you are creating that fiction. I have talked to Australians and I have been told by them that they haven’t heard of anyone saying “Eucalyptus trees are petrol trees.”. 2) “Please name an Australian firefighter who says this.” If there is one that you know, please ask him or her to supply scientific evidence to support that statement. And please ask what species of Eucalyptus is he/she talking about?”

As for why fire departments in the area are silent on this issue, write a letter to the chief of your local fire department. Call or write your local newspaper and ask them to investigate this issue. I personally am surprised the media hasn’t dug into this critically important issue that involves the safety of thousands of people.”

There is also a historic reason why many fire suppression personnel are not familiar with wildland fire prevention and could fall prey to the misinformation that has been spread for years. The fire service is composed of three main divisions: 1) fire suppression; 2) fire investigation and; 3) fire prevention.

Fire suppression *j ustifiably* gets over 99% of the resources and funding available to whatever fire department we’re talking about. 99% of all the personnel in any fire department are in fire suppression. This makes sense, because when a fire starts it *m ust* be contained and suppressed. There is no alternative except destruction. If its not contained and

suppressed it gets bigger and bigger, destroying more and more until it is either suppressed by nature through rain, or it has burned all fuel available to it. Entire cities can be destroyed. And massive amounts of

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wildland. (In 1910, in Idaho and western Montana the largest forest fire in the history of the United States occurred, burning three million acres of virgin timberland. The fire was extinguished by rain.)

I was lucky to spend a lot of time in fire suppression. I worked at the second busiest fire engine company west of the Mississippi. I've fought over 300 structure fires, and many other kinds of f i r e s . F i r e s u p p r e s s i o n d e a l s w i t h f i r e s *a f t e r* t h e y s t a r t e d . I t s p e c i a l i z e s i n p u t t i n g f i r e s o u t . I t s very knowledgeable about that. Fire suppression is very good at what it does: its training, education and work focus on containing and suppressing fires. Because fire suppression needs to spend so much time practicing for, and putting out real fires it doesn't have time to become conversant in fire prevention, especially wildland fire prevention. This is **n ot** a criticism of fire suppression. It takes a lot of time to become skilled at fire suppression, And it takes a lot of time to become skilled at fire prevention, especially wildland fire prevention.

I had never heard of the National Fire Protection Association when I was in fire suppression. I became aware of it when I entered fire prevention. And I didn't know much about fire prevention until I decided I wanted to be a part of it.
F i r e *i n v e s t i g a t i o n* a l s o g e t s i n v o l v e d *a f t e r* a f i r e h a s s t a r t e d . A r s o n i n v e s t i g a t i o n i s a p a r t o f f i r e investigation. A relatively new discipline called fire ecology is also a part of fire investigation. Fire ecology, not a part of any fire department, concerns itself with prescribed fires and how fuels interact when on fire, and how this interaction affects animal and plant life in the fire area,. Programs in fire ecology are sponsored by many colleges and universities, and fire ecologists are employed by the U.S. Park Service.

The research and analysis of the National Fire Protection Association also comes under the category of fire investigation. The NFPA is not a part of any fire department but its contributions to fire science are immeasurable, and shape many policies that fire departments employ.

Fire prevention takes place *b efore* a fire. A mistake in *s uppression* can lead to disaster. A mistake in fire *p revention* might increase the probability of fire but doesn't guarantee one will start.

Organized fire prevention bureaus began in 1908 with the U.S. Forest Service. From that start the idea of prevention was adopted by urban and rural fire departments. Almost every fire department has its fire prevention bureau or at least a full time fire prevention officer. Very little of the total budget of a fire department goes to the fire prevention office. As stated above, that makes sense. For all the above reasons it is not surprising when fire suppression personnel in

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the SF Bay Area are as susceptible to non factual propagandistic statements about trees in the genus Eucalyptus as the average "lay" person might be.

The environment that Michelle Myers and Carolyn Jones and the Sierra club want to create will not tolerate a mistake in judgement. The East Bay hills is not a laboratory in which errors can be made and rectified. It is a living phenomena. Creating a fire prone region will lead to a disaster. We have fire science to understand the laws of fire. This understanding informs us how fire originates and behaves. This knowledge of how fire originates and behaves gives us the tools to prevent fires before they happen, whether in the wildland/urban interface, or strictly urban area. Ignoring fire science and proceeding on opinion unsupported by fact is incredibly negligent. Trying to push through fire mitigation plans based on of how one would like the East Bay hills to look; based on restoring the East Bay hills to a bygone era, and not based on fire science will result in disaster. The great Spanish

philosopher Santyana said, “Fanaticism is redoubling your effort while losing sight of your purpose.”

Ignorance and influence are the parents of disaster. The Sierra club, the California Native Plant Society, Claremont Canyon Conservancy and others are very influential organizations. They are misusing their influence by attempting to lead the public into supporting the destruction of our East Bay forests and the creation of grassy, fire prone East Bay hills. And they are being very disrespectful to the entity of fire and the laws of physics which tell us how that entity behaves.

As I stated earlier in this paper, I have been involved in hundreds of fires. I know fire. It is not an abstract, theoretical phenomena to me. It is a reality. Fire is an overwhelming energy, like the ocean. And like the ocean, it is unforgiving to those who don’t *d eeply respect* its strength, energy and behaviors. To live safely with the threat of fire requires an appreciation for those laws of physics which enable us to understand it. Those who approach fire with anything other than awe and **r espect** for how it behaves will be destroyed.

As I stated in my comment to FEMA written in 2009. “There is nothing wrong with advocating for native plant restoration. There is nothing wrong with advocating for land transformation. There is everything wrong with trying to effect either one or both under the guise of wildfire hazard management. It endangers the firefighters who will be called to fight the fires that will be caused by improper wildfire hazard management due to putting ideology ahead of fire science, and imperils the public.”

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Appendix O-LD2

Exhibit A

APPENDIX F: 1976 REGENTS' RESOLUTION

"DESIGNATION OF OPEN SPACE RESERVE, ALTERATION OF CAMPUS BOUNDARIES, COMMITMENT OF HOUSES TO RESIDENTIAL USE, AUTHORIZATION TO NEGOTIATE SALE OF PROPERTIES AND COMMITMENT OF TRANSPORTATION STUDIES."

The following recommendations were approved by the Board of Regents on May 21, 1976:

1. That the reserve on Mount Sutro, which was designated as open space for a twenty-five year period by The Regents in October, 1975, be increased from fifty-two to approximately fifty-eight acres, and that the designation be made permanent.

2. That the boundaries of the San Francisco campus be altered to exclude properties on the west side of Third Avenue from 1309-11 Third Avenue to and including 1379 Third Avenue, and that the new boundaries be made permanent. The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets) and this limit shall be permanent. These restrictions prohibit expansion by UCSF by purchase or condemnation or gift of any property or lease of private residential property not only contiguous with the new campus boundaries, but anywhere within the surrounding area bounded by Golden Gate Park, Oak Street, Ninth Avenue, Clayton and Clarendon. This does not prohibit the use of commercial properties or the affiliation with other public agencies within the area described.

3. That the Regents redefine their commitment, made as part of the October, 1975, approval of the Long Range Development Plan, to return certain existing houses to residential use as alternative campus space and funds for rehabilitation and relocation become available for the activities now housed therein, and that as part of this commitment: The ten houses on Third Avenue, outside the campus boundaries revised as recommended in 2. above, be sold subject to the provisions set forth in 4. below; the thirty-four houses on Third, Fifth, and Parnassus Avenues and on Irving and Kirkham Streets be rehabilitated as required and leased for residential purposes, with priority given to University students, faculty, and staff; and the seven houses on Fourth Avenue remaining after clearance of the site for the School of Dentistry Building project be retained for non-residential campus use.

4. That the Treasurer be authorized to negotiate the sale of the lots and structures, and other improvements thereon, located at 1309-11, 1319, 1325, 1337, 1343, 1355, 1361-63, 1367-69, 1373, and 1379 Third Avenue; the lot between 1355 and 1343 Third Avenue; and the lot between 1309-11 and 1319 Third Avenue, subject to the provisions listed in 4(a) through 4(e) below and that the results of said negotiations be presented to The Regents for final approval and authority to sell based on offers acceptable to The Regents:

    (a) The offer for sale of the two vacant lots shall commence within six months and the offer for sale of all remaining properties shall commence within thirty-six months, except that no relocation of University activities or tenants or conversion of houses for residential uses shall

be initiated until funds for such purpose are on hand as specified in 4(b) below and until space into which activities or tenants can be relocated is available;

(b) A special fund shall be established to fund projects within the Capital Improvement Program for the purpose of, first, providing accommodation for activities displaced by sale of houses, second, providing accommodation for campus activities displaced by conversion of the structures retained for residential use, and, third, converting and rehabilitating the structures retained for residential use, said fund to be funded from proceeds of the sale of the properties, except as noted in 4(c) below, and, if funds are not on hand from the sale of properties, from an advance, as needed, of not to exceed $50,000 from the University Opportunity Fund, such advance to be on a revolving basis and to be repaid with proceeds, as received, from subsequent sale of properties, it being understood that, at the completion of the sale of the properties, any part of the advance not repaid shall be converted to an appropriation;

(c) The portions of the proceeds of the sales of the lots between 1309-11 and 1319, and between 1343 and 1355 Third Avenue, attributable to the eighteen parking spaces currently located thereon, shall be deposited in the Net Revenue Account of the University of California Parking System;

(d) Funds not to exceed $10,000 shall be allocated by the President obtain an appraisal of market value of the properties for use as residences; and

(e) All properties shall be sold in the then existing condition, it being made clear to the buyer that he or she may be required to conform to all applicable State and City and County of San Francisco codes in converting the structures to residential use;

5. That funds not to exceed $25,000 be allocated to the San Francisco campus from the University Opportunity Fund for the purpose of retaining an independent consultant firm to develop additional plans for the alleviation of transportation problems such as traffic, parking congestion, and availability of public transit, it being the intent that such plans be implemented to the extend feasible within resources normally available to the campus for such purposes or within additional State appropriations that might be made available for such purposes;

6. That the Long Range Development Plan for the San Francisco campus, as approved by The Regents in October, 1975, be amended to reflect the described changes in designation of open space, boundaries, and use of housing;

7. That The Regents recognize the principle that the San Francisco campus will be administered so that the annual average of the daily campus population at the Parnassus site will remain substantially in accordance with the projections set forth in the Environmental Impact Report related to the Long Range Development Plan for the campus, approved by The Regents in October 1975.

Attachment 1

Terry Watt, AICP

Terry Watt Planning Consultants

1937 Filbert Street - San Francisco, CA 94123

terryjwatt@gmail.com **Cell: 415-377-6280**

Terry Watt, AICP owns Terry Watt Planning Consultants Ms Watt's firm specializes in planning and implementation projects with a focus on regionally-significant land use and conservation work that advances sustainable development patterns and practices. Prior to forming her own consulting group, she was the staff planning expert with the environmental and land use law firm Shute, Mihaly & Weinberger. She is an expert in general and specific planning and zoning, open space and agricultural land conservation strategies and approaches and environmental compliance, including CEQA and NEPA. Her skills also include facilitation and negotiation, public outreach and project management. Terry is a frequent presenter at regional, national and statewide workshops and symposiums. She holds a master s degree in City and Regional Planning from the University of Southern California and a multi-disciplinary bachelor s degree in Urban Studies from Stanford University.

Terry works with a wide variety of clients throughout California including non-profit organizations, government agencies and foundations. She volunteers up to half her professional time on select projects. Recent projects and roles include:

- Project Manager and Governor s Office Liaison for San Joaquin Valley: Least Conflict Lands for Solar PV project. Project funding came from the Hewlett and Energy Foundation s matched by environmental organizations, the California Energy Commission and other private parties. The objective of the project was to identify areas in the Valley that had very low resource values for renewable energy to serve as an incentive for development of least conflict lands rather than valuable resource lands. Watt was responsible for overall project management and day to day coordination, multi-stakeholder (150 stakeholders) and agency (57 federal, local and agency advisors) outreach and participation, facilitation of meetings Governor s Office convening s all project logistics and project report. Link to Collaboration Platform – Data Basin San Joaquin Valley: http://sjvp.databasin.org/
- Governor s Office Liaison and Outreach Coordinator for the State s portion of the Desert Renewable Energy Conservation Plan (DRECP). As outreach coordinator, worked closely with local governments on DRECP related consistency issues with local general plans.
- Planning Consultant to California Attorney General s Office - Environment Section focusing on climate change, CEQA and general plans. (2007- 2010). While working with the Environment Section, assisted with settlements (Stockton General Plan, Pleasanton Housing Element and CEQA litigation); identified locally based best practices for local government planning to address climate change issues; and managed government outreach and consultation on general plans and climate action plans/energy elements/sustainability planning efforts. Post 2010 continue to provide periodic consulting services to the Environment Section related to select cases.
- Strategic Advisor and Planning Consultant to the Santa Clara Valley Open Space Authority, Greenbelt

Alliance and Committee for Green Foothills for the Coyote Valley Project focused on developing a conservation and development plan for the Valley Watt was responsible for preparing the group s early CEQA comment letter on the negative declaration for a proposed Warehouse Project and assisting with scoping comments for the EIR.

- Measure M-2 Sales Tax and Environmental Mitigation Measure. (2009-). Terry was the Co-project manager/facilitator of a 30+-member environmental coalition that through a unique partnership with the Orange County Transportation Authority (OCTA) and state and federal wildlife agencies generated nearly $500 million in funding for programmatic environmental mitigation (conservation land acquisition and stewardship) in Measure M2, Orange County Transportation Sales Tax.
- State Office of Planning and Research Special Projects (2011 – 2017). Advisor to OPR on General Plan Guidelines, Infill and Renewable Energy Templates as part of the required update of the General Plan Guidelines. Expert panelist for workshops on SB 743.
- Marin Countywide General Plan and Environmental Impact Report (2004 to 2007). Project Manager for the award-winning Marin Countywide Plan Update and its Environmental Impact Report. The General Plan was among the first to incorporate leading edge climate change, greenhouse gas emissions reduction and sustainability policies as well as monitoring, tracking and implementation measures to measure success.
- Staff to the Martis Fund, a joint project of five environmental groups and a Business Group (Highlands Group and DMB Inc.). (2008 – ongoing). The Fund was created as a result of litigation settlement. The Fund has distributed over $15 million dollars since its inception to a range of conservation (acquisition of over 5,000 acres of open space), stewardship and restoration projects and workforce housing projects (emergency rental housing support, down payment assistance and low income apartments). Funding comes from a permanent transfer fee on all real estate sales at Martis Camp. http://www.martisfund.org/PDFs/Martis-Fund-Brochure.pdf
- Tejon Ranch Land Use and Conservation Agreement. (2006 – ongoing). Project coordinator for a dialogue process between environmental groups (Natural Resources Defense Council, Sierra Club, Endangered Habitats League, Planning and Conservation League, Audubon California) and The Tejon Ranch Company that resulted in a major Land Use and Conservation Agreement for the permanent protection of 240,000+ acres (90%) of the 270,000 acre Tejon Ranch. Secretary John Laird refers to the Agreement as a miracle agreement. In return for permanent conservation of + acres environmental groups agreed not to oppose projects within the development footprints; but can comment on regional planning efforts and the projects. Terry has an ongoing role overseeing implementation of the Agreement, including early role forming and managing the Conservancy formed by the Agreement. The Agreement provided the cornerstone of the Habitat Conservation Plan for a major portion of the Ranch; the Tejon Multi-Species Habitat Conservation Plan, TUMSHP, approved in April 2013. She recently joined the Board of the Tejon Ranch Conservancy created and funded by the Agreement.
- Orange County Wildlife Corridor. Project coordinator and architect for dialogue process between environmental and conservation organizations, City of Irvine and Lennar/Five Points development team that resulted in an 8 party Agreement, related general plan amendment and full funding to build an urban wildlife corridor to the specifications of the science team (6-member team jointly selected by all groups) connecting two high value conservation areas in central Orange County (Coastal and Eastern NCCP/HCP lands). Watt provides some ongoing implementation support. Recently (2017) coordinated DEIR comments letters on two Orange County Project proposals that could adversely impact the 5 Point/Irvine Wildlife Corridor.
- Ongoing assistance and authorship of expert comments on projects with recent letters on the proposed draft Amador County General Plan on behalf of the Foothill Conservancy and the proposed Squaw Valley Resort on behalf of a coalition of environmental and labor organizations.

- Facilitator to the Bolsa Chica Land Trust for recent agreement with Landowners to purchase remaining private acres of the Bolsa Chica uplands. Currently assisting with fundraising for the property.
- Advisor to the Nature Conservancy, the American Farmland Trust, Center for Law, Energy and Environment on numerous publications concerning urban infill and conservation.

PROFESSIONAL MEMBERSHIPS AND BOARDS

- Lambda Alpha International - Golden Gate Chapter
- American Institute of Certified Planners (AICP)
- American Planning Association (APA)
- Tahoe Fund Founding Board Member
- Tejon Ranch Conservancy Board Member
- Santa Lucia Conservancy Board Member
- Founder Council of Infill Builders
- Board Member, Planning and Conservation League

AWARDS

- State and National APA Awards for Marin County General Plan
- APA Awards for South Livermore Valley Plans
- Carla Bard Award for Individual Achievement, PCL

PUBLICATIONS

Contributor to the Award Winning Textbook:

Ecosystems of California, 2016, Chapter 40:

Land Use Regulation for Resource Conservation

Attachment 2

APPENDIX F: 1976 REGENTS' RESOLUTION

"DESIGNATION OF OPEN SPACE RESERVE, ALTERATION OF CAMPUS BOUNDARIES, COMMITMENT OF HOUSES TO RESIDENTIAL USE, AUTHORIZATION TO NEGOTIATE SALE OF PROPERTIES AND COMMITMENT OF TRANSPORTATION STUDIES."

The following recommendations were approved by the Board of Regents on May 21, 1976:

1. That the reserve on Mount Sutro, which was designated as open space for a twenty-five year period by The Regents in October, 1975, be increased from fifty-two to approximately fifty-eight acres, and that the designation be made permanent.

2. That the boundaries of the San Francisco campus be altered to exclude properties on the west side of Third Avenue from 1309-11 Third Avenue to and including 1379 Third Avenue, and that the new boundaries be made permanent. The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets) and this limit shall be permanent. These restrictions prohibit expansion by UCSF by purchase or condemnation or gift of any property or lease of private residential property not only contiguous with the new campus boundaries, but anywhere within the surrounding area bounded by Golden Gate Park, Oak Street, Ninth Avenue, Clayton and Clarendon. This does not prohibit the use of commercial properties or the affiliation with other public agencies within the area described.

3. That the Regents redefine their commitment, made as part of the October, 1975, approval of the Long Range Development Plan, to return certain existing houses to residential use as alternative campus space and funds for rehabilitation and relocation become available for the activities now housed therein, and that as part of this commitment: The ten houses on Third Avenue, outside the campus boundaries revised as recommended in 2. above, be sold subject to the provisions set forth in 4. below; the thirty-four houses on Third, Fifth, and Parnassus Avenues and on Irving and Kirkham Streets be rehabilitated as required and leased for residential purposes, with priority given to University students, faculty, and staff; and the seven houses on Fourth Avenue remaining after clearance of the site for the School of Dentistry Building project be retained for non-residential campus use.

4. That the Treasurer be authorized to negotiate the sale of the lots and structures, and other improvements thereon, located at 1309-11, 1319, 1325, 1337, 1343, 1355, 1361-63, 1367-69, 1373, and 1379 Third Avenue; the lot between 1355 and 1343 Third Avenue; and the lot between 1309-11 and 1319 Third Avenue, subject to the provisions listed in 4(a) through 4(e) below and that the results of said negotiations be presented to The Regents for final approval and authority to sell based on offers acceptable to The Regents:

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be initiated until funds for such purpose are on hand as specified in 4(b) below and until space into which activities or tenants can be relocated is available;

(b) A special fund shall be established to fund projects within the Capital Improvement Program for the purpose of, first, providing accommodation for activities displaced by sale of houses, second, providing accommodation for campus activities displaced by conversion of the structures retained for residential use, and, third, converting and rehabilitating the structures retained for residential use, said fund to be funded from proceeds of the sale of the properties, except as noted in 4(c) below, and, if funds are not on hand from the sale of properties, from an advance, as needed, of not to exceed $50,000 from the University Opportunity Fund, such advance to be on a revolving basis and to be repaid with proceeds, as received, from subsequent sale of properties, it being understood that, at the completion of the sale of the properties, any part of the advance not repaid shall be converted to an appropriation;

(c) The portions of the proceeds of the sales of the lots between 1309-11 and 1319, and between 1343 and 1355 Third Avenue, attributable to the eighteen parking spaces currently located thereon, shall be deposited in the Net Revenue Account of the University of California Parking System;

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5. That funds not to exceed $25,000 be allocated to the San Francisco campus from the University Opportunity Fund for the purpose of retaining an independent consultant firm to develop additional plans for the alleviation of transportation problems such as traffic, parking congestion, and availability of public transit, it being the intent that such plans be implemented to the extend feasible within resources normally available to the campus for such purposes or within additional State appropriations that might be made available for such purposes;

6. That the Long Range Development Plan for the San Francisco campus, as approved by The Regents in October, 1975, be amended to reflect the described changes in designation of open space, boundaries, and use of housing;

7. That The Regents recognize the principle that the San Francisco campus will be administered so that the annual average of the daily campus population at the Parnassus site will remain substantially in accordance with the projections set forth in the Environmental Impact Report related to the Long Range Development Plan for the campus, approved by The Regents in October 1975.

Attachment 3

OFFICE OF THE MAYOR
SAN FRANCISCO

LONDON N. BREED
MAYOR

January 16, 2020

Chancellor Sam Hawgood
University of California, San Francisco
513 Parnassus Avenue, Room 115 F, Box 0402
San Francisco, CA, 94143

Dear Chancellor Hawgood,

Happy New Year! As we begin this new year, this new decade, we look forward to continuing to work with you and the leadership of UCSF to help advance UCSF's mission of being the leading university dedicated to advancing health worldwide through preeminent biomedical research, graduate-level education in the life sciences and health professions, and excellence in patient care. We know UCSF is devoted at every level to serving the public, and the residents of San Francisco are fortunate to have your 22,500 employees serving them, as well as, to benefit from the nearly $6.5 billion you generate annually for the Bay Area economy.

Working collaboratively has been the hallmark of the City and County of San Francisco and UCSF's relationship over the years. As examples, we can proudly point to UCSF's partnership with our Department of Public Health in operating Zuckerberg General Hospital, or more recently, your assistance reviewing the methodology of the environmental testing surrounding the Shipyard at Hunter's Point. Indeed, both the City and UCSF tremendously benefit from working together.

To that end, and to further this collaborative spirit, as UCSF embarks on its rebuild and, truly, its reimaging of its Parnassus Height Campus, we propose that the City's Planning Department convene a City stakeholder process and directly engage with your planning team on the future design and uses of the campus. We are well aware of your growing needs and of the public's growing demands on your health care system and the services you provide. However, we want to ensure that as UCSF moves forward with its proposal, the input of the City's Planning Department and UCSF's surrounding neighborhoods are heard.

Moreover, as we discuss the growth at Parnassus Heights, the common challenges we both face – housing supply, affordability, transportation infrastructure, demand for more community and social services, and climate and seismic related risks – should be addressed in manners consistent with both UCSF's and the City's polices. By working with the City's Planning Department, the Mayor's office, District Supervisors, and neighborhood residents, we are confident such challenges can be met to address both of our short term and long-term needs.

1 DR. CARLTON B. GOODLETT PLACE, ROOM 200
SAN FRANCISCO, CALIFORNIA 94102-4681
TELEPHONE: (415) 554-6141

OFFICE OF THE MAYOR
SAN FRANCISCO

LONDON N. BREED
MAYOR

In 2007, the City and County of San Francisco entered into a Memorandum of Understanding with San Francisco State University, as they embarked on their own campus redesign, which adopted and formalized arrangements for the coordination and consideration of both of our interests and inputs in the context of land use approvals, transportation needs, and ongoing service provisions. This is a model of collaboration that we recommend we pursue jointly as you move forward with the Parnassus project. As a first step in this process, we would like to meet with you and your team to outline a proposal for how such an MOU could be adopted by both of us. Should you have any initial questions or comments, please do not hesitate to contact any one of us. We look forward to discussing this further.

Sincerely,

London N. Breed
Mayor, City and County of San Francisco

Norman Yee
President, San Francisco Board of Supervisors

Dean Preston
Member, San Francisco Board of Supervisors, District 5

1 DR. CARLTON B. GOODLETT PLACE, ROOM 200
SAN FRANCISCO, CALIFORNIA 94102-4681
TELEPHONE: (415) 554-6141

Attachment 4

SAN FRANCISCO
PLANNING DEPARTMENT

Executive Summary
Policy and Planning Amendment
HEARING DATE: JUNE 11, 2020

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

Project Name:	**Centering Planning on Racial and Social Equity**
Case Number:	**2016-003351CWP**
Staff Contact:	Miriam Chion, Housing and Community Equity Manager miriam.chion@sfgov.org (415) 575-9124
Reviewed by:	Rich Hillis, Planning Department Director
Recommendation:	**Adopt the Resolution**

PROPOSED POLICY AND PLANNING AMENDMENT

In the context of the recent displays of institutional and structural racism and white supremacy, and the responding popular outcries for deep and lasting transformation, the Planning Department Staff prepared a Resolution requested by the Planning Commission to consider and adopt regarding the centering of the Planning Department's work program and resource allocation on racial and social equity. The Resolution acknowledges and apologizes for the history of inequitable Planning policies resulting in racial disparities; directs the Planning Department to implement its Racial and Social Equity Action Plan; directs the Planning Department to develop proactive strategies to address structural and institutional racism in collaboration with Black and American Indian communities and Communities of Color; directs the Planning Department to amend its hiring and promotion practices to ensure the Department's staff reflects the diversity and demographics of the community at all staff levels; recommends that the Board of Supervisors condemn discriminatory government actions; and directs the Planning Department to build accountability through metrics and reporting.

Attachments:
Exhibit A: Draft Planning Commission Resolution

SAN FRANCISCO
PLANNING DEPARTMENT

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

Draft Planning Commission Resolution
Centering Planning on Racial and Social Equity
HEARING DATE: JUNE 11, 2020

Project Name:	**Racial & Social Equity Initiative**
Case Number:	2016-003351CWP
Staff Contact:	Miriam Chion, Housing and Community Equity Manager miriam.chion@sfgov.org; 415-575-9124
Reviewed by:	Rich Hillis, Director Planning Department

RESOLUTION CENTERING THE PLANNING DEPARTMENT'S WORK PROGRAM AND RESOURCE ALLOCATION ON RACIAL AND SOCIAL EQUITY; ACKNOWLEDGING AND APOLOGIZING FOR THE HISTORY OF INEQUITABLE PLANNING POLICIES THAT HAVE RESULTED IN RACIAL DISPARITIES; DIRECTING THE DEPARTMENT TO IMPLEMENT ITS RACIAL AND SOCIAL EQUITY ACTION PLAN; DIRECTING THE DEPARTMENT TO DEVELOP PROACTIVE STRATEGIES TO ADDRESS STRUCTURAL AND INSTITUTIONAL RACISM, IN COLLABORATION WITH BLACK, AMERICAN INDIAN AND COMMUNITIES OF COLOR; DIRECTING THE DEPARTMENT TO AMEND ITS HIRING AND PROMOTION PRACTICES TO ENSURE THAT THE DEPARTMENT'S STAFF REFLECTS THE DIVERSITY AND DEMOGRAPHICS OF THE COMMUNITY AT ALL STAFF LEVELS; RECOMMENDING THAT THE BOARD OF SUPERVISORS CONDEMN DISCRIMINATORY GOVERNMENT ACTIONS; AND, DIRECTING THE DEPARTMENT TO BUILD ACCOUNTABILITY THROUGH METRICS AND REPORTING.

PREAMBLE

WHEREAS, the Planning Commission has reflected on the current events of COVID-19 and its disproportionate effects on American Indian communities, Black communities, and communities of color; the murders of George Floyd, Breonna Taylor, Ahmaud Arbery, Alex Nieto, Mario Woods, Luis Góngora Pat, and countless others as a result of police brutality and misconduct; and underlying government and economic structures that create the platform for these events; and

WHEREAS, the San Francisco Human Rights Commission states that racial equity means the systematic fair treatment of people of all Races that results in equal outcomes, while recognizing the historical context and systemic harm done to specific racial groups; and,

WHEREAS, San Francisco has a long history of creating and/or enforcing laws, policies, and institutions that have promoted white supremacy and perpetuated racial inequities in the City and County of San Francisco ("the City"), much of which is difficult to document due to historical erasure. The conditions that have created such racial inequities are also compounded by the intersection of race with class, gender,

sexuality, immigration status, disability, and other social identities and experiences that result in inequitable treatment or opportunities; and,

WHEREAS, using the power of zoning and land use, the City, its Planning Department ("Department") and other government agencies and private organizations have intentionally advanced policies aligned with white supremacy to segregate, displace, dispossess and extract wealth from Black communities, the American Indian community, and other communities of color. With the acknowledgement that this list is by no means exhaustive, examples include but are not limited to the following: Our history of state-sanctioned racism began with the genocide, exploitation, and dispossession of resources of the American Indian people on whose land our state and nation were founded. The City's 1870 Cubic Air Ordinance and 1880 Laundry Ordinance targeted the Chinese population using appeals of public safety to limit where they could live and work. Starting in the 1930s, Federal policies like redlining and local practices like racial covenants explicitly blocked American Indians, Black people and people of color from loans for homeownership and maintenance, as well as access to neighborhoods with good services and jobs; these policies led to cycles of disinvestment, segregation and poverty concentration among these communities. In 1942, in response to the bombing of Pearl Harbor, San Francisco aided the federal government in the forced eviction and internment of thousands of people of Japanese ancestry. In 1945, the Department identified neighborhoods that were predominately people of color as "blighted," including the Western Addition, South of Market, Chinatown, the Mission, and Bayview/Hunter's Point, and used this designation to justify the wholesale removal of Black communities and other communities of color through eminent domain. Furthermore, in the early 2000s, people of color were more likely to receive subprime housing loans than White borrowers. These predatory lending practices led to the foreclosure crisis starting in 2008, disproportionately impacting Black, Latinx, American Indian, and low-income people; during this period, middle-income Black and Latinx households lost nearly one-half of their wealth due to foreclosure. The cumulative impacts of these and other policies have resulted in the persistent outmigration and displacement of communities of color: the American Indian community in San Francisco experienced a decline from 0.5% of the population in 2006 to 0.1% today; while the Black community in San Francisco decreased from 11% of the City's population in 1990 to 5% in 2018; and,

WHEREAS, Although the City has taken steps to undo the damage caused by past policies and practices, the racial disparities caused continue to the present day. Despite progress in addressing explicit discrimination, racial inequities continue to be deep, pervasive, and persistent in San Francisco. In the 1950s and beyond, particularly in the context of a national Civil Rights Movement, systemic racism in San Francisco became much less explicit. Moving away from overtly race-based exclusionary policies regarding land or business ownership, the City's more recent and increasingly sophisticated racism has been defined by inaction or lack of intervention with regards to racial discrimination in employment, housing, neighborhood choice (through implicit exclusionary zoning), education, health care, or the criminal justice system; and,

WHEREAS, the legacy of these discriminatory policies is that San Francisco's American Indian, Black , and people of color have historically been, and many currently are, denied equal access to essential services and means of creating wealth, including affordable housing and homeownership opportunities, high-performing public schools, adequate transportation options, safe parks and open spaces, affordable health care, access to financial capital and entrepreneurship opportunities, and stores selling healthy food, among others; and,

WHEREAS, San Francisco's American Indian, Black, and people of color have historically been, and many currently are, disproportionately exposed to more environmental stressors including air and soil pollution, illegal dumping, industrial uses and transportation impacts, and are more likely to live in housing conditions where degraded indoor air quality contributes to the prevalence of asthma, other airborne diseases, and other health disparities; and,

WHEREAS, stark disparities continue to exist for City residents along racial lines. Race predicts worse outcomes for people of color across key indicators, including education, income, health, and incarceration, among others. For example, household income for White households is close to three times that of Black families and close to double that of American Indian and Latinx households, respectively. 53% of inmates in San Francisco County Jail are Black, while they only comprise about 5% of the City's total population. In 2018, American Indian and Black San Franciscans were more than three times more likely to be unemployed than Whites (11.9% and 12.5% versus 3.6%, respectively); and unemployment rates were similarly high for Native Hawaiian / Pacific Islanders (8.8%) and Latinxs (9.4%); and,

WHEREAS, The 2019 San Francisco Community Health Needs Assessment conducted by the San Francisco Health Improvement Partnership ("SFHIP") found that racial health inequities and poverty were foundational issues affecting the health of San Franciscans, impacting life expectancy, infant and maternal health, nutrition, stress, heart disease, and more. For example, in 2015-2017 the life expectancy in San Francisco was 72.1 years for Blacks, 76 years for Pacific Islanders, 81.7 years for White people, 85.1 years for Latinxs, and 87 years for Asians. (San Francisco data on American Indians was not included; such data is often unavailable in urban areas due to low population counts, which perpetuates disparities in documentation and policies that address their community needs.) The rates of asthma and COPD hospitalizations in the Black community are more than 10 times higher than for Asians; Pacific Islanders have the second highest rates. In San Francisco, Black women are twice as likely as White women to give birth prematurely, and Black and Pacific Islander women have the highest rates of prenatal morbidity. SFHIP also found that between 2007 and 2016, Black mothers had about 4% of births in San Francisco, but experienced 50% of maternal deaths, and 15% of infant deaths. While data on health outcomes in the American Indian population in San Francisco is limited, this community also faces persistent health disparities across a number of indicators. For instance, even though the overall rate of infant mortality in California has been declining since 2005, the American Indian/Alaska Native infant mortality rate in California remains high, averaging 6-7 infant deaths per 1,000 live births between 2005 and 2012; and,

WHEREAS, the impact of the redlining that went into effect in 1937 in San Francisco can still be seen today: 87% of redlined neighborhoods in San Francisco are neighborhoods currently undergoing displacement. The 2010 Census data showed a decline in the number of children of every racial group (including American Indian, Black, Latinx, and Asian and Pacific Islander) residing in San Francisco except white and multiracial children. Between 1990 and 2014-15, as housing prices rose, neighborhoods became more segregated, with the share of Black households in San Francisco living in high-poverty neighborhoods increasing from 41% in 2000 to 65% in 2015 (compared to Asian (27%), Latinx (19%), and White (12%) households). 50% of Black households, 31% of American Indian, and 30% of Latinx households are severely burdened by housing costs (spending more than 30% of their income on housing) while 16% of White households are similarly burdened. American Indian, Black, and Latinx residents have the lowest home ownership rates, at 0.3%, 4%, 9%, respectively. Latinxs reported the highest percentage of having been

threatened with eviction (24%), with 11% of those evictions having been raised with no cause, exceeding the percentage of no-cause evictions for other racial groups. 34% of Latinxs also reported having faced unstable living conditions in the last five years, with 36% stating they would have no other housing options if they were forced to move from their current residence.

WHEREAS, racial disparities in the rates of infection and death from COVID-19 have been documented, with American Indian, Black, and people of color disproportionately impacted by the disease. As of June 3rd, 2020 COVID-19 data for San Francisco, , indicate that Black communities in San Francisco comprised 9.3% of deaths, even though they comprise 5% of the population; Latinx communities comprised 47.8% of diagnosed cases (and comprise 15.2% of the population); American Indian communities comprised 0.4% of diagnosed cases (and comprise 0.1% of the population); and Asian communities comprised 46.5% of deaths (and comprise 34.1% of the population). In the April 2020 UCSF assessment in Mission District, 90% of the Latinx people tested for COVID-19 were positive, The health and economic impacts of the pandemic are exacerbating the existing disparities; and,

WHEREAS, Black and American Indian people are overrepresented among the homeless population. The 2019 San Francisco Homeless Count and Survey found that 37% of people experiencing homelessness were Black, while they represent only 5% of San Francisco's population. Overrepresentation in the homeless population was also high for American Indians (5% compared to 0.1%) and Pacific Islanders (2% compared to 0.2%). Of all people surveyed, 61% reported not being able to afford rent and 37% reported having no income. Discrimination and lack of access to opportunities for American Indian, Black and people of color put them at a higher risk of homelessness; and,

WHEREAS, San Francisco and other cities across the nation are part of a movement to eliminate institutional racism in partnership with the Government Alliance on Race and Equity (GARE), a national network dedicated to achieving racial equity and advancing opportunities for all. The Department's ongoing participation in GARE since January 2016 has given staff the training, tools, and support to build the Department's organizational capacity to advance racial equity in its programs, policies, and services; and,

WHEREAS, the Board of Supervisors, through Resolution No. 190547 on July 11, 2019, amended the Administrative Code to create an Office of Racial Equity as a Division of the Human Rights Commission, with authority to create a citywide Racial Equity Framework, analyze the impact of Board ordinances on racial equity, and create a racial reconciliation process; require City departments to create Racial Equity Action Plans and to provide annual updates on such Plans; require City departments to designate employees as racial equity leaders, and require the Department of Human Resources to produce an annual report concerning racial equity in the City workforce; and,

WHEREAS, in the coming years the Department will amend the General Plan through adoption of updated Housing and Transportation Elements, adoption of a Preservation Element, and updates to incorporate environmental justice, racial and social equity, and climate resilience across all relevant elements. On May 28, 2020, the Department launched the first of these updates: the Housing Element 2022 Update. The Housing Element policies will be grounded on the following values: racial and social equity, minimum displacement, more housing for all in all neighborhoods, and neighborhoods resilient to climate and health crises. The Transportation Element will be the next Element to undergo an update and will center its

policies in ConnectSF's goals of equity, economic vitality, environmental sustainability, safety and livability, and accountability and engagement; and,

WHEREAS, the Planning Commission (Commission) adopted the Racial & Social Equity Action Plan, Phase I on November 21, 2019 to guide the Department and Commission actions to strengthen our internal-facing processes and practices to address disparities in the Department's internal functions to advance organizational equity, through strategies that include: ongoing training for all staff; a biannual staff survey to assess Department attitudes and progress towards racial and social equity; and an interim Racial & Social Equity Assessment Tool to apply to relevant projects, policies, and practices; and,

WHEREAS, the Planning Commission adopted a Racial & Social Equity Vision on November 21, 2019, which envisions: inclusive neighborhoods that provide all with the opportunity to lead fulfilling, meaningful, and healthy lives; a city where public life and public spaces reflect the past, present and future of San Franciscans; a city where a person's race does not determine their lives' prospects and success; an inclusive Planning Department and Commissions that represent and engage the communities we serve; a Department that proactively infuses racial and social equity in both internal operations and external Planning work; and reimagines what the Planning field is and can be – inclusive, diverse and one that centers racial and social equity both as a practice and as an indicator of success; and

WHEREAS, the Planning Commission directed the Department to develop a Racial & Social Equity Action Plan, Phase II in collaboration with the new Office of Racial Equity, other City agencies, the Mayor's Office, the Board of Supervisors, and community stakeholders, to carefully examine and address legacy racial and social inequities and disparities in the Department's programs and policies and to develop Phase II with bold and forward-thinking strategies to advance racial and social equity in San Francisco; and,

MOVED, that the Commission considered public comment and reviewed the information before them and hereby adopts this Resolution.

FINDINGS

Having reviewed the materials identified in the preamble above, and having heard all testimony and arguments, this Commission finds, concludes, and determines as follows:

The Resolution directs the Planning Department to center its work program and resource allocation on racial and social equity; acknowledges and apologizes for the history of racist, discriminatory and inequitable planning policies that have resulted in racial disparities; directs the Department to develop proactive strategies to address and redress structural and institutional racism, in collaboration with Black and American Indian communities and communities of color; directs the Department to amend its hiring and promotion practices to ensure that the Department's staff reflects the diversity and demographics of the community at all staff levels; recommends that the Board of Supervisors condemn discriminatory government actions; and directs the Department to build accountability through metrics and reporting.

General Plan Compliance. The Resolution is in conformity with the General Plan's overall principles and discussion of preserving the cultural and economic diversity of our neighborhoods, although further changes to the General Plan may be needed to implement better the Planning Department's racial and social equity policies. While the current General Plan contains some discussion of equity as indicated in the

sections listed below, current objectives and policies across Elements do not adequately address disparities that are closely associated with race as well as other vulnerable populations.

I. HOUSING ELEMENT

POLICY 5.3. Prevent housing discrimination, particularly against immigrants and households with children.

POLICY 9.3. Maintain and improve the condition of the existing supply of public housing, through programs such as HOPE SF.

II. COMMERCE AND INDUSTRY ELEMENT

OBJECTIVE 3. PROVIDE EXPANDED EMPLOYMENT OPPORTUNITIES FOR RESIDENTS, PARTICULARLY THE UNEMPLOYED AND ECONOMICALLY DISADVANTAGED.

III. RECREATION AND OPEN SPACE ELEMENT

POLICY 1.2. Prioritize renovation in highly-utilized open spaces and recreational facilities and in high needs areas.

IV. TRANSPORTATION ELEMENT

POLICY 1.7. Assure expanded mobility for the disadvantaged.

V. COMMUNITY FACILITIES ELEMENT

POLICY 3.6 Base priority for the development of neighborhood centers on relative need.

VI. COMMUNITY SAFETY ELEMENT

OBJECTIVE 4. ASSURE THE SOUND, EQUITABLE AND EXPEDIENT RECONSTRUCTION OF SAN FRANCISCO FOLLOWING A MAJOR DISASTER.

VII. ARTS ELEMENT

OBJECTIVE II-2. SUPPORT ARTS AND CULTURAL PROGRAMS WHICH ADDRESS THE NEEDS OF DIVERSE POPULATIONS.

VIII. AIR QUALITY ELEMENT

POLICY 4.3. Minimize exposure of San Francisco's population, especially children and the elderly, to air pollutants.

IX. BAYVIEW HUNTERS POINT AREA PLAN

OBJECTIVE 15. COMBINE SOCIAL REVITALIZATION WITH PHYSICAL AND ECONOMIC REVITALIZATION EFFORTS.

POLICY 15.3. Make maximum use of Indigenous community resources to increase civic pride and support physical and economic revitalization.

X. CHINATOWN AREA PLAN

OBJECTIVE 1. PRESERVE THE DISTINCTIVE URBAN CHARACTER, PHYSICAL ENVIRONMENT AND CULTURAL HERITAGE OF CHINATOWN.

XI. EAST SOMA AREA PLAN

OBJECTIVE 7.3. REINFORCE THE IMPORTANCE OF THE SOUTH OF MARKET AS THE CENTER OF FILIPINO-AMERICAN LIFE IN SAN FRANCISCO.

XII. MISSION AREA PLAN

OBJECTIVE 7.3. REINFORCE THE IMPORTANCE OF THE MISSION AS THE CENTER OF LATINO LIFE IN SAN FRANCISCO .

XIII. WESTERN SOMA AREA PLAN

OBJECTIVE 9.4 REINFORCE THE IMPORTANCE OF THE SOUTH OF MARKET AS A CENTER FOR FILIPINO-AMERICAN AND LGBTQ LIFE IN SAN FRANCISCO.

POLICY 9.4.3. Protect and support Filipino, LGBTQ and other minority or culturally significant local business, structures, property and institutions in Western SoMa.

POLICY 9.4.6. Prioritize maintenance and support funding for cultural and service facilities that support Filipino-Americans, such as the Bayanihan Center, the Filipino Education Center, and the West Bay Pilipino Multi-Services Center.

THEREFORE, BE IT RESOLVED, that the Planning Commission condemns all forms of racism, sexism, homophobia, ableism, and other forms of discrimination; and affirms that all people – which explicitly includes American Indian people, Black and people of color – have a right to be in our City and have a right to safe and affordable housing, neighborhoods free from pollution and violence, opportunities for educational advancement and wealth creation, and access to essential services such as parks, transportation, health care, and places selling healthy food, among others; and,

BE IT FURTHER RESOLVED, that the Planning Commission stands in solidarity with the civil unrest and demands for justice of our fellow San Franciscans and communities across the nation, and affirms that Black Lives Matter; and,

BE IT FURTHER RESOLVED, that the Planning Commission must carry its responsibility for guiding the development of our city, streets, and open spaces with a central planning focus on racial and social equity; and,

BE IT FURTHER RESOLVED, that the Planning Commission condemns and apologizes for government practices that have resulted in and continue to have disproportionate impacts upon American Indian people, Black people, and people of color, including racist, discriminatory, and inequitable land use planning policies, programs and government actions, such as redlining, exclusionary zoning, racial covenants, urban renewal and discriminatory enforcement of land use policies; and,

BE IT FURTHER RESOLVED, that the Planning Commission recommends that the Board of Supervisors condemn all discriminatory government practices, including law enforcement practices that have resulted in a disproportionate number of American Indian people, Black people and people of color dying at the hands of law enforcement; and,

BE IT FURTHER RESOLVED, that the Planning Commission recommends that the Board of Supervisors reallocate resources towards expanding access to open space, housing, transportation, and services for American Indian, Black, and communities of color; and that it minimize the negative impacts of budget cuts due to the COVID-19 pandemic on these communities; and,

BE IT FURTHER RESOLVED, that the Planning Commission directs all Department staff to move beyond acknowledgement of injustice and take concrete actions that are visible in the reallocation of resources and work program to (1) increase the American Indian and the Black population and provide stability to communities of color; (2) expand access to open space, housing, transportation, quality amenities and public services, and reduce exposure to environmental pollution in these communities, while ensuring that such investments do not lead to displacement or exacerbate inequities; and, (3) develop and expand participation for American Indian, Black and communities of color ; and

BE IT FURTHER RESOLVED, that the Planning Commission directs the Department to collaborate with the Office of Racial Equity (ORE) to align its work with ORE's framework to dismantle structural and institutional racism, which asserts that the City's work shall: (1) Affirmatively address racial and social inequities; (2) Assert that housing is a human right, and prioritize equitable housing development without displacement of American Indian, Black, and communities of color; (3) Develop public land strategies to meet affordable and inclusionary housing goals; (4) Support wealth-building through home ownership for American Indian, Black, and communities of color; (5) Champion housing choice by dismantling exclusionary zoning policies; (6) Promote environmental justice; and (7) Redress the consequences of government-sanctioned racial harm via meaningful City-supported, community-led processes; and,

BE IT FURTHER RESOLVED, that the Planning Commission directs Department staff to expand the implementation of Phase I of the Racial & Social Equity Action Plan, to ensure that the Department's internal practices are thoughtfully examined and amended to advance racial and social equity across all of its core functions; and

BE IT FURTHER RESOLVED, that the Planning Commission directs Department staff to devote the resources necessary for the successful completion and implementation of Phase II of the Racial & Social Equity Action Plan to ensure that its plans, policies and programs actively address and redress structural and institutional racism; and,

BE IT FURTHER RESOLVED, that the Planning Commission directs Department staff to address racial and social equity as it develops policies and programs to respond to the health, economic and housing crises resulting from the COVID-19 pandemic, prioritizing meeting the needs of Black communities, American Indian communities, and communities of color through its policies and programs to support the adaptive use and design of the public realm, community engagement and planning, protection of tenants and cultural resources, affordable housing preservation and production, streamlining and other support for small businesses, and funding for public services and infrastructure, among others; and,

BE IT FURTHER RESOLVED, that the Planning Commission directs the Department to assess, strengthen and fund its outreach and engagement strategies to ensure that American Indian, Black and communities of color have true access to representation and participation in planning processes, as well as resources for participatory capacity building; and,

BE IT FURTHER RESOLVED, that the Planning Commission directs the Department to amend the General Plan to incorporate policies that explicitly prioritize racial and social equity for American Indian communities, Black communities, and communities of color; that subsequent amendments to the General Plan utilize a racial and social equity lens; and

BE IT FURTHER RESOLVED, that the Planning Commission directs the Department to change hiring and promotion practices to correct the underrepresentation of American Indian people, Black people, and people of color across all staff levels and ensure the workforce reflects the needs of our communities; and,

BE IT FURTHER RESOLVED, that the Planning Commission directs the Department to build accountability by identifying actions it will implement to advance racial and social equity, including developing performance measures, incorporating a racial and social equity lens in budgeting decisions, and reporting to the Commission on its progress at regular intervals; and,

BE IT FURTHER RESOLVED, that the Planning Commission asserts that the responsibility for implementing these structural and institutional changes falls upon all Department staff, across all levels and functions, and that it should not fall solely or disproportionately upon the American Indian, Black, or people of color staff who are already burdened with their lived experiences of racism; and,

NOW THEREFORE BE IT RESOLVED that the Commission hereby APPROVES the proposed Resolution on June 11, 2020.

Jonas P. Ionin

Commission Secretary

AYES:

NOES:

ABSENT:

ADOPTED:

Attachment 5

The Bay Area Today
The Regional Housing Crisis
Legacy of Leadership
A Call to Action

The Regional Housing Crisis

No matter what, the future will bring major challenges. Overburdened infrastructure, climate change, disruptive technological innovation, and the changing regional and national economy are just some of the many issues that will call for coordinated and concerted regional action. One challenge above all, however, requires immediate attention: housing.

The Bay Area's housing affordability and neighborhood stability crisis has been decades in the making. Although the housing crisis has many components, its foundation is clear: there simply is not enough housing, whether market-rate or affordable, given the growing number of residents and jobs.

Instead of increasing housing supply to accommodate household and employment growth, for example, many local governments slowed permitting over time. Concurrently, the state and federal governments have pulled back financial support for affordable housing. Given a limited supply of both market-rate and affordable housing, combined with strong demand driven by exceptional regional economic performance, rents and home prices have risen rapidly. Today the Bay Area may have the most severe housing crisis of any of the nation's large metro areas and, at this time, there are limited policy tools to help address the problem at a regional level.

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Supply, Demand and the Impacts of Income Inequality

The Bay Area's rate of housing construction first started to lag in the mid-1970s. Each subsequent decade has seen lower levels of overall housing permitting, as seen in Figure 1.2. Since 1990, other metropolitan regions with strong economies and growing populations, such as Washington, D.C., Seattle and Denver, have permitted housing units at significantly higher rates than the Bay Area. New housing construction in the Bay Area has been much more akin to slower growing, older metropolitan regions such as Philadelphia and New York.

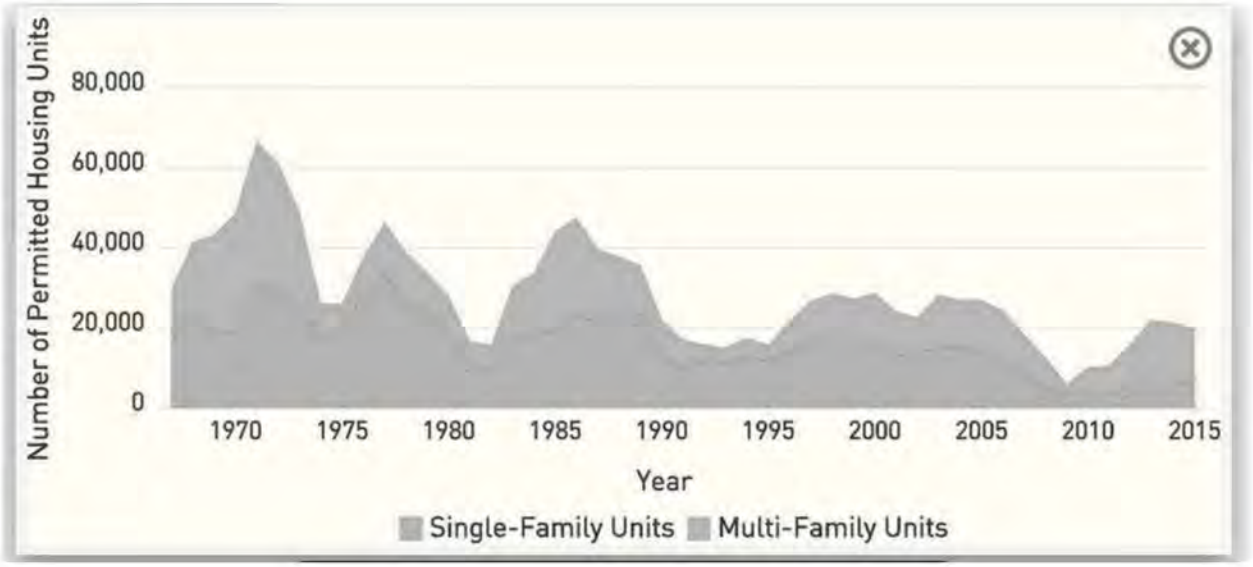

FIGURE 1.2 The historical trend for annual permitted housing units in the Bay Area. This graph shows the historical trend of permitted units for both single-family and multi-family units in the Bay Area, stretching back several decades. As can be seen, annual growth in permitted units stagnated even during the employment booms of the 1990s and 2010s.
Source: Vital Signs; Construction Industry Research Board, 1967–2010; California Homebuilding Foundation/Construction Industry Research Board, 2011–2015

There has been a particular mismatch between employment growth relative to the housing supply. Overall, the Bay Area has added nearly two jobs for every housing unit built since 1990. The deficit in housing production has been particularly severe in terms of housing affordable to lower- and middle-wage workers, especially in many of the jobs-rich, high-income communities along the Peninsula and in Silicon Valley. The booming regional economy combined with increased household formation among the millennial generation has further contributed to an evermore-acute housing crunch.

The widening income gap between high- and low-income households has further exacerbated the housing crisis. As seen in Table 1.1, the total number of households in the nine-county Bay Area increased by 20 percent from 1990 to 2015. The vast majority of this growth, however, was concentrated among households earning $150,000 or more annually, with the remaining growth among households earning less than $35,000 a year. Over a period spanning 25 years, there was a net decrease in the number of households earning between $35,000 and $149,999 in the Bay Area, as these households declined from 64 percent to 52 percent of total households in the region.

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Bay Area Household Income*	1990		2015		Change from 1990 to 2015	
	Number of Households	Percent of 1990 Total**	Number of Households	Percent of 2015 Total**	Growth/ (Decline) in Households	Percent of Household Growth
Less than $35,000	446,000	20%	550,000	20%	104,000	+23%
$35,000 to $74,999	645,000	29%	625,000	23%	(20,000)	-4%
$75,000 to $149,999	785,000	35%	793,000	29%	8,000	+2%
$150,000 or more	375,000	17%	741,000	27%	366,000	+80%
Total Households	2,251,000		2,709,000		458,000	+20%

* Income shown in inflation-adjusted 2015 dollars.
** Values may not sum due to rounding.

TABLE 1.1 A comparison of the number of households by income level in the Bay Area over a 25-year period from 1990 to 2015.
From 1990 to 2015, households earning more than $150,000 a year have greatly increased their share of the total number of households in the region and comprised a vast majority of the regional growth in households over the same period. As a share of total households, those earning between $35,000 and $149,999 have declined significantly and in absolute numbers have either stagnated or decreased.
Source: U.S. Census Bureau, 1990; U.S. Census Bureau/American Community Survey, 2015 (Social Explorer)

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These dynamics have had significant implications for the Bay Area housing market. With the increased number of higher income households and most income growth going to the top 20 percent, demand for housing has remained very strong at the upper end of the market. Conversely, it has become more difficult for low- and middle-wage households to compete for market-rate housing as a larger pool of high-wage workers bid up a limited housing supply. This has further intensified competition for scarce affordable housing opportunities.

Policy Contributors to the Housing Crisis

What led to such a mismatch between housing supply and demand? Why does the Bay Area today lack so much needed housing, especially housing affordable to low- and moderate-income households? The causes of this situation are complex and there are many competing interpretations of the available evidence, including a range of economic and demographic factors that extend beyond the Bay Area itself.

Generally, however, the policy drivers — things that local, regional and state governments have the power to address or alleviate — fall into a few interrelated categories: regulatory barriers and tax policy challenges that act to restrict the production of all types of housing, especially infill development; and insufficient support for affordable housing.

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Regulatory Barriers and Tax Policy Challenges

Although the availability of developable land in the Bay Area is limited due to topography and protected conservation lands, state and local regulations often prevent instead of promote higher-density, mixed-use development in urban infill areas. Lengthy review processes in many communities stall transit-oriented projects long enough to make them infeasible, leading to the loss of grant funding and private investment that would otherwise flow into cities along with desperately needed new housing. The California Environmental Quality Act (CEQA) often acts as another obstacle to both affordable and market-rate housing. Although CEQA has been essential for improving air quality and protecting natural habitats, the law is sometimes used as a litigation tool for blocking projects that are otherwise designed to advance California's environmental policy objectives, such as reducing greenhouse gas (GHG) emissions.

In addition, the current approach to taxation creates incentives to attract development that maximizes sales tax revenues and minimizes costs for public services (such as schools, police and social services), rather than encouraging more balanced approaches to land use. This trend — the so-called "fiscalization of land use" — has discouraged housing development and small business growth in many communities. The tax revolt measures of 40 years ago, such as Proposition 13 and other restrictions on new funding sources, caused many jurisdictions to view housing as a "fiscal loser" because property tax rates were capped below the cost of delivering services compared to retail or commercial development. Commercial property owners also often lack the motivation to develop vacant parcels since the cost of holding these properties is relatively low and a potential windfall from rising land values over time is relatively high.

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Finally, as part of the 2011 Budget Act, the California Legislature approved the dissolution of the state's 400+ redevelopment agencies. California is now one of a small number of U.S. states without tax increment financing to support urban infill development.

Reduced Support and Insufficient Progress in Building Affordable Housing

In addition to the regulatory and tax policy challenges cited above, recent years have seen major reductions in funding for affordable housing programs at both the state and federal levels. There has also been insufficient progress in the production of "naturally occurring" affordable housing — unsubsidized rental units that are affordable to low- and moderate-income households. This has severely affected the region's low- and moderate-income households by further reducing the supply of new and existing affordable housing, whether government-subsidized or market-rate, especially given median wage deflation from 2000–2013.

Since 2000, for example, there have been cuts of over 50 percent to federal affordable housing programs, and most remaining federal funds go to rehabilitation rather than increasing supply. At the state level, the aforementioned dissolution of redevelopment agencies eliminated a large source of funding for affordable housing, including a loss of more than $200 million for the Bay Area in 2011 alone, according to Enterprise Community Partners and the Non-Profit Housing Association of Northern California.

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The production of housing affordable to low- and moderate-income households has lagged behind production of housing affordable to higher-income households, with the most significant shortfall occurring in the moderate or middle income category — housing that is typically produced by the market without subsidy in most metro regions. From 1999 to 2014, the Bay Area issued permits for only about 35 percent of the units required to meet the needs of vulnerable populations such as low-income families, seniors and the homeless. This left over 100,000 needed affordable housing units unbuilt.

At the same time, much of the older housing stock that typically forms the backbone of "naturally occurring" affordable housing is located in higher density, transit rich areas that have experienced gentrification pressures and the loss of affordable units, further exacerbating the challenges of sluggish affordable housing production. Moving forward, the annual funding needed to build an adequate supply of low- and moderate-income housing through cost-restricted units rather than through market mechanisms is estimated at $1.4 billion annually, according to the Association of Bay Area Governments (ABAG).

Impacts on the Region's Present and Future

The housing crisis raises major concerns about negative impacts to the region. Affordability, a primary concern of Bay Area residents, continues to be a major challenge. This in turn poses risks to the Bay Area's socioeconomic diversity, transportation system, environmental goals and robust economy.

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Housing Affordability

Housing affordability has significantly worsened over time. Home prices are at record levels in some counties and near record levels in the rest. Rent payments have almost doubled in real dollars since the 1970s. While median wages are close to the top nationally, the Bay Area has by far the highest median home sale prices of any major metro region in the country, as shown in Figure 1.3. The region is now also home to three of the five most expensive rental markets in the nation, according to Zillow.

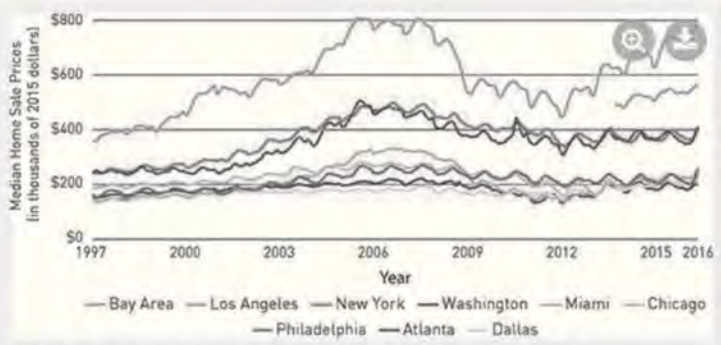

FIGURE 1.3 Median home sale prices by metro area from 1997 to 2016.
Over the last 20 years the Bay Area has seen one of the "spikiest" real estate markets in the country, with bigger booms and busts than other large metros. In particular, prices have risen much faster in the Bay Area coming out of the recent Great Recession.
Source: Vital Signs; Zillow, 1997–2016

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The prospects and benefits of home ownership are simply out of reach for many Bay Area households. Amid the affluence and new wealth generated in the post-recession era, approximately 24 percent of the Bay Area's population lives below 200 percent of the federal poverty level, and the vast majority of households with annual incomes below $50,000 experience an excessive housing cost burden, as shown in Figure 1.4.

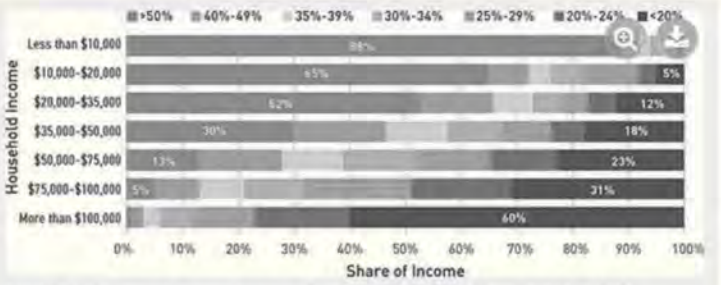

FIGURE 1.4 Share of income spent on housing by Bay Area households in 2015, segmented by income level.
A significant majority of households earning less than $35,000 in the Bay Area spent more than 50 percent of their household income on housing in 2015.
Source: Vital Signs; U.S. Census Bureau/American Community Survey, 2015

Displacement and Quality of Life Concerns

While the cost of housing has increased significantly for both owner and renter households, renters are also at higher risk for displacement during periods of growth and expansion. Currently there are hundreds of thousands of lower-income households at risk of displacement in the Bay Area, with the majority of them living in San Francisco, Santa Clara and Alameda counties.

The lack of adequate tenant protections — or availability of subsidized or "naturally affordable" market-rate units in neighborhoods with quality transit service and other amenities — has accelerated the displacement of lower-income residents and even many businesses from the region's core urban areas. As shown in Map 1.1, displacement is no longer just a San Francisco problem, but a region-wide challenge.

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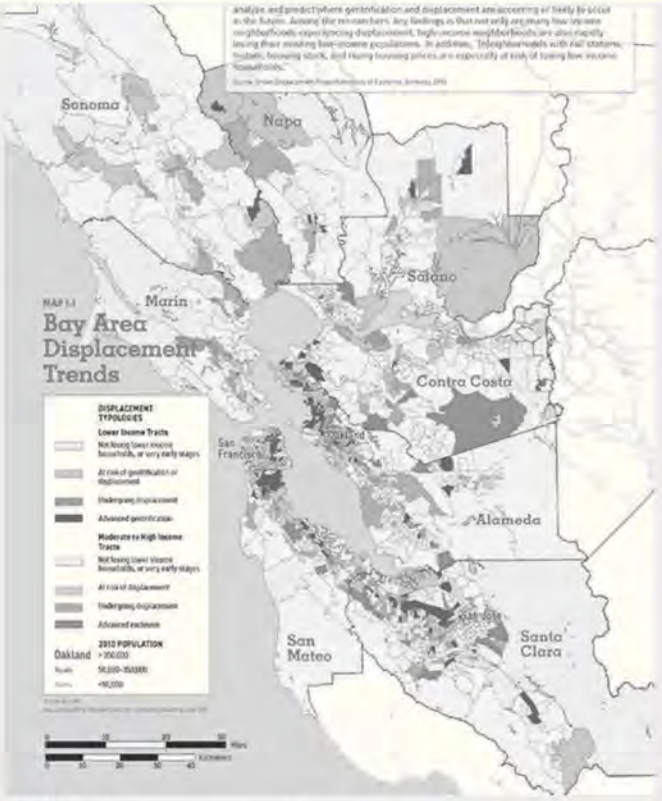

MAP 1.1 Bay Area displacement trends.
Scholars at UC Berkeley looked at regional housing, income and other demographic data to analyze and predict where gentrification and displacement are occurring or likely to occur in the future. Among the researchers' key findings is that not only are many low-income neighborhoods experiencing displacement, high-income neighborhoods are also rapidly losing their existing low-income populations. In addition, "[n]eighborhoods with rail stations, historic housing stock, and rising housing prices are especially at risk of losing low-income households."
Source: Urban Displacement Project/University of California, Berkeley, 2016

Given insufficient support for affordable housing, many individuals who perform important but lower- paying jobs face either substandard or overcrowded and unhealthy housing; costly, long-distance work commutes; or sometimes even homelessness — the most severe expression of the region's housing shortage. Rising prices in the region's core have driven many lower-income households to outlying jurisdictions farther away from jobs, transit and amenities, even as low- and middle-wage job growth has been concentrated in three counties: San Francisco, San Mateo and Santa Clara. This shift contributes to increased development pressures on open space and agricultural lands, more pollution from passenger vehicles, adverse health impacts, higher transportation costs, and greater levels of highway and transit congestion.

Attachment 6

Appendix O-LD2

SPUR REGIONAL STRATEGY

BRIEFING PAPER
MARCH 2020

What It Will Really Take to Create an Affordable Bay Area

How much housing does the region need to build to prevent income inequality from getting worse?

This report is one in a series of publications that lay the groundwork for the SPUR Regional Strategy.

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Sarah Karlinsky, Senior Advisor

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Introduction

The San Francisco Bay Area continues to be one of the country's least affordable housing markets. The region's lack of housing and limited affordability have significant ramifications for the people who currently live here, the people who once lived here but have been forced to move elsewhere and the people who used to be housed but now live on the street.[1] These housing pressures are remaking the region's diversity,[2] culture, economy and environment. Limited housing affordability and its impacts across California have dominated the state legislative conversation, resulting in groundbreaking state legislation that has the potential, for the first time in decades, to move the needle on addressing the housing crisis.

And yet much more needs to be done if the Bay Area is going to become a region that builds enough housing for all of the people who want to live here — and for the children of those people to be able to stay here when they grow up.

SPUR is developing a Regional Strategy to envision what the Bay Area could be like 50 years from now if the region is successful in addressing the housing crisis, making great places that support a high quality of life, creating a transit system that works and combating climate change so that future generations can continue to comfortably inhabit this planet.

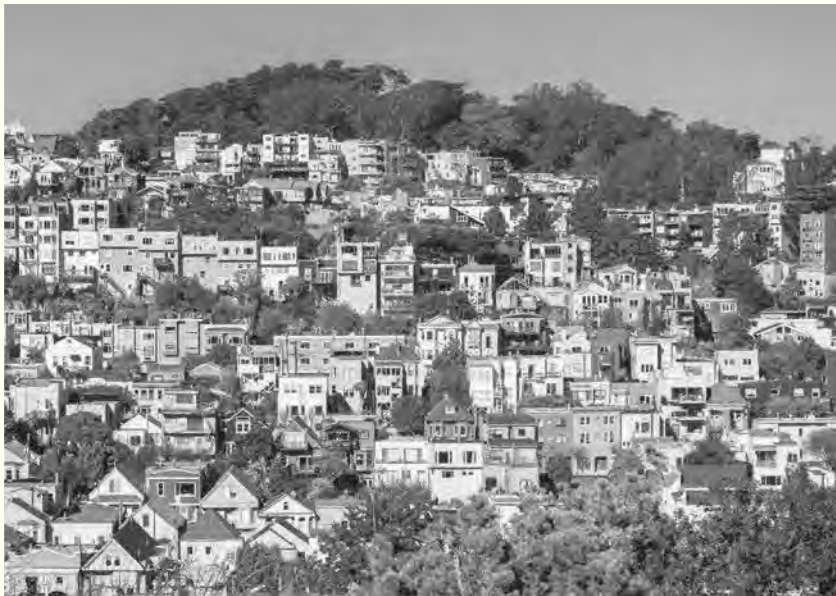
As part of this effort, we are delving into the causes, nature and sheer size of the housing crisis to make sure the solutions we propose are far-reaching enough to address the scale of the problem. We are testing our proposed solutions for "enough-ness" so that the region's policies don't just continue tinkering around the edges but, when taken together, actually solve the problem. It won't be easy to do. But it is SPUR's hope that by laying out the challenge in all of its complexity, we can help local, regional and state government adopt solutions that will ultimately have a chance of working.

1 Homelessness in San Francisco has risen 30% from 2017. Applied Survey Research, *San Francisco Homeless Count and Survey Comprehensive Report*, 2019, http://hsh.sfgov.org/wp-content/uploads/FINAL-PIT-Report-2019-San-Francisco.pdf

2 The University of California at Berkeley's Urban Displacement Project and the California Housing Partnership, *Rising Housing Costs and Resegregation in the San Francisco Bay Area,* 2019, https://www.urbandisplacement.org/sites/default/files/images/bay_area_re-segregation_rising_housing_costs_report_2019.pdf

Photos by Sergio Ruiz.

Appendix O-LD2



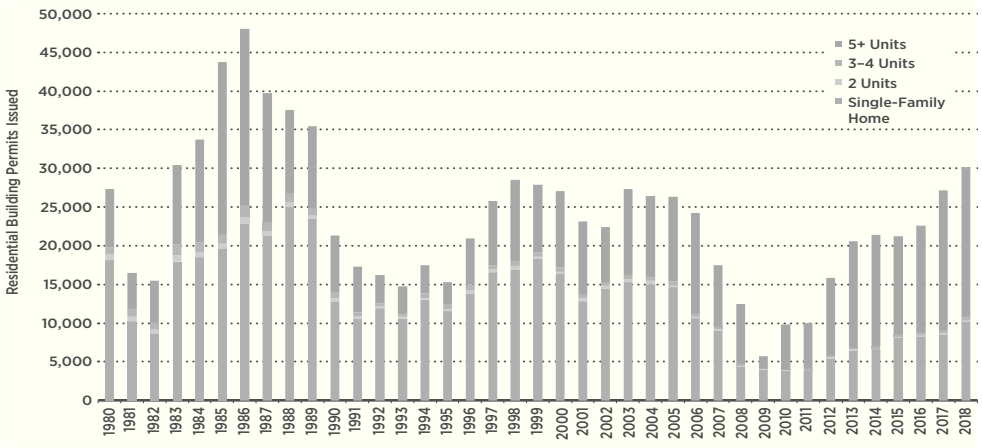
What caused the housing crisis?

Two interrelated factors drive the housing crisis: a failure to build enough housing for all of the people who live and work here, and increases in both incomes and the number of people with higher incomes. SPUR has been working with The Concord Group, a real estate economics firm, to understand both trends.

Driver 1:
The Bay Area has not built enough housing.

Although demand for housing has increased dramatically over the years — most notably due to a rapidly expanding regional economy — the amount of housing produced in the nine-county Bay Area has decreased in recent decades. Through the 1980s, the region produced a significant amount of housing on an annual basis, though much of it was built in lower-density development patterns, including single-family housing, master planned communities and garden-style apartments. In recent years, housing has increasingly been concentrated in fewer locations at higher densities,[3] and the number of units produced annually has decreased. This trend has multiple causes. The region has done a better job of protecting open space and seeking to concentrate growth in places that have already experienced development. Meanwhile, local governments have added more requirements to the development process, making it harder and harder to build housing in already-developed areas. More recently, real estate investors concerned by the Great Recession (and the subprime lending that exacerbated it) moved capital toward less risky investments in high-end urban development.

FIGURE 1
Residential Building Permits Issued in the Bay Area, 1980–2018



Source: The Concord Group analysis of the U.S. Census Bureau's Building Permits Survey, https://socds.huduser.gov/permits

3 Romem, Issi, "America's New Metropolitan Landscape: Pockets of Dense Construction in a Dormant Suburban Interior," BuildZoom, February 1, 2018, https://www.buildzoom.com/blog/pockets-of-dense-construction-in-a-dormant-suburban-interior

While housing production declined, the number of jobs rose significantly. From 2011 to 2017, the region added 658,000 jobs and 140,000 housing units, or 4.7 jobs for every housing unit. In many parts of the region, particularly those areas closest to the explosion in tech jobs, the ratio was significantly higher.

FIGURE 2
Ratio of Jobs to Housing in Bay Area Counties

COUNTY	JOBS TO HOUSING RATIO 2004–2008	JOBS TO HOUSING RATIO 2011–2017
San Francisco County	4.27	6.26
Alameda County	-0.05	3.86
Contra Costa County	0.66	3.04
San Mateo County	0.91	8.14
Santa Clara County	1.71	4.15
Marin County	0.27	4.82
Napa County	1.88	8.41
Sonoma County	-0.63	5.15
Solano County	0.55	4.27

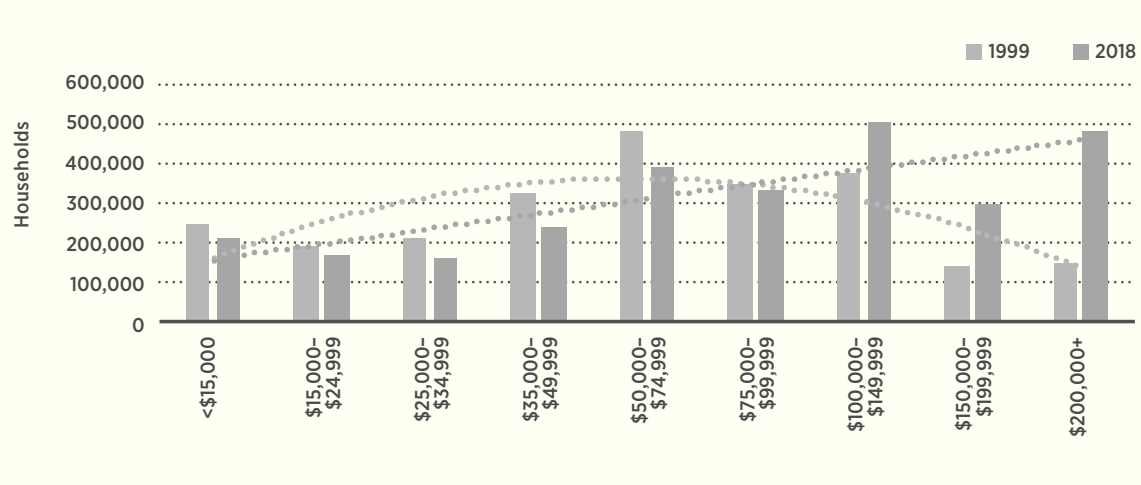
The region's new jobs have attracted new residents. Since 2000, the Bay Area's population has increased by 15%, or roughly 1 million people. Adding more people without sufficiently expanding the amount of available housing has exacerbated the housing shortage and driven up the cost of housing.

Source: Housing permit data from the Department of Housing and Urban Development, https://socds.huduser.gov/permits; primary private job data from the U.S. Census, https://onthemap.ces.census.gov.

Driver 2:
The Bay Area is becoming richer.

The Bay Area is becoming increasingly wealthy. Just 20 years ago, incomes were distributed in a bell curve, meaning that more middle-income people lived in the region than either low-income people or wealthy people. Over the past two decades, that distribution has shifted to favor wealthier households. Since 1999, the Bay Area has seen a decrease of 300,000 households making under $100,000 and an increase of 625,000 households making over $100,000.[4]

FIGURE 3
Change in Bay Area Household Income Distribution, 1999–2018



Previous SPUR research provides two explanations for the shifts in household income.[5] The first is that wages in high-wage occupations have grown much faster than wages in low- and middle-wage occupations. The second reason is that middle-wage jobs did not grow during the past decade and are projected to grow more slowly than high- and low-wage jobs in the future. Some other reasons for shifts in income could include changes in household formation (when people marry or move in with roommates or family members) and wage increases over time as some people have moved up the job ladder. The net result is that as more higher-income households compete for a limited number of available homes on the market, they bid up rents and purchase prices across the board. This particularly affects new entrants into the housing market, making finding a first-time home expensive — if not impossible — for everyone but the high earners.

4 Analysis by the Concord Group. Note that income figures are not inflation-adjusted because typical inflation adjustments use housing as a major component of ongoing Consumer Price Index calculations. If income is inflation-adjusted to include housing costs, the enormous impact that housing has on income distribution would be eliminated from the analysis.

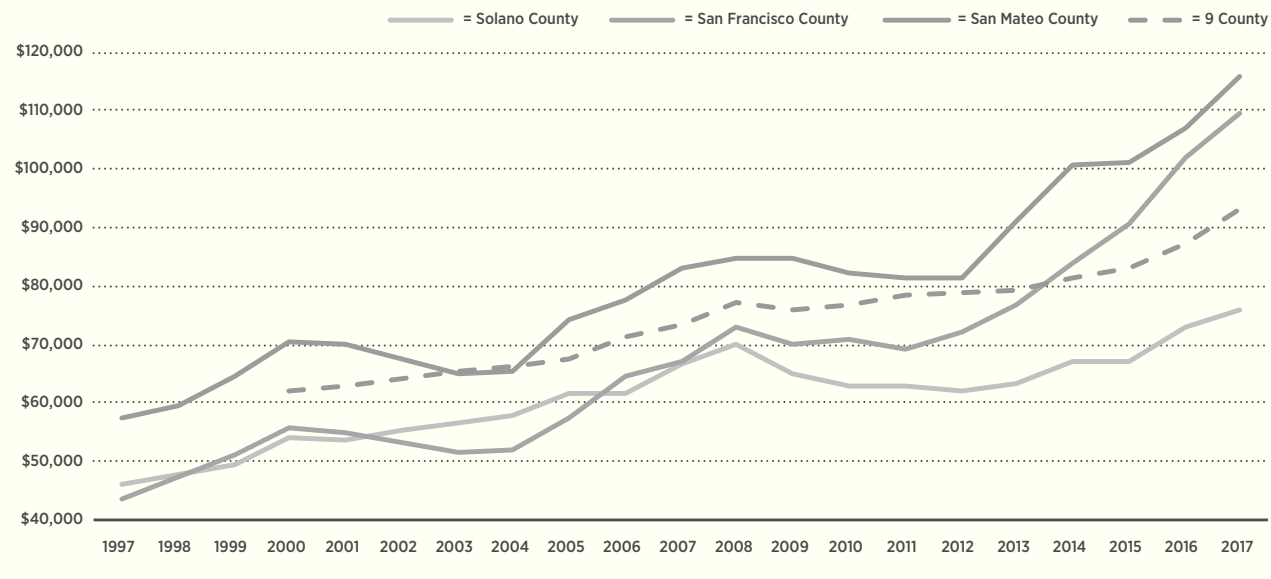
5 Levy, Stephen, "How the Retirement Wave Will Impact Bay Area Jobs and Workers," SPUR, 2019, https://www.spur.org/news/2019-01-17/how-retirement-wave-will-impact-bay-area-jobs-and-workers

Source: The Concord Group analysis of ArcGIS income distribution data and U.S. Census American Community Survey income distribution data, https://factfinder.census.gov (Note: This website will be taken off line on March 31, 2020, and will be replaced by https://data.census.gov/).

The change in the Bay Area's income distribution can be summarized by a significant shift in median income: The median Bay Area household became 50% wealthier over the last 20 years, with median income rising from $60,000 to $90,000.[6]

FIGURE 4
Change in Bay Area Median Household Income, 1997–2016

Median household income has grown significantly in the Bay Area over the last 20 years. San Mateo, San Francisco and Solano counties are included to show the range of distribution across the region.



These shifts have enormous implications not just for the Bay Area but for the 21-county Northern California megaregion, a geography that stretches from Santa Cruz to Sacramento. As more people move out of the Bay Area to seek affordable housing, the income distribution of the megaregion has also shifted, albeit less dramatically in the 12 outer-region counties than in the nine-county Bay Area.[7] The 12 outer counties — Mendocino, Lake, Colusa, Yolo, Sacramento, Placer, San Joaquin, Stanislaus, Merced, San Benito, Monterey and Santa Cruz — saw growth in households making $50,000 to $75,000 but still saw losses in households making under $50,000.

6 Analysis by the Concord Group. Note that income figures are not inflation-adjusted, as explained in footnote 4.

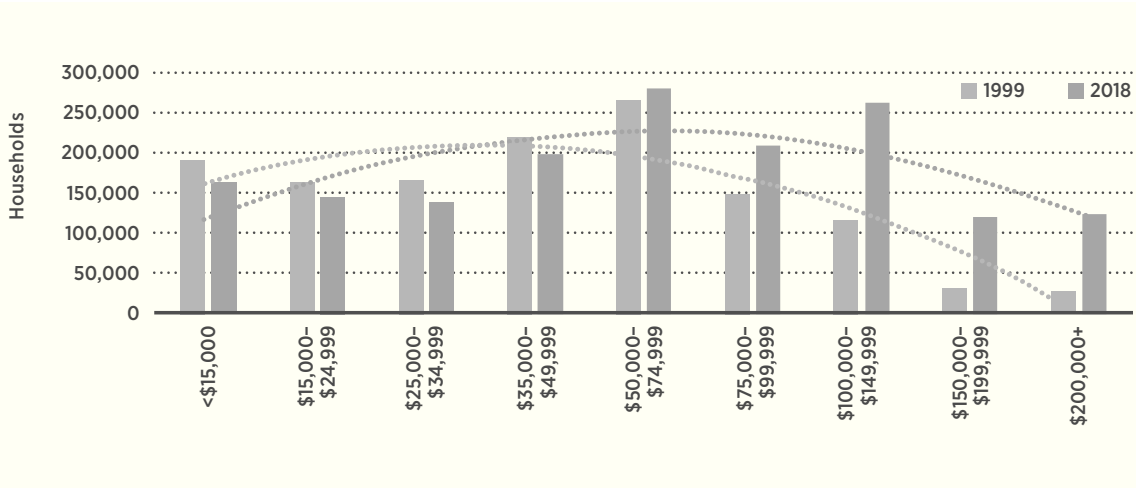
7 Analysis by the Concord Group. Note that income figures are not inflation-adjusted, as explained in footnote 4.

Source: The Concord Group analysis of Federal Reserve Bank of St. Louis (FRED) median household income, https://fred.stlouisfed.org. Source: The Concord Group analysis of ArcGIS income distribution data and U.S. Census American Community Survey income distribution data, https://factfinder.census.gov (Note: This website will be taken off line on March 31, 2020, and will be replaced by https://data.census.gov/)

Source: The Concord Group of U.S. Census American Community Survey historical rents by zip code, https://factfinder.census.gov (Note: This website will be taken off line on March 31, 2020, and will be replaced by https://data.census.gov/)

FIGURE 5

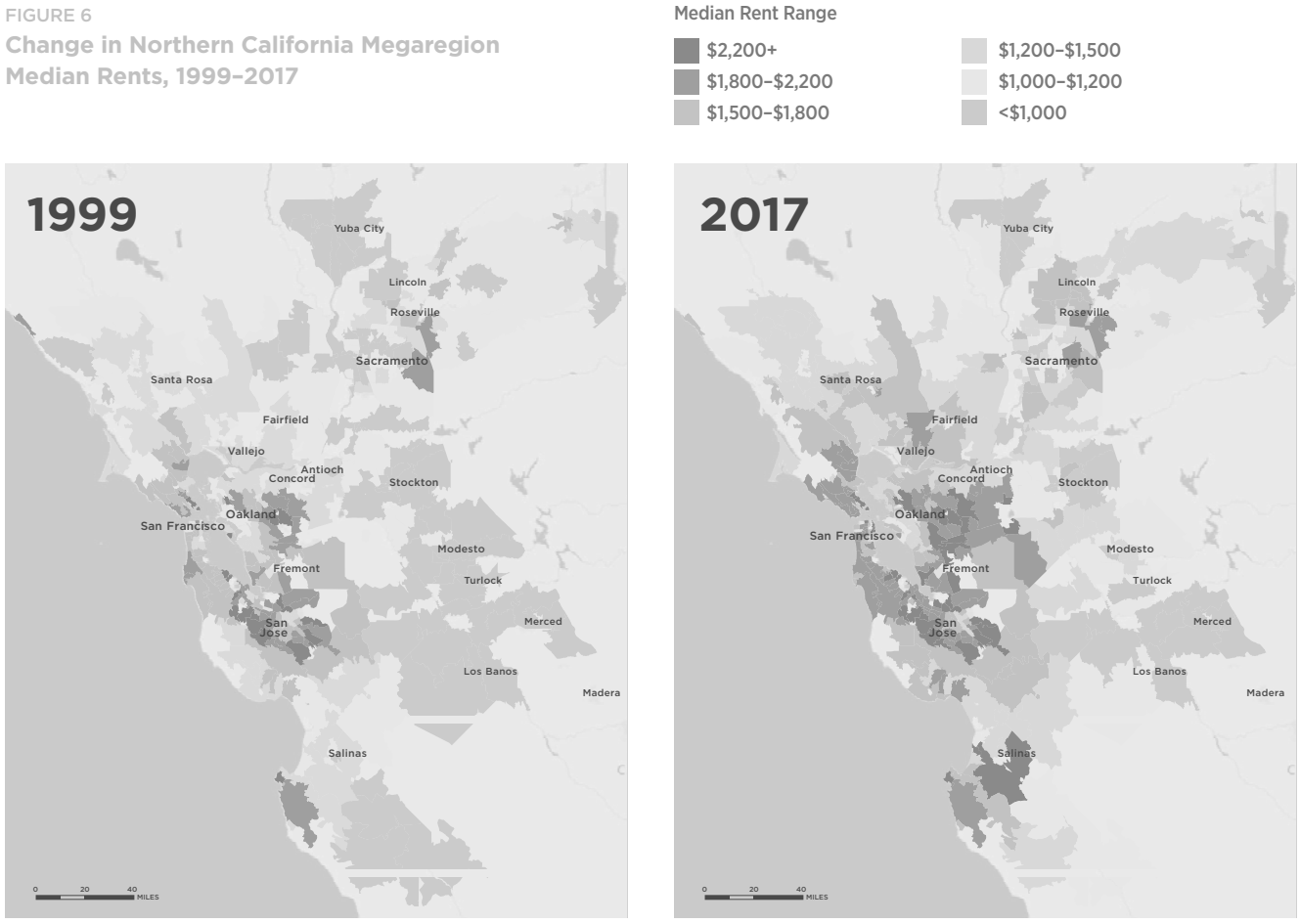
Change in Outer-Region Household Income Distribution, 1999–2018



Unsurprisingly, during this same time period, housing prices in the megaregion have increased as well, although the starkest increases have occurred mainly within the nine-county Bay Area.

FIGURE 6

Change in Northern California Megaregion Median Rents, 1999–2017



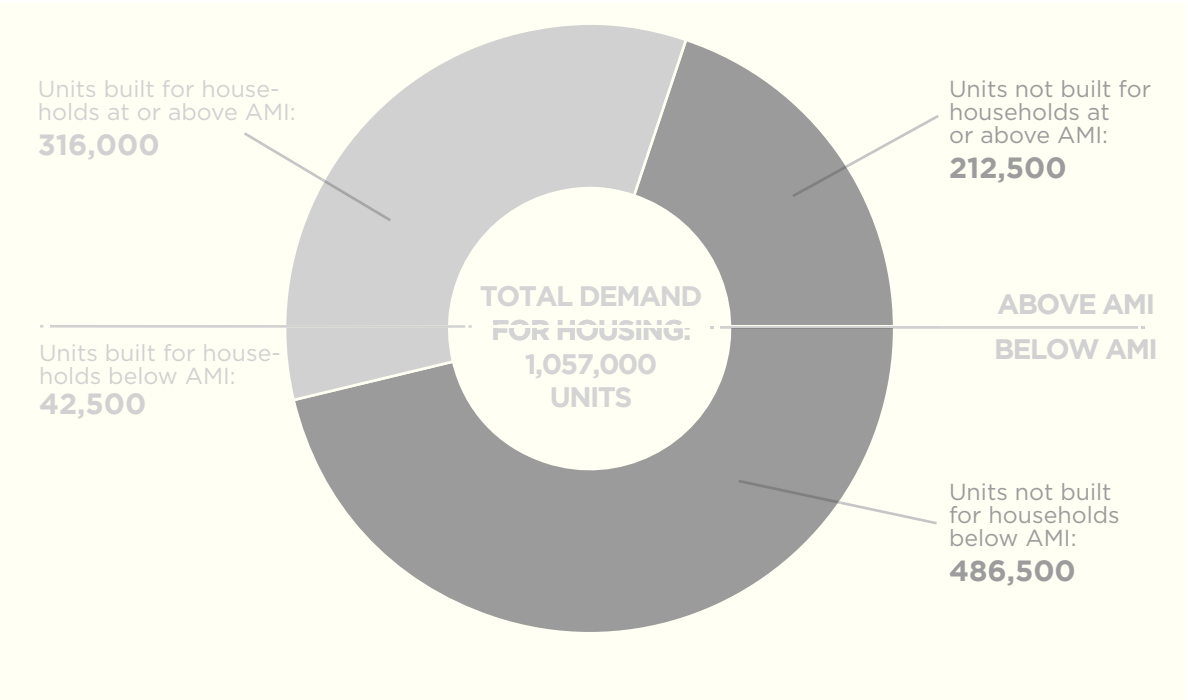
How much housing should the Bay Area have built?

Escalating housing unaffordability has been a contributing factor to massive income distribution changes since 1999, increasing the number of evictions, displacing historic residents of Bay Area communities and threatening the health and growth of the region. How much housing would the Bay Area have needed to build over the last 20 years to prevent income inequality from getting worse? Working with the Concord Group, SPUR sought to answer this question.

We found that the Bay Area saw the construction of 358,500 total housing units over a time period where typical long-term regional growth patterns would have called for a little over 1 million units. This created a shortfall of 699,000 housing units. The market largely served those able to pay the most for housing. Roughly 316,000 of the newly built units were rented or sold to those with higher incomes and/or higher levels of wealth, who were able to absorb the rapidly rising housing costs. At the same time, affordable housing developers built roughly 42,500 units of permanently affordable subsidized housing — not nearly enough to satisfy the demand for housing at the lowest end of the price spectrum. The missing 699,000 units fall into two categories: 486,500 units of housing needed for those below the median income and 212,500 units of housing needed for those above the median income, meaning that the demand for affordable and middle-income housing went largely unmet.

FIGURE 7
Historical Housing Shortfall
Bay Area Housing Demand, 2000–2018

How much housing would the Bay Area have needed to build over the last 20 years to prevent income inequality from getting worse? Analysis by SPUR and the Concord Group shows a shortfall of 699,000 housing units, most of them for households below the area median income (AMI).



Data visualization by Justin Fung. Source: See appendix for sources and methodology.

What was the impact of this failure to produce enough housing? Where did all of those people go? As SPUR has written about previously,[8] some moved to other places, some decided to stay and pay more of their income toward rent and others never showed up in the first place: Individuals who may have contemplated moving to the Bay Area decided to go elsewhere due to the region's high housing costs. Of those who have stayed, some live in overcrowded housing, doubling up with friends and family, or in units that are ill-suited to their family size. Others have not left their childhood homes, delaying adulthood. Of those who have left the Bay Area, some have moved to outer-county cities such as Sacramento in search of cheaper housing,[9] enduring lengthy super-commutes to keep their Bay Area jobs. Others have left Northern California altogether for more affordable metro areas, like Denver or Austin. Most distressing of all, many have lost all forms of housing, leading to the region's current homelessness crisis.

8 Terplan, Egon, "How Much Housing Should the Bay Area Have Built to Avoid the Current Housing Crisis?," SPUR, February 21, 2019, https://www.spur.org/news/2019-02-21/how-much-housing-should-bay-area-have-built-avoid-current-housing-crisis

9 Kneebone, Elizabeth and Issi Romem, "Disparity in Departure: Who Leaves the Bay Area and Where Do They Go?," Buildzoom and Terner Center for Housing Innovation, http://ternercenter.berkeley.edu/uploads/Disparity_in_Departure.pdf

How much housing does the Bay Area need to build for the future?

We also investigated how much and what type of housing the region should produce to keep up with future demand. More housing will be needed as the region's children grow up and create families of their own and as the economy continues to evolve, adding new workers in the decades to come. Accounting for growing demand is particularly important in stemming the flow of lower- and middle-income households from the region.

It's not possible to know how much the region's population will grow over the next 50 years, but data analysis can offer helpful projections. For this investigation, our partners at the Center for Continuing Study of the California Economy estimated a high population growth target and a low population growth target.[10] The Concord Group then modeled what those targets mean for housing demand. Using the high growth projection (one that includes more aggressive assumptions regarding levels of immigration and job growth), SPUR estimates that the Bay Area will need a minimum of 1.5 million new units between now and 2070 both to keep up with population growth and to stop the current trend of losing low- and moderate-income households as the region gains wealthier households.

If we include the existing housing shortfall — the 699,000 units the region should have built over the last 20 years but didn't — we estimate that the Bay Area needs to produce a minimum of 2.2 million units by 2070, or roughly 45,000 units per year (see Figure 9). We believe it is important to include the shortfall, as current residents of the Bay Area are already experiencing the impacts of the region's failure to deliver a sufficient amount of housing: high housing costs, overcrowding and homelessness. As we have shown, the region's inability to deliver a sufficient amount of housing at all income levels has led to a loss of lower-income households. By addressing the shortfall, the region could ameliorate some of these negative impacts.

SPUR's housing target of 2.2 million units (45,000 per year) is somewhat higher than the regional target developed by CASA (the Committee to House the Bay Area) of 35,000 units per year.[11] McKinsey estimates that California needs to produce a minimum of 3.5 million homes statewide to meet a backlog demand of 2 million homes plus a growth demand for 1.5 million homes by 2025.[12] The Bay Area's housing growth target from 2015 to 2023, set at the state level through the Regional Housing Needs Allocation (RHNA) process, shows a need for 188,000 housing units over an eight-year period, or roughly 23,500 units per year. SPUR is recommending housing growth targets that are almost double the RHNA estimates and slightly more than double the region's annual production from 2000 to 2018.

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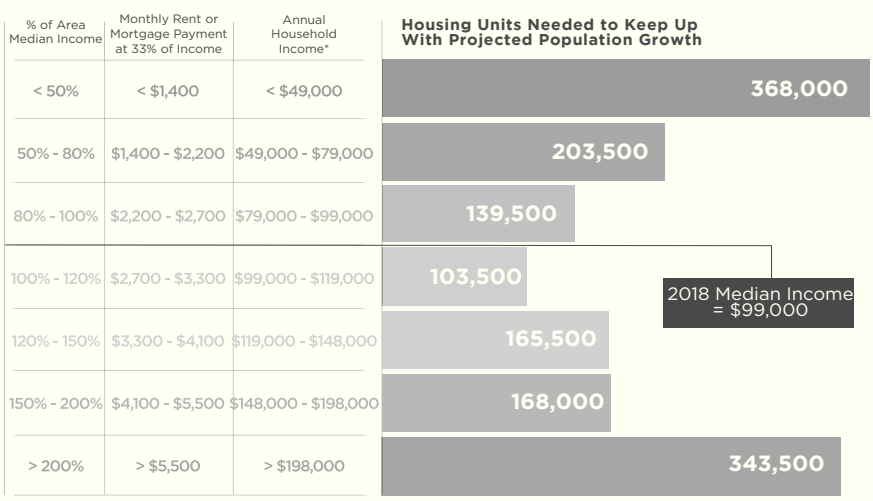
10 The Center for Continuing Study of the California Economy provided SPUR with population and job projections as detailed in its report *High and Low Projections of Jobs and Population for the Bay Area to 2070 — Projection Framework, Specific Assumptions and Results,* https://www.spur.org/sites/default/files/wysiwyg/CCSCE_High_and_Low_Projections_of_Jobs_and_Population_for_the_Bay_Area_to_2070-Projection_Framework_Assumptions_and_Results.pdf
The report included a high growth target and a low growth target based on national projections for jobs and population, as well as assumptions about immigration, growth in various economic sectors and the share of the population and job growth that the Bay Area will attract. SPUR chose to base its analysis on the high growth projection due to the following factors. First, it is unknown how rapidly the Bay Area's population will grow, but it most likely will reach both the low and the high targets eventually, if not within 50 years. Planning for the high growth target enables the region to fully meet future housing demand and plan for appropriate density. Second, if housing growth exceeds population growth targets, then housing prices might stabilize or decline for a period of time. Stabilizing prices would halt further displacement. While a period of declining prices might make existing owners worse off, it might help renters and assist many in the middle of the income distribution in buying a home for the first time. It is also easier to stop building when prices drop too quickly than it is to begin building rapidly when housing prices spike.

11 CASA, *CASA Compact: A 15-Year Emergency Policy Package to Confront the Housing Crisis in the San Francisco Bay Area,* January 2019, https://mtc.ca.gov/sites/default/files/CASA_Compact.pdf

12 McKinsey Global Institute, *A Tool Kit to Close California's Housing Gap: 3.5 Million Homes by 2025,* October 2016, https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Urbanization/Closing%20Californias%20housing%20gap/Closing-Californias-housing-gap-Full-report.ashx

FIGURE 8
How Much Housing Does the Region Need to Build?
Projected Bay Area Housing Demand at All Income Levels, 2018–2070



The Concord Group's model (see Figure 8) looks at housing demand at various income levels based on population growth and seeks to answer the question: How much housing does the Bay Area need to add at different price levels to prevent income inequality from getting worse? It assumes that those who left the Bay Area over the last 20 years aren't coming back and focuses on making things better for the people who are here now and those who might come in the future.

It's important to note that the Concord Group's modeling doesn't answer the question: How much housing is needed to drive down housing prices? This question is notoriously challenging to answer accurately due to the confluence of many factors. To take just three issues: First, developers won't build new housing unless they are able to cover the costs of construction (labor, materials, land and financing). The ability to cover these costs is often dependent on rising housing prices. If housing prices drop below the level needed to build new units, private developers will stop building new housing and prices will rise. Second, if housing prices do decrease, then the Bay Area becomes a more desirable place to live for more people, which increases demand, and that increases prices. Lastly, driving housing prices down (rather than just flattening out price increases) can have negative impacts for homeowners, who can find themselves upside down on their mortgage if what they owe is more than the value of their home.

Because it's so hard to answer the question of how much housing the region would need to build to drive prices down, we are treating the answers that come from our modeling as minimum targets, knowing that the Bay Area would need to outproduce these numbers by some factor in order to reduce housing prices over time. It will be important to develop a housing delivery system that can change based on housing prices, allowing for more rapid housing production when prices spike. This system should also take into account the locations and types of housing needed to address demand.

The Bay Area will also need to adopt new policies to help develop housing for people at different incomes. The region will still need to produce a significant amount of market-rate housing — a minimum of 343,500 units for households making more than 200% of the area median income. For those at 80% of the area median income and below, the region will need to produce a minimum of 571,500 units. And for those between 80% and 200% of the area median income, another 576,500 units will be needed.

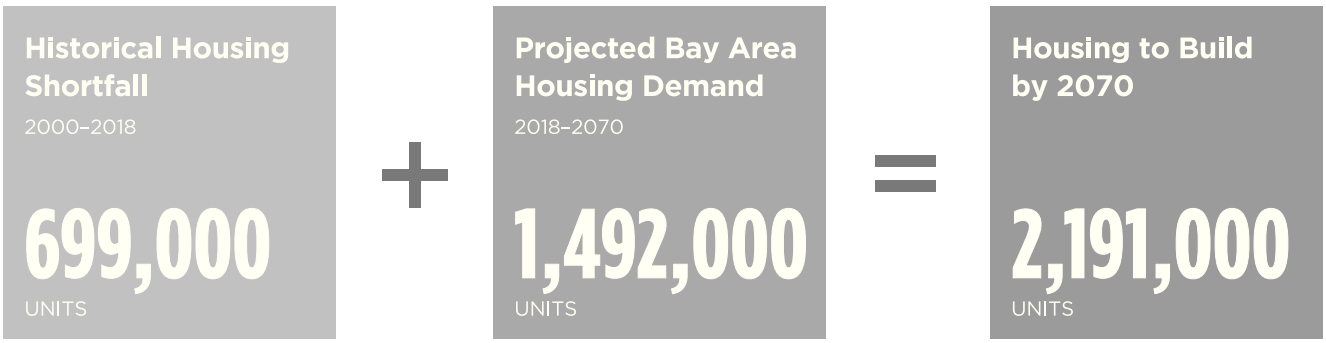
Data visualization by Justin Fung. Source: See appendix for sources and methodology.

FIGURE 9

SPUR's 2070 Housing Target

Total Bay Area Housing Demand, 2000-2070

By adding the existing housing shortfall from Figure 7 to the projected housing need in Figure 8, SPUR estimates that the Bay Area needs to produce almost 2.2 million new housing units by 2070, or about 45,000 units per year.



Source: See appendix for sources and methodology.

What will it take to get there?

SPUR is deep in the process of developing an agenda to address the Bay Area's affordable housing challenge at the scale of the problem. While housing unaffordability may seem like an impossible problem to surmount, there are steps that those of us who live and work in the Bay Area can take. We can double the amount of housing our cities build, change our taxation and governance structures to fund the housing we need and adopt policies to protect the people who live here now. But to make all of this happen requires political will. The following are SPUR's initial thoughts about what it will take to create an affordable region.

Treat housing as infrastructure.

Housing is not something that's nice to have, like a new pair of shoes or a vacation. It is critical to human beings to have a place to live, just as it is critical to have food to eat, clean water to drink and power to provide heat in the winter. When we need new water pipes to ensure regional access to clean water, government doesn't just change the zoning code to allow for the new pipes and wait for the private sector to build them. Government develops the plan for the new water pipes, the public funds their construction and the government hires private contractors to build them.

If we treated housing as infrastructure, the same way we treat roads and water delivery as infrastructure, what in our housing delivery system would change? For starters, it might not be enough to rely solely on the private market to provide enough housing. Privately financed development in the Bay Area requires the careful alignment of a variety of factors: a local jurisdiction that will permit enough housing to be built, land prices low enough for the developer to recoup the cost over time, access to sufficient private lending at a low-enough rate to finance the construction, a workforce available to build the housing — and rising housing prices to pay for all of the above. This system of financing often means that housing can only be built when housing prices are escalating. When the market is down, housing production slows to a trickle — or sometimes stops altogether.

What if we rethought some aspects of this housing delivery system in order to achieve different objectives? For example, what if we could use public financing to build housing, particularly affordable and middle-income housing, at the bottom of the market (when land is cheaper and labor is more available) rather than at the top of the market? Being able to deliver housing at the low end of the market would have the added benefit of providing construction jobs throughout the market cycle, making them more secure over time.

What if there were other ways the public sector could provide readily available, lower-cost capital to finance the creation of middle-income housing — in ways that didn't cannibalize funding for more deeply affordable housing? And what if we were able to squeeze risk out of the development process by ensuring the faster, clearer permitting of housing so that developers functioned more like contractors? If their role was more focused on building the housing rather than negotiating a complicated and risky entitlement process, could they bring housing to market at more affordable price points?

It is not impossible to devise a different housing system than the one we have today. Other countries have made it a societal priority to build enough housing for everyone.[13] We can learn from them.

13 For example, in Vienna, roughly half of the city's housing stock is highly regulated, affordable "social housing." See: Holeywell, Ryan, "Vienna Offers Affordable *and* Luxurious Housing," *Governing*, February 2013, https://www.governing.com/topics/health-human-services/gov-affordable-luxurious-housing-in-vienna.html

Make it less expensive to build housing.

Regardless of how housing is financed, one thing is clear: We need to build significantly more of it — at all price points — if we're going to get ahead of the housing crisis. The region hasn't produced 45,000 units per year since the 1980s, when roughly half of new housing came in the form of sprawl-style single-family housing development, a less expensive building type to construct. Apartments, particularly those in taller buildings, are more complicated to build, so labor costs are higher; they take longer to build, so developers need to pay land costs, such as loan payments, property taxes, insurance and security, for a longer period of time before being able to rent or sell homes; and the construction materials, such as steel or mass timber, are more expensive. In order to produce housing at the scale needed, in denser development patterns that preserve the environment, all of the cost components of housing need to be examined: land prices, financing, construction, building permits, planning and building code requirements, taxes and fees. There can be no sacred cows: We need to examine every aspect of the housing delivery system to see how we can produce enough housing at the scale needed.

Change the governance structure to support housing construction.

Our current system of governance is not up to the challenge of solving our current housing crisis. Each city is responsible for deciding how much housing will be built within its boundaries and in which neighborhoods. The ability to determine zoning at the local level is called "home rule," a power enshrined in our state governance structure. Although the state sets a goal for how much housing each region should produce, and then regional agencies provide each city with a target, there is almost no consequence for failing to meet these goals. So each city has the power to engage in zoning practices that exclude middle- and low-income residents, such as allowing single-family homes only and requiring large lot sizes and plentiful parking. The requirements squeeze out apartment buildings, townhomes, duplexes and other more affordable housing types. Home rule creates a no-win situation for local politicians who support housing. They can approve the housing that is needed and face the anger of constituents who don't want more housing in their neighborhoods, or they can oppose the housing and make the housing crisis worse. The cumulative result of each city deciding how much housing to allow within its boundaries is the current statewide housing shortage.

State government has a very important role to play in addressing the housing crisis because it can create new rules around what gets built where. Senate Bill 50, a proposed bill that would have prevented cities from blocking housing near transit and in areas with good jobs and good schools, is one example of what state legislators can do. State government can also create new sticks and carrots to discourage or encourage certain behaviors. It can diminish local control for jurisdictions that don't help to address the housing crisis and offer new funding for jurisdictions that work to build the housing needed. It can also reform existing laws, like the California Environmental Quality Act, that make it harder to build housing in already-developed areas.

Regional institutions likewise can play an increased role. The newly created Bay Area Housing Finance Authority has certain powers to help create funding for affordable housing. Such an agency could eventually have other powers, including the power to land-bank parcels for future housing development and assemble land for housing construction.

Ensure that low-income people can stay in their current homes while new housing is being built.

If we are really to solve the housing crisis, we need to find ways to enable low-income Bay Area residents to remain in their homes. Roughly 282,000 low-income families in the Bay Area live in housing that is affordable to them but is currently at risk of cost escalation because those units are not subsidized or price-restricted.[14] And of course, many more housing units are occupied by low-income households at unaffordable rents, causing overcrowding and financial strain. As rents continue to rise, vulnerable families are displaced from the Bay Area.

Recent research has brought to light more information about the patterns and ramifications of displacement.[15] Long-standing theories that new housing development causes gentrification and displacement are giving way to a more nuanced understanding of this complicated dynamic. In most cases, new market-rate housing follows, rather than causes, gentrification. Developers seek to purchase land and build new units when and where prices are already on the upswing — that's when the odds are good that they can recoup their costs through higher rents or sale prices. In neighborhoods already experiencing gentrification, the development of new market-rate housing can speed up the process by further signaling that a neighborhood is a desirable place for investment. Once those new buildings are built and occupied, gentrification can intensify, adding to displacement pressures.

How do we address displacement? The solution to this problem is not to stop building market-rate housing. Without a sufficient amount of market-rate housing, high-income workers will continue to outcompete everyone else and shift housing prices for the entire region. Building more housing for market-rate buyers can reduce their impact on the housing market as a whole and help limit rapid increases in price.

But building more housing is only part of the solution. We also need to find ways to combat displacement by enabling low-income residents of the Bay Area to remain in their homes.

Finding ways to strengthen community ownership of land, taking existing housing out of the speculative market and making it permanently affordable, and developing other tools to stabilize neighborhoods are of critical importance in addressing the housing crisis. Helping low- and moderate-income families find a path to homeownership (without being swept up in the next foreclosure crisis) is another way to engage the problem. Thoughtful interventions that protect renters, like California's recent anti-price-gouging law,[16] are also needed.

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14 Analysis completed by the California Housing Partnership and Enterprise Community Partners. This number represents an estimate of the total number of unrestricted units offered at rents affordable to low-income (< 80% Area Median Income [AMI)]) households *and* occupied by either an extremely low-income (< 30% AMI), very low-income (< 50% AMI) or low-income (< 80% AMI) household. While this number accounts for most deed-restricted affordable housing, due to data limitations the methodology does not incorporate public housing or locally restricted housing, such as units made affordable through inclusionary zoning. It also excludes housing occupied by tenants using a Housing Choice Voucher, since the units themselves are technically still subject to changes in the market and landlord participation is voluntary.

15 The Urban Displacement Project at UC Berkeley has developed substantial tools to understand displacement pressures in the Bay Area. See: https://www.urbandisplacement.org/

16 Chandler, Jenna, "Here's How California's Rent Control Law Works," *Curbed,* January 6, 2020, https://la.curbed.com/2019/9/24/20868937/california-rent-control-law-bill

Add significant new resources for affordable housing and find ways to build a lot more of it.

Stabilizing existing housing for low-income people and building the amount of affordable housing the Bay Area needs over the next 50 years will require a significant realignment of resources. It is important to note that the past 50 years of housing policy have predominately benefited one segment of the population: property owners, in particular white homeowners, who were not harmed by historic redlining policies. These laws systematically denied communities of color low-cost mortgages and other resources needed to build wealth. As a result of these disparities, white families have greater homeownership rates and have been able to transfer far more wealth over generations than families of color.[17] The largest housing program in the country has been the mortgage interest income tax deduction, which benefits only those homeowners with enough income to qualify for a deduction. In 2017, the cost of this program was $71 billion. While the Trump tax plan of 2017 has reduced the value of the mortgage interest income tax deduction to an estimated $41 billion,[18] none of the cost savings was redistributed to affordable housing programs.

California needs to consider significant new ways to fund affordable housing. It's time to reexamine Proposition 13, the 1978 law that caps property tax increases for both businesses and homeowners. Prop. 13 limits the taxable value of property to its last sale price, even if that sale was decades ago. This has dramatically curbed the amount of funding available for all public goods in California, including affordable housing. We need to find ways as a society to pay for affordable housing, not just through fees on new housing construction or large bond issues that require passage every few years, but through ongoing, stable, large-scale programs that are sized to address the need.

Affordable housing faces the same problems as market-rate housing. Construction costs are the same no matter if the housing is for low-income or high-income residents. The entitlements process is uncertain, as affordable housing must win approvals in jurisdictions that may not want housing for low-income families. And affordable housing often faces even more scrutiny than market-rate housing during the permitting process. There is also significant uncertainty in financing, as affordable housing developers must pull together a dizzying array of funding sources in order to make projects financially viable. This process has led to skyrocketing development costs. We need to find ways to reduce cost and risk in the affordable housing development process so we can build more housing more quickly at a reasonable cost.

Build housing for the "missing middle."

SPUR's research has found that the private real estate market addresses the needs of the highest-income households. These households outcompete and set prices for everyone else due to the limited supply of housing. And while the prices they pay are at record highs, households in this category are not in fact paying a higher percentage of their income now than they have historically. At the same time, affordable housing developers, subsidized by public funding, have made a valiant effort to build permanently affordable housing for the region's

17 Traub, Amy et al., *The Racial Wealth Gap: Why Policy Matters,* Demos, June 21, 2016, https://www.demos.org/research/racial-wealth-gap-why-policy-matters

18 Tax Policy Center, "Key Elements of the U.S. Tax System," *The Tax Policy Center's Briefing Book,* https://www.taxpolicycenter.org/briefing-book/what-are-tax-benefits-homeownership

lowest-income households. But there is a significant part of the population that is not served by either the existing market or subsidized affordable housing programs: the "missing middle."

As mentioned above, SPUR estimates that over the next 50 years, in order to accommodate future growth, the Bay Area will need to build 576,500 units that are affordable to people making between 80% and 200% of the area median income. One part of the solution is to allow enough market-rate housing to be built to lower prices enough that eventually a larger percentage of middle-income people can participate in the housing market. But another part of the solution involves developing new programs and interventions that can reach middle-income households. Secondary units, smaller units that come without a parking space, mixed-income housing that uses the proceeds from market-rate units to subsidize middle-income units, and co-housing (where households collectively finance housing and some common spaces are shared)[19] all need to be examined as tools to address this portion of the market.

Change the cultural assumptions about housing.

Lastly and perhaps most importantly, we need to change the way we think about housing. The American Dream has always involved land ownership, from the Jeffersonian agrarian ideal[20] to the cultural elevation of the single-family home and the white picket fence. Yet other countries and cultures do not place homeownership on such a pedestal. Part of the cultural value of homeownership has to do with the role it plays in the United States as a primary mechanism of wealth generation and wealth transfer from one generation to the next. Another part has to do with our country's extraordinary lack of a social safety net relative to other developed countries. One's ability to retire and enjoy old age often hinges on property ownership. But the American conception of property rights has deeply negative consequences for renters. Unlike homeowners, most renters can't rely on being able to stay in their homes for the long term and aren't guaranteed stable housing costs.

If we are going to change our housing system in any meaningful way, we need to change our collective dream. What if we dreamed of a future where all families could afford housing and go to great schools? Where no one had to live in fear that the next illness or change of job could result in losing their home? Where commutes were short and pleasant and it was easy to get around by train, bus, biking or walking? What if there were ways to build assets for future generations that didn't involve owning a home? What if asset building were not a matter of life and death because our society took care of its people? What if homelessness were not tolerated and we found a way to house our most vulnerable populations?

Dreaming a new dream is the prerequisite for a better future. It's time for us to rise to the challenge.

19 Wang, Kristy and Benjamin Grant, "Could Germany's Co-Developed Urban Housing Be a Model for the Bay Area?," SPUR, September 21, 2017, https://www.spur.org/news/2017-09-21/could-germany-s-co-developed-urban-housing-be-model-bay-area

20 "Jeffersonian Ideology," *U.S. History Online Textbook,* http://www.ushistory.org/us/20b.asp

Appendix

Methodology to Determine "A Historical Housing Shortfall" (Figure 7) and "How Much Housing Does the Region Need to Build?" (Figure 8)

Figures 7 and 8 in this paper, "A Historical Housing Shortfall" and "How Much Housing Does the Region Need to Build?" were developed by The Concord Group (TCG) to illustrate demand for housing at each whole dollar of income and monthly housing cost, which means that the model reflects true demand for each individual income. For the model, TCG used data from Claritas's Spotlight, a syndicated data source that provides yearly demographic data for the United States. This model specifically used the household income distribution from the year 2018. Spotlight, like the U.S. Census, presents its household income distribution in ranges ($25,000 to $50,000, $50,000 to $75,000, etc.). In total, there are 10 delineated income ranges.

TCG made a set of assumptions that informed the model. First, that "housing affordability" would be defined as a household spending no more than 33% of its income on housing costs and that every household would demand housing at that percentage of their yearly income. TCG then quantified the units demanded at each household income range based on each household in that income range spending 33% of its income on housing. For example, households making under $49,000, or under 50% of the area median income, would have a maximum affordable housing cost of $1,400 per month. The equation to reach this figure is (Annual Income x Housing Burden [33%]) / 12 (months in a year).

Second, TCG assumed that households in the nine-county Bay Area would grow at a rate determined by the Center for the Continuing Study of the California Economy (CCSCE). CCSCE used two different growth scenarios: a high growth potential and a low growth potential for the nine-county Bay Area. The maximum growth scenario projected 1% growth through 2040, 1% growth from 2040 to 2050, 0.5% growth from 2050 to 2060, and 0.5% growth from 2060 to 2070. In total, the maximum growth scenario projected a need for roughly 1,492,000 units of housing in the nine-county Bay Area from 2018 to 2070. The low growth scenario projected 0.6% growth through 2040, 0.4% growth from 2040 to 2050, 0.3% growth from 2050 to 2060, and 0.3% growth from 2060 to 2070. In total, the low growth scenario projected a need for roughly 748,000 units of housing in the nine-county Bay Area from 2018 to 2070.

Third, TCG assumed that the 2018 income distribution would remain constant. While TCG and SPUR do not expect income distribution to remain constant over the next 50 years due to a variety of factors, including wage growth, inflation, employment trends and other major economic events, TCG and SPUR wanted to look at the equitable housing needs independent of those factors and give a broad understanding, in today's dollars, of how much new housing would be needed at which income levels to ensure that housing would be at least as affordable as it is today.

Additional Methodology to Determine "A Historical Housing Shortfall" (Figure 7)

TGC developed a second model to quantify the total housing need for the nine-county Bay Area from 2000 to 2018 as a way to identify the unmet housing needs. In this model, TCG used a household annual growth rate of 2% (the average employment growth per year during this period for the nine-county Bay Area) to reflect what growth could have been for households in this period if sufficient housing had been available. TCG also used the original income distribution of the year 2000. Overall, TCG believes that about 1,057,000 units of housing should have been built during this time period. However, only 358,000 units were built.

The blue number at the lower left represents the affordable housing built in the nine-county Bay Area from 2000 to 2018. The data for affordable units came from the Department of Housing and Urban Development's (HUD's) Low Income Housing Tax Credits Database (https://lihtc.huduser.gov/), which tracks all affordable housing projects, including all projects funded through HUD, state service, local government, for-profit or nonprofit sponsors or any housing project with an income limit. TCG has assumed that, while affordable units can affect households making up to 80% of the area median income, these units served the lowest-earning households within the nine-county Bay Area. This blue number at the lower left represents the units built that are affordable to those making under 100% of the area median income.

The blue number at the top left of the figure represents the total market-rate units built in the nine-county Bay Area from 2000 to 2018. The data for built housing was taken from HUD's building permit website (https://socds.huduser.gov/permits/), with the assumption that all units from the years of 2000 through 2018 were built and operated at an occupancy of 93%. TCG has assumed that, while market-rate units can affect households making any level of income, these units most likely served the highest-wage earners in the nine-county Bay Area. This blue number at the top left represents the units built that are affordable to those making over 100% of the area median income.

The red number at the bottom of the figure represents the units that should have been built for households below the area median income but were not built. The red number at the upper right of the figure represents the units that should have been built for households above the median income but were not built. Overall, TCG has determined that the housing shortfall for the nine-county Bay Area from 2000 to 2018 was roughly 699,000 units.

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Attachment 7

See Exhibit D

Exhibit C

The New York Times | https://nyti.ms/342L119

A Black Nurse Saved Lives. Today She May Save Art.

Once a slave, Biddy Mason went on to a life of extraordinary accomplishments. The fact that she figures in W.P.A. murals in San Francisco may save them from destruction.

By Carol Pogash

Published Aug. 11, 2020 Updated Aug. 13, 2020

SAN FRANCISCO — In June, Laura Voisin George, a graduate student, was writing a scholarly article about a series of W.P.A. frescoes at the University of California, San Francisco.

The ten panels of "History of Medicine in California," completed in 1938 by Bernard Zakheim, a Polish-born muralist, show such scenes as Native Americans offering herbs to doctors and a trapper inoculating someone with the smallpox vaccine.

Ms. Voisin George recognized a central figure in one of the vivid social realist tableaus: Biddy Mason, a Black nurse, is depicted alongside a white doctor, as they treat a malaria patient. Mason, an enslaved woman born in 1818, went on to become a midwife, a nurse, a philanthropist and a founder of the First African Methodist Episcopal Church in Los Angeles.

Ms. Voisin George, who studies history at the University of California, Santa Barbara, learned that the frescoes were about to be destroyed while she was researching. The Jewish News of Northern California reported the news. Her reaction, she said, was "What? How could this be?"

U.C.S.F. had announced plans to demolish the building to make way for a state-of-the-art research center. The university had informed Zakheim's son Nathan that if his family didn't retrieve the frescoes, which weigh as much as 2,500 pounds, they would be destroyed.

Bernard Zakheim painting the mural, housed in an auditorium at the University of California, San Francisco, in 1937. UCSF Archives and Special Collections

Until Ms. Voisin George identified Mason, neither the artist's family nor university officials knew about her presence in the frescoes. As news outlets have reported this discovery, Mason has become a star of the murals and their potential savior. An assertion by the federal government that it owns the frescoes has further complicated matters.

Adam Gottstein, the artist's grandson, said that the university's placing responsibility on the family to save the artwork "boiled my blood." It showed a "complete lack of respect and concern for historical art." Mason's presence, he said, "adds considerable pressure to U.C.S.F. to do the right thing."

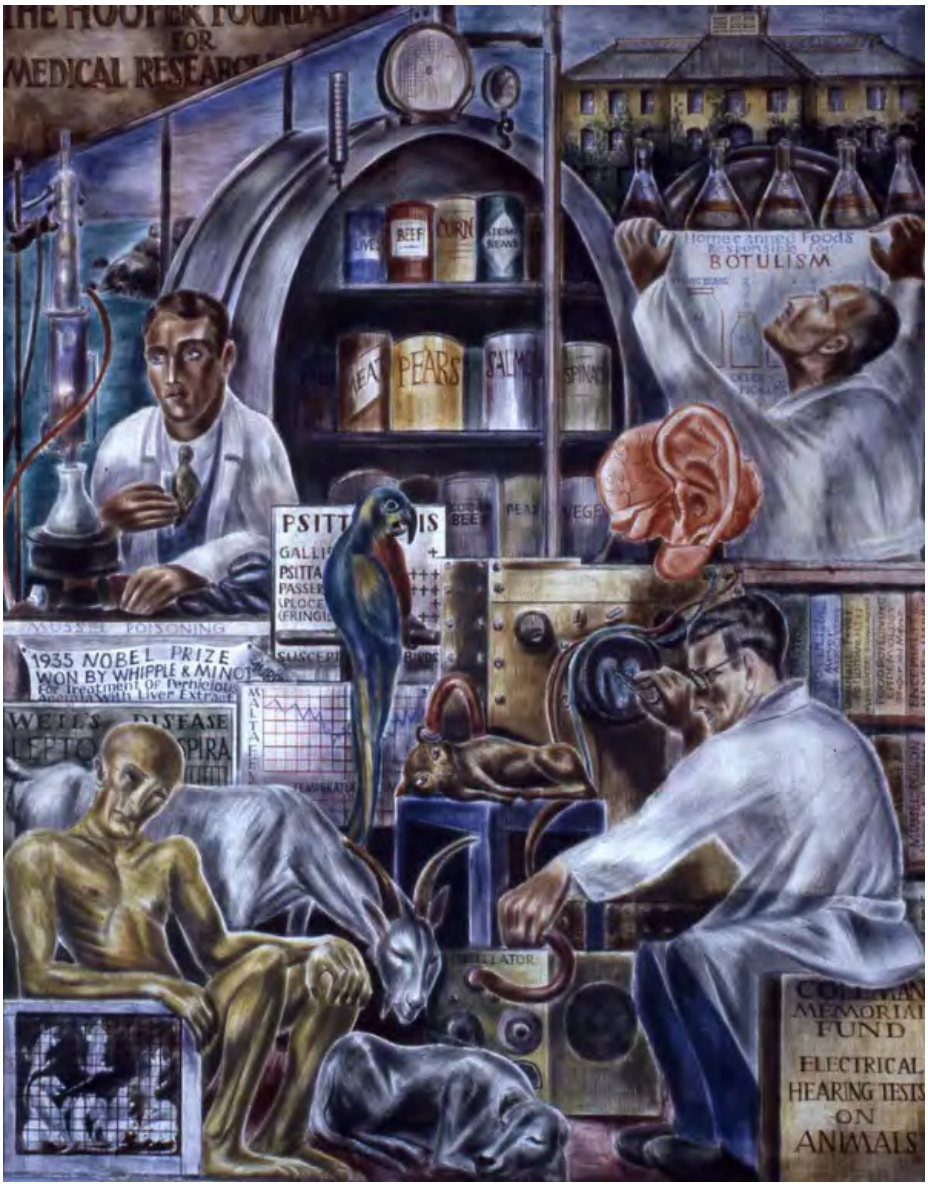
The frescoes were part of the W.P.A.'s Federal Art Project, which hired unemployed artists. Since their creation, the Zakheim murals have been praised, criticized and painted over because a professor said they distracted medical students attending lectures in the auditorium where they are on display. Because of concerns about earthquakes, that auditorium is no longer used.

In 2015, Polina Ilieva, U.C.S.F.'s archivist, wrote that the murals "remain the jewel of the university's art collection."

Zakheim was "one of the most prominent artists in Northern California with a national reputation," said Robert Cherny, a history professor retired from San Francisco State and an expert on New Deal art. "These murals are his largest work," he said. Zakheim, who also created other Depression-era murals for the project, died in 1985.

Nathan Zakheim, the artist's son, an art conservator who in 1976 restored the murals, said he was shocked when he and other heirs received a letter from U.C.S.F.'s lawyers, dated June 4, giving them 90 days to produce a plan to remove the murals. If they failed to respond, the letter said, the university would "presume" it had their consent "to proceed with destruction."

Nathan Zakheim told the university he could move the murals for less than $1 million. There was one hitch: The family lacked the funds.



The series depicts the progression of modern medicine, with this panel focusing on botulism research. UCSF Archives and Special Collections

The series has been criticized for distracting medical students over the years. Liz Hafalia/The San Francisco Chronicle, via Polaris

But the university said it would not spend public money on the move because money was tight during the pandemic. It described the murals as “fragile,” even though an analysis by Page & Turnbull, a historic preservation architecture firm the university hired, said they were “structurally sound.”

Then, on June 18, the university received a letter from the General Services Administration stating that “ownership of the murals resides with G.S.A., on behalf of the United States.” The federal agency wanted the murals to be preserved.

“We were surprised when the G.S.A. said, ‘We assert an ownership interest,’” said Brian Newman, U.C.S.F.’s vice chancellor for real estate. The university said it rejects the G.S.A.’s ownership claim.

Bernard Zakheim with his son, Nathan, in 1967. UCSF Archives and Special Collections

Putting further pressure on the university, The Los Angeles Times published an op-ed piece on July 10 that was based in part on Ms. Voisin George's research. Its headline read: "A monument to California's Black history — and a great work of art — may soon be destroyed."

Cheryl and Robynn Cox, sisters who are descendants of Biddy Mason, grew up knowing that their famous ancestor was painted on the frescoes, as had their mother and grandparents. She also was the subject of a 2015 young adult book illustrated with the mural.

Both women assumed the murals would always be available to the public, until they read the reports about plans to destroy them.

"It's interesting, if you look through the lens of race and gender, this extraordinary Black woman and former slave is bringing attention to the destruction of these murals, but no one personally reached out to us," said Robynn Cox, an assistant professor of social work at the University of Southern California.

"Across the country, everyone is talking about diversity, equity and inclusion," said Cheryl Cox, who works in philanthropy. "To take down a mural of somebody who is showing diversity, equity and inclusion is kind of hard to swallow."

The mural shows "a former slave who is on an equal footing, or maybe an even more than equal footing with white men at a time in which there was still slavery in this country," she added. "I don't know if there's anything like it."

The Cox sisters said they recently met over Zoom with U.C.S.F. officials, including a meeting on Aug. 10 attended by the chancellor, Sam Hawgood.

Last week, the school announced it was seeking bids to remove the 10 frescoes and place them in storage, at a price not to exceed $1.8 million. "We are hoping we can come up with a viable plan for the murals to preserve them," Mr. Newman, the vice chancellor, said.

The federal government response, in an email from Pamela D. Pennington, the G.S.A. press secretary, said: “Until a new location for the murals is determined, their removal, preservation and storage by U.C.S.F. is supported by G.S.A.”

But the descendants of the artist and the famous nurse want the art to be seen.

Mr. Gottstein said, “If they are in storage and never see the light of day, then we will have lost, after all.”

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OPINION

Op-Ed: A monument to California's Black history — and a great work of art — may soon be destroyed

Artist Bernard Zakheim showed African American Biddy Mason as an equal among medical authorities in a mural commissioned by UC San Francisco in the 1930s. (Chris Carlsson)

By JACKIE BROXTON AND KEVIN WAITE

JULY 10, 2020 3:18 AM

As antiracist activists topple statues of slaveholders across the country, UC San Francisco threatens to demolish a very different kind of monument: a mural depicting a celebrated former slave.

The work shows Biddy Mason, an African American midwife who rose to fortune in Los Angeles after winning her freedom in the mid-1850s. Since the Great Depression, the mural has been displayed alongside nine others in UC Hall on the university's main campus. But now the building and its artwork are slated for demolition to make way for new office, medical and research space.

In the mid-1930s, UC San Francisco commissioned the Polish-born artist Bernard Zakheim to paint a set of murals of California's medical history. Zakheim, who studied with Diego Rivera, had become regarded as one of the state's major artistic figures. Like his murals in San Francisco's Coit Tower, his UC San Francisco works are landmarks in the bold, modern style of the New Deal era. They have been hailed as "the jewel of the University's art collection."

The panel featuring Biddy Mason is perhaps the most historically significant of the 10 murals. In it, Mason tends to a malaria patient alongside Dr. John Griffin, one of Los Angeles' preeminent early medical authorities. Below, other patients await treatment from Griffin and Mason, who formed a renowned medical partnership in mid-19th century Los Angeles.

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What makes the mural unique is its composition. Mason occupies center stage. She's surrounded by a group of white men — soldiers, patients, doctors, city officials — but she's not subordinate to them. Rather, she tends to the patient directly as a medical authority in her own right. Zakheim depicts Mason as she was: a healing presence and a pillar of early Los Angeles.

Biddy Mason began her days in radically different circumstances. Born into slavery in the Georgia cotton belt in 1818, she was seemingly destined for a life of hard labor and a death in obscurity. Like other enslaved African Americans, she lacked a legal family name. She was simply Bridget, or Biddy.

In the late 1840s, Biddy began a long, strange trip — one that took her out of the South and across the continent. She went as a slave, forcibly transported by her master, along with several other Black women and children. They arrived first in Utah before moving to a small Mormon colony in San Bernardino, Calif., in 1851.

Although California was technically a free state, authorities turned a blind eye to slaveholding settlers in their midst. Several dozen slaves worked in San Bernardino alone. Only in 1856 — six years after California outlawed human bondage — did Biddy, along with 13 other African American women and children, win their freedom in a Los Angeles courtroom.

Once free, Biddy took the last name Mason and began an improbable rise through the social ranks of early Los Angeles. She used money earned as Dr. Griffin's assistant to invest in real estate, just as L.A. was beginning to boom. Although illiterate and subject to both racial and gender discrimination, Mason amassed a tremendous fortune. Some estimates place her total wealth at $300,000 (equivalent to $8.5 million today).

Mason is remembered not only for her uncanny business acumen, but also for her philanthropy. She gave liberally — of her time, money and medical expertise — to those in need around Los Angeles. She also co-founded the first African American house of worship in the city. First African Methodist Episcopal Church remains a mainstay of L.A.'s Black community to this day.

Now, a piece of Mason's legacy — the oldest known artistic representation of the famous freedwoman — faces demolition.

University spokespeople claim that UC San Francisco is unable to cover the costs of removing and preserving the murals, estimated at $8 million. If the price of saving 10 frescoes is prohibitive, one wonders where the university will find the funds for its proposed 1.5 million-square-foot expansion project. Perhaps the university could start by dipping into its nearly $4-billion endowment.

Local residents have already begun to protest the development project, set to break ground in 2023. They argue that the expansion will add thousands of workers to the Parnassus Heights campus, further straining the community's overtaxed transit systems and housing options. Critics can add the university's destruction of history to their list of grievances.

The artist's son, Nathan Zakheim, has been given three months to propose a plan to remove the murals at the family's expense. After that, the university will solicit proposals from the public to adopt the murals — again without financial support from UC San Francisco. If no one comes forward: demolition.

UC San Francisco proposes a Silicon Valley solution: a digital re-creation of the murals, which would later be featured in a virtual reality display. Through goggles, visitors would get a secondhand look at art destroyed by the university.

The timing could not be worse. During a crossroads in race relations, when Black American voices are finding new purchase, the university threatens an important piece of Black women's history.

The United States boasts vanishingly few monuments to women of color. Fewer still if the university is allowed to go forward with its ill-considered plans to bulldoze the Biddy Mason mural along with nine others. Black Lives Matter. And so does Black history.

Jackie Broxton is the executive director of the Biddy Mason Charitable Foundation,which provides services and support to L.A.'s foster youth population. Kevin Waite is an assistant professor of history at Durham University and co-director of an National Endowment for the Humanities-funded project on the life and times of Biddy Mason.

LOCAL // BAY AREA & STATE

UCSF New Deal murals could be destroyed

J.K. Dineen

June 12, 2020 | Updated: June 12, 2020 7:13 p.m.

Professor Robert Schindler talks about murals painted by artist Bernard Zakheim on the UCSF Parnassus campus in 2015.

Photo: Liz Hafalia / The Chronicle 2015

A series of celebrated New Deal-era murals on the UCSF Parnassus campus could be destroyed unless someone comes up with as much as $8 million that the school says would be needed to safely move and preserve the artwork.

In 2015, UCSF invited members of the public into a lecture hall on the campus to see what it described as the “crown jewel” of its art collection: a series of New Deal-era frescoesdepicting the history of medicine in California.

Art history buffs flocked to see the murals, which were painted in the 1930s by Diego Rivera collaborator Bernard Zakheim. Emeritus professor of medicine Dr. Robert Schindler called the murals "enormously significant."

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Five years later, however, the future of the artwork is uncertain as UCSF prepares to knock down UC Hall, where the 10 frescoes are located, as part of an ambitious plan to build a new 1.5 million-square-foot hospital and research campus there.

In a statement, UCSF spokeswoman Jennifer O'Brien said the university doesn't have the $8 million it would cost to move the artwork to a new building, and moving the "fragile murals would likely cause irreparable damage," she said.

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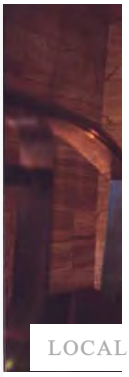

LOCAL

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"Based on these factors, UCSF has decided not to use public funds to physically preserve the murals, especially at a time when the UC system faces financial challenges in the wake of COVID-19," she said.

Instead the university will hire a digital preservation firm to "create a three-dimensional digital recording of the murals that would be prominently highlighted in an interpretive virtual reality exhibit on campus."

O’Brien said the school has reached out to Nathan Zakheim, the 76-year-old son of the artist, to see if the family would like to remove the murals “at their own expense.” The family has 90 days to submit a detailed proposal for how the murals would be removed from the building and preserved. If they do not submit a plan, UCSF will issue a public request for proposals to see if any other individual or group is interested in taking them. If no one responds to that, the murals would be destroyed.

Nathan Zakheim accused the university of “railroading” his family. Zakheim, an art conservator based in Los Angeles, said that the $8 million estimate was “grossly inflated” and that he could do it for $1 million. He suggested that UCSF should “design a square room in the new campus” specifically for the artwork or put it in the library.

“It is a magnificent, unparalleled historic document,” said Zakheim.

“It’s a key part of the university’s history and a key part of San Francisco’s history. If they don’t care about that, well, it’s ridiculous,” he added.

He also said that UCSF administrators had told him that some students and faculty members had complained about the content of the work, particularly the way that Native Americans and Spanish missionaries are depicted.

Bernard Zakheim’s work in San Francisco

Zakheim was a Polish-born San Francisco muralist, best known for his work on the Coit Tower murals. In the early 1930s, he committed himself to the preservation and interpretation of Jewish American life and culture through the making of art. He was one of the organizers of a Yiddish school in the Fillmore District, back when that neighborhood was largely Jewish. He helped found the San Francisco Artists and Writers Union, which lobbied for government arts funding. Eventually that led to the funding of Zakheim’s work in Coit Tower.

In San Francisco, Zakheim’s artwork can be found at UCSF’s Parnassus campus, the lobby of Coit Tower and the San Francisco Jewish Community Center. He also painted murals inside the former Alemany Health Center.

“The Jewish Wedding,” 1933

Jewish Community Center of San Francisco, 3200 California St.

“Library,” 1934

Coit Tower, 1 Telegraph Hill Blvd.

“Community Spirit,” “Growth,” 1934

Former Alemany Health Center building, 35-45 Onondaga Ave.

“History of Medicine in California,” “Modern Medicine,” “Ancient Medicine: Superstition in Medicine,” 1940

UCSF Parnassus Campus, 505 Parnassus Ave.

O’Brien said the subject matter of the murals had nothing to do with the decision to attempt to find a new home for them.

Robert Cherny, an emeritus professor of history at San Francisco State University, said the decision to jettison the murals surprised him, especially since the school seemed enthusiastic about the artwork in the past.

“They seem to be very proud of the murals and very much wanted to share them,” he said. “It’s a big turnaround for the UCSF administration. To me this is just somebody in the UCSF administration saying, ‘We don’t want to bother.’ It’s a very cavalier disregard for both history and art.”

In total Zakheim painted 12 murals at UCSF in 1930s: the 10-panel “History of Medicine in California” and two-panel “Modern Medicine” and “Ancient Medicine: Superstition in Medicine” in the Health Sciences West lecture halls. The latter two works are not threatened with removal.

There is precedent for rescuing Zakheim’s mural art. The Jewish Community Center of San Francisco saved a 1933 fresco, “The Jewish Wedding,” when constructing its current building, and unveiled the restored work in 2004. The Zakheim family assisted in the restoration effort.

J.K. Dineen is a San Francisco Chronicle staff writer.
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Large panel from Bernard Zakheim's "History of Medicine in California." (Photo/Courtesy UCSF Archives & Special Collections)

CULTUREART

Jewish muralist's historic work faces demolition at UCSF

BY **LAURA PAULL** I JUNE 18, 2020

How does a significant piece of public art go from being the "jewel of the University's art collection" to a work designated for the wrecking ball in just five years?

That is the question the descendants of the 20th-century Jewish artist Bernard Zakheim are asking UCSF Medical Center, which on June 4 sent a legal letter to a member of the family saying that the murals he painted in the 1930s could be destroyed to make way for construction of a new building.

The 10-panel series "History of Medicine in California," which Zakheim produced between 1935 and 1938, was commissioned by UCSF and partly funded by the Works Project Administration. Installed in Toland Hall, a lecture room inside UC Hall, the vivid images of doctors, lab scientists, suffering and recovered patients have been studied by generations of medical students — except for one 20-year period

after a particular professor objected that the art was a distraction from the lectures and the university wallpapered it over.

Since freed from that censorship, for decades the university has promoted the art as a visual symbol of its humanistic values. In 2015, as part of the institution's 150th anniversary, the public was allowed to tour the murals, and UCSF archivist Polina Ilieva wrote a blog describing them as "the jewel of the University's art collection."

Physicians on the faculty have recorded lectures elucidating the details of the murals to classes and the public, including a 1996 presentation in which Dr. Robert Schindler lauded the murals as "the product of an extraordinary individual."

But now that UC Hall is scheduled to be torn down starting in 2022 to make way for a 27,000-square-foot, state-of-the-art research and academic building — part of a multiyear, multibillion overhaul of the Parnassus campus, paid for in part by a $500 million gift from the Helen Diller Foundation — those values have come into question.

"Up until very recently my impression was that the UCSF administration understood the value of the murals as history and as art and wanted to preserve and conserve them," said Robert Cherny, professor emeritus of history at San Francisco State and author of "Victor Arnautoff and the Politics of Art" and many articles about the artists of the New Deal era, including Zakheim. "An earlier plan was to convert Toland Hall into a community center so that more of the public could see the murals. The new plan is an abrupt turnaround by the university administration."

Zakheim, a major artist of the period who immigrated from Poland to San Francisco in 1920 and studied fresco technique and painting with Mexican artist Diego Rivera, already had made a name for himself as a muralist when UCSF commissioned the work. Most notedly, he had spearheaded the 1934 Coit Tower mural project, which resulted in murals by 25 local artists depicting California life.

But of all Zakheim's output, the massive Toland Hall murals are his largest single work, Cherny said.

According to Nathan Zakheim, his father "considered those to be his greatest murals. They are extremely powerful works."

Cherny regards Bernard Zakheim as "one of the most prominent of the New Deal artists; I'd place him in a group of the top three on the Pacific Coast, with Victor Arnautoff and Lucien Labaudt, who painted the Beach Chalet mural."

Zakheim was also a Jewish artist with "a commitment to Jewish culture," Cherny said.

Leah Royall, one of Zakheim's granddaughters, remembers him as "a character" who spoke five languages in addition to his native Polish.

"In his dusty house on the Sebastopol property that he called Farm Arts, he'd stomp around singing Yiddish songs. He used to glue articles from the Jewish Bulletin [now J.] into his typewritten letters to us, and he loved talking politics. This was a man who opposed 'art for art's sake' — life and his art were informed by his left-wing political convictions," Royall told J.

In 1933, Zakheim created the mural "The Wedding Ceremony" for the JCC of San Francisco. When the old building was torn down for a new one that opened in 2004, the Zakheim family fought for the work's preservation, and the JCC ultimately agreed to remove the mural and reintegrate it into the new facility.

> Erasing artwork that is historically significant to both San Francisco and California stands in stark contrast to the university's original vision.

In its letter to Nathan Zakheim, as well as in an official statement explaining its proposal to replace UC Hall, UCSF cited the conclusions of two historic preservation firms that the removal of the murals prior to demolition would result in irreparable damage to the works.

"UCSF has decided not to use public funds to physically preserve the murals, especially at a time when the UC system faces financial challenges in the wake of Covid-19. This decision in no way has to do with any complaints about the murals," the university said in its official statement. After requesting additional comment from the administration, J. was referred back to the statement.

The UCSF letter offered the Zakheim family a 90-day period to submit a proposal to remove the murals at their own expense, after which the university said it would make a public announcement calling for other proposals to remove and take possession of the murals within an additional 120 days.

The university's estimate of the cost of removal is around $8 million.

Nathan Zakheim, 76, an art conservator based in Los Angeles, says that figure is unnecessarily high. In phone conversations with Brian Newman, UCSF's senior associate vice chancellor in charge of campus space planning, design, construction and management, the artist's elder son said he believed he could get

the job done for under $1 million. The ace up his sleeve is the fact that his father taught him how to remove the murals during the time when they worked together to remove and restore two other murals in UCSF's Cole Hall in 1967.

"These murals can be removed," Cherny concurs. "Bernard Zakheim foresaw that eventuality and planned for it, and taught Nathan the technique. That is what the UCSF administration doesn't seem to acknowledge."

Bernard Zakheim with son Nathan in 1967 discussing mural removal and restoration at UCSF. (Photo/Courtesy UCSF Archives & Special Collections)

The far-flung family of Zakheim's descendants have united in a response to the university that prioritizes the preservation of the murals.

"Ninety days is an unreasonable amount of time, and the clock is already ticking," said Zakheim grandson Adam Gottstein, 64. "I don't want to get into the politics of it; my hyperfocus is to find a resolution that will save the work from demolition."

Zakheim's daughter, 97-year-old Ruth Gottstein, a lifelong social activist and former independent publisher, dictated an irate letter from her assisted-living facility in Jackson, Amador County.

"It is egregious to me that people today assign themselves the moral right to decide what should happen to these historic and irreplaceable pieces of art. They were painted in 1935! These were the thoughts and principles of the artists at that time. To destroy them is to willfully ignore what was taking place in our world and arbitrarily erase significant portions of our history and evolution. Nobody has that kind of authority. Nobody."

She called the university's offer to commission a "three-dimensional digital recording" of the artwork in lieu of preserving the physical murals "a travesty."

Ruth Gottstein's niece, Bethany Stark, took "umbrage" at the university's a priori decision to destroy the murals unless the family took them away.

"These are works that have artistic, historical and community value," Stark said by phone from L.A. "They belong to the community, to the public and to the university. The murals are not just some antique chair that they can say, 'It doesn't work anymore, do you want it back?"

Royall, an editor in London, shared the outrage, describing the university's decision as "criminal short-sightedness."

"Erasing artwork that is historically significant to both San Francisco and California stands in stark contrast to the university's original vision," Royall said.

Ruth Gottstein also says that the history, ideas and research integrated into the murals continue to provide value for present and future generations.

"At a time of a global health care–based pandemic," she points out, "the need for the 'messaging' in my father's works in Toland Hall are ironically more applicable today than ever."

"It is my hope that we can extend the deadline in order to come up with a collaborative solution to save my grandfather's murals," Adam Gottstein wrote in his own June 15 letter to UCSF.

Arts and preservation organizations and concerned individuals around the city are rousing to the cause. On June 23, S.F. Supervisor Aaron Peskin planned to introduce a resolution to the Board of Supervisors to designate the murals as historic landmarks. The motion would have to be taken up by the Historic Preservation Commission and the Planning Department. While such a designation would not legally protect the murals, because the university is a state institution, "I wouldn't initiate this process if I didn't

believe the murals merit protection, and I hope this symbolic action helps to bring the university to its senses," Peskin told J.

Meanwhile, Nathan Zakheim says his ongoing discussions with the university have been good so far.

"I'm not approaching this as an activist," he said. "I'm a technician. I know how to take murals off walls, and that's what I want to do."

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Laura Paull

Laura Paull is J.'s Culture Editor, and was a longtime J. freelance writer before that.

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TAG ARCHIVES: TOLAND HALL

Viewing Zakheim Murals at UCSF

Posted on **March 2, 2015** by **Polina Ilieva**

As part of UCSF's 150th anniversary celebration, the university has arranged special public viewing hours for the Zakheim murals through the spring:

Friday, March 13th: 4 – 7 p.m.
Friday, April 17th: 3 – 5 p.m.
Friday, May 22nd: 3 – 5 p.m.

Location:
Toland Hall on the UCSF Campus
533 Parnassus Ave., Room U-142
San Francisco, CA
Map of UCSF Parnassus Campus and Directions (printable PDF)

Recent article in San Francisco Chronicle highlights history of the Zakheim murals at UCSF.

Do you have questions or need additional information about public viewing?
Please contact UCSF Public Affairs: 415-476-2557

Posted in **150th Anniversary**, **Collections**, **Events**, **History**, **Services** | Tagged **Bernard Zakheim**, **murals**, **Toland Hall**, **UCSF history** | **1 Reply**

Recent Acquisition: Bernard Zakheim Collection

Posted on **February 24, 2015** by **Polina Ilieva**

Ever since the Polish-born artist Bernard Zakheim painted a series of murals at UCSF in 1930s they remain the jewel of the University's Art Collection. These murals include ten panel series in Toland Hall, "History of Medicine in California," and two panels originally located in the Cole Hall and later moved to the Health Sciences West (HSW) lecture halls – "Modern Medicine" and "Ancient Medicine: Superstition in Medicine." Zakheim worked with Diego Rivera in Mexico City and is best known for contributing the Library Periodical Room fresco and helping organize the New Deal art project at the Coit Tower in San Francisco. From the time of their unveiling, the archives has been compiling reference materials about these murals and now we are delighted to report that a comprehensive set of materials documenting how these frescoes were created and preserved was donated to UCSF (Bernard Zakheim collection, MSS 2014-15).

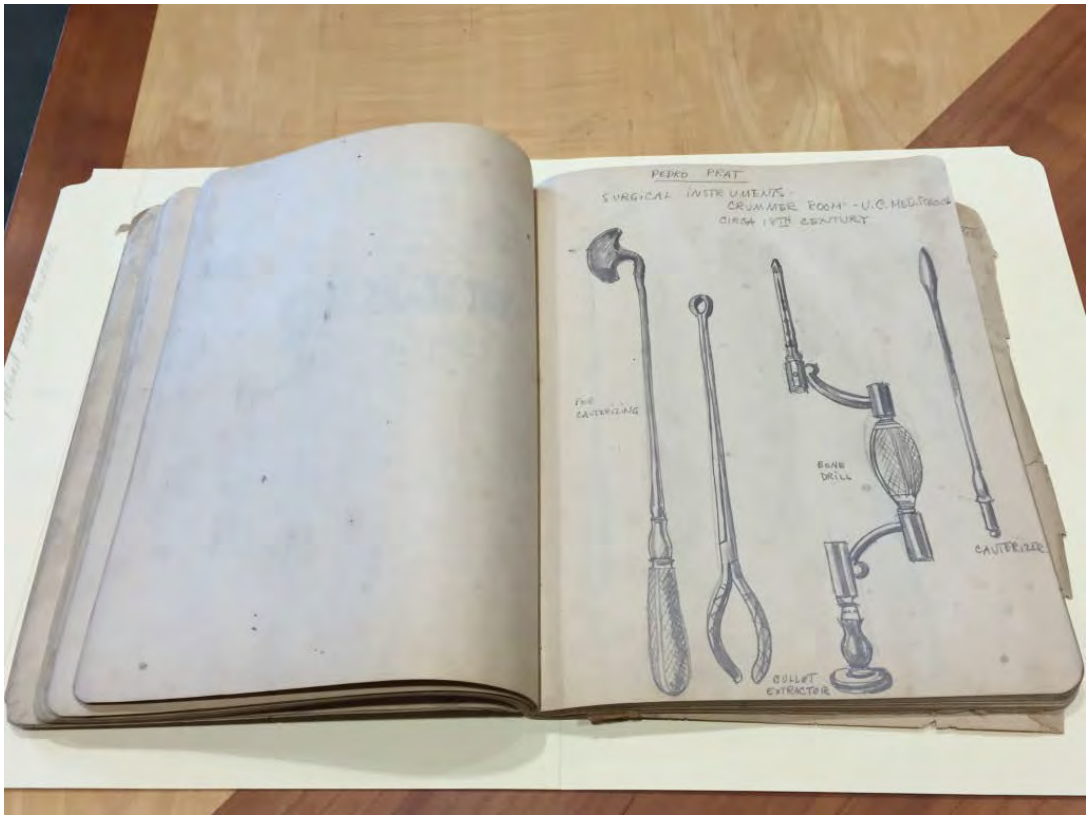
— Viewing murals at Toland Hall at UCSF, left to right: F. Stanley Durie, Superintendent of UC Hospital, Dr. William E. Carter, Phyllis Wrightson, Joseph Allen, State Director of WPA Federal Art Project, Bernard Zakehim (ca. 1939)

Last year I had the privilege to meet one of the sons of the artist who also helped restore the frescoes in 1970s when the wallpaper covering them for almost two decades was removed and the two panels were relocated from the original Cole Hall to HSW.

— Artist Bernard Zakheim with his son Nathan Zakheim (1967)

One of the biggest archives' advocates, Dr. Robert Sherins (SOM, 1963) introduced me to Nathan Zakheim. Nathan, a talented art conservator based in Los Angeles, is the keeper of his father's extensive archives and art collection. Last fall we met at his warehouse to review and pack the documents destined for UCSF.

The idea to commission murals was brought by Dr. Isabella Perry, professor of pathology after seeing the frescoes Zakheim painted at the Alemany Public Health Center and then spearheaded by Chauncey D. Leake, professor of pharmacology and medical historian. The university murals undertaking which was partially funded by the WPA Federal Art Project and also sponsored by the university was a true collaborative effort between Zakheim's team and UCSF faculty (including renowned UCSF doctors, Chauncey D. Leake, George Lyman, Langley Porter, Salvatore P. Lucia, W. E. Carter, and F. W Lynch). The artist was provided unrestricted access to the Crummer Room containing numerous books on the history of medicine, including recently published "California's Medical Story" by Dr. Henry Harris. Zakheim's assistant, Phyllis Wrightson did extensive research about California medical history which becomes apparent in the sketchbook that she kept for the project. The instruments depicted by her on these pages are still preserved at the archives' artifact collection and will be displayed as part of the 150th anniversary exhibit.



— Drawings of surgical instruments from the UCSF collection for the panel devoted to Don Pedro Prat, surgeon of the Portolá expedition.

— Surgeon Don Pedro Prat treats patient's leg, James Ohio Pattie vaccinates Californians.

One of the sketches portrays fur trader James Ohio Pattie who was captured for illegal trapping in California and earned his release from Mexican imprisonment in San Diego by using the smallpox vaccine to curtail the epidemic spreading among Californians (that story based on the Pattie's "Personal Narrative" was later proved to be inaccurate as it was measles epidemic* that occurred in Alta California at that time).

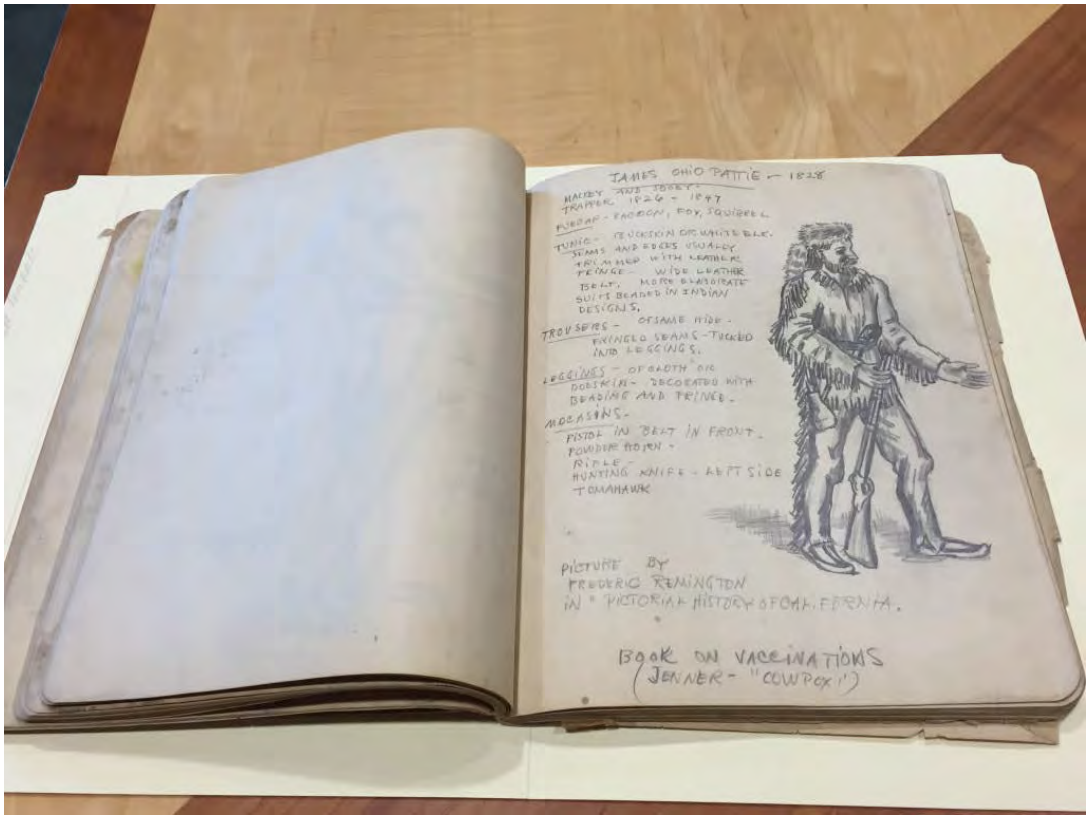
At Work on Toland Hall Mural

BERNARD ZAKHEIM.
He is at work on one of several murals for Toland Hall at the University of California Hospital. This scene depicts the famous quarrel between Dr. Edward Willis, early California physician, and "Dr." Hullings, wherein the physician shot and killed the quack and imposter. The mural is being painted under the Federal Art Project.

S. F. News - March 13-1937 p. 13

M. Adams -

— Bernard Zakheim at work, 1937



— Drawing of James Ohio Pattie.

Bernard Zakheim and his team interviewed numerous faculty members who are depicted in the panel “Rational Medicine,” including Robert Stone, professor of radiology, Francis S. Smith, pediatrician and dean of the School of Medicine, Karl F. Meyer, director of the Hooper Foundation, anesthesiologist Arthur Guedel and Isabella Perry to name just a few.

— Scaffoldings in the original Cole Hall (that was located at the School of Medicine building) set up while Bernard Zakheim was working on the panel "Rational Medicine."

We are grateful to the Zakheim family and in particular to Nathan Zakheim for donating this unique collection to the University. It will be organized and described in the next few months, selected slides and documents will be digitized and uploaded to the library website.
Are you interested in viewing the murals, but unable to visit San Francisco? Please check these two video recordings from the UCSF archives:
Dr. Robert Schindler (Chair emeritus of the UCSF Department of Otolaryngology) presents a video tour of the murals painted by Bernard Zakheim in Toland Hall at UCSF, 1996:
https://archive.org/details/cum_00001
Toland Hall murals tour by Dr. Chauncey Leake, 1976: https://archive.org/details/cum_000015

We would also like to bring to your attention a manuscript put together by Dr. Sherins chronicling the life story and work of Bernard Zakheim that can be accessed on the Alumni Association website.

* Valle, Rosemary K. "James Ohio Pattie and the 1827-1828 Alta California Measles Epidemic." California Historical Quarterly, Vol. 52, No. 1 (Spring, 1973), pp. 28-36, http://www.jstor.org/stable/25157415.

Posted in **150th Anniversary**, **Acquisitions**, **Alumni**, **Collections**, **History** | Tagged **Bernard Zakheim**, **Chauncey D. Leake**, **History of Medicine in California**, **Phyllis Wrightson**, **Toland Hall**, **WPA Federal Art Project** | **2 Replies**

Kenneth Shawn Smallwood
Curriculum Vitae

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Born May 3, 1963 in
Sacramento, California.
Married, father of two.

Ecologist

Expertise

- Finding solutions to controversial problems related to wildlife interactions with human industry, infrastructure, and activities;

- Using systems analysis and experimental design principles to identify meaningful ecological patterns that can inform management decisions.

Education

Ph.D. Ecology, University of California, Davis. September 1990.
M.S. Ecology, University of California, Davis. June 1987.
B.S. Anthropology, University of California, Davis. June 1985.
Corcoran High School, Corcoran, California. June 1981.

Experience

- 443 professional publications, including:
- 80 peer reviewed publications
- 24 in non-reviewed proceedings
- 337 reports, declarations, posters and book reviews
- 8 in mass media outlets
- 84 public presentations of research results at meetings
- Reviewed many professional papers and reports
- Testified in 4 court cases.

Editing for scientific journals: Guest Editor, *Wildlife Society Bulletin*, 2012-2013, of invited papers representing international views on the impacts of wind energy on wildlife and how to mitigate the impacts. Associate Editor, *Journal of Wildlife Management*, March 2004 to 30 June 2007. Editorial Board Member, *Environmental Management*, 10/1999 to 8/2004. Associate Editor, *Biological Conservation*, 9/1994 to 9/1995.

Member, Alameda County Scientific Review Committee (SRC), August 2006 to April 2011. The five-member committee investigated the causes of bird and bat collisions in the Altamont Pass Wind Resource Area, and recommended mitigation and monitoring measures. The SRC

reviewed the science underlying the Alameda County Avian Protection Program, and advised the County on how to reduce wildlife fatalities.

Consulting Ecologist, 2004-2007, California Energy Commission (CEC). Provided consulting services as needed to the CEC on renewable energy impacts, monitoring and research, and produced several reports. Also collaborated with Lawrence-Livermore National Lab on research to understand and reduce wind turbine impacts on wildlife.

Consulting Ecologist, 1999-2013, U.S. Navy. Performed endangered species surveys, hazardous waste site monitoring, and habitat restoration for the endangered San Joaquin kangaroo rat, California tiger salamander, California red-legged frog, California clapper rail, western burrowing owl, salt marsh harvest mouse, and other species at Naval Air Station Lemoore; Naval Weapons Station, Seal Beach, Detachment Concord; Naval Security Group Activity, Skaggs Island; National Radio Transmitter Facility, Dixon; and, Naval Outlying Landing Field Imperial Beach.

Part-time Lecturer, 1998-2005, California State University, Sacramento. Taught Contemporary Environmental Issues, Natural Resources Conservation (twice), Mammalogy, Behavioral Ecology, and Ornithology Lab.

Senior Ecologist, 1999-2005, BioResource Consultants. Designed and implemented research and monitoring studies related to avian fatalities at wind turbines, avian electrocutions on electric distribution poles across California, and avian fatalities at transmission lines.

Systems Ecologist, 1996 to present, Consulting in the Public Interest, www.cipi.com. Member of a multi-disciplinary consortium of scientists facilitating large-scale, environmental planning projects and litigation. We provide risk assessments, assessments of management practices, and expert witness testimony.

Chairman, Conservation Affairs Committee, The Wildlife Society--Western Section, 1999-2001. Prepared position statements and led efforts directed toward conservation issues, including travel to Washington, D.C. to lobby Congress for more wildlife conservation funding.

Systems Ecologist, 1995-2000, Institute for Sustainable Development. Headed ISD's program on integrated resources management. Developed indicators of ecological integrity for large areas, using remotely sensed data, local community involvement and GIS.

Associate, 1997-1998, Department of Agronomy and Range Science, University of California, Davis. Worked with Shu Geng and Mingua Zhang on several studies related to wildlife interactions with agriculture and patterns of fertilizer and pesticide residues in groundwater across a large landscape.

Lead Scientist, 1996-1999, National Endangered Species Network. Headed NESN's efforts to inform academic scientists and environmental activists about emerging issues regarding the Endangered Species Act and other environmental laws pertaining to special-status species. Also testified at public hearings on behalf of environmental groups and endangered species.

Ecologist, 1997-1998, Western Foundation of Vertebrate Zoology. Conducted field research to

determine the impact of past mercury mining on the status of California red-legged frogs in Santa Clara County, California.

Senior Systems Ecologist, 1994-1995, EIP Associates, Sacramento, California. Provided consulting services in environmental planning. Developed quantitative assessment of land units for their conservation and restoration opportunities, using the ecological resource requirements of 29 special-status species. Developed ecological indicators for prioritizing areas within Yolo County to receive mitigation funds for habitat easements and restoration.

Post-Graduate Researcher, 1990-1994, Department of Agronomy and Range Science*, U.C. Davis*. Under the mentorship of Dr. Shu Geng, studied landscape and management effects on temporal and spatial patterns of abundance among pocket gophers and species of Falconiformes and Carnivora in the Sacramento Valley. Also managed and analyzed a data base of energy use in California agriculture, and assisted with a landscape (GIS) study of groundwater contamination across Tulare County, California.

Work experience in graduate school: Co-taught Conservation Biology with Dr. Christine Schonewald, 1991 & 1993, UC Davis Graduate Group in Ecology; Reader for Dr. Richard Coss's course on Psychobiology in 1990, UC Davis Department of Psychology; Research Assistant to Dr. Walter E. Howard, 1988-1990, UC Davis Department of Wildlife and Fisheries Biology, testing durable baits for pocket gopher management in forest clearcuts; Research Assistant to Dr. Terrell P. Salmon, 1987-1988, UC Wildlife Extension, Department of Wildlife and Fisheries Biology, developing empirical models of mammal and bird invasions in North America, and a rating system for priority research and control of exotic species based on economic, environmental and human health hazards in California. Student Assistant to Dr. E. Lee Fitzhugh, 1985-1987, UC Cooperative Extension, Department of Wildlife and Fisheries Biology, developing and implementing a statewide mountain lion track count for long-term monitoring of numbers and distribution.

Fulbright Research Fellow, Indonesia, 1988. Tested use of new sampling methods for numerical monitoring of Sumatran tiger and six other species of endemic felids, and evaluated methods used by other researchers.

Projects

Repowering wind energy projects through careful siting of new wind turbines using map-based collision hazard models to minimize impacts to volant wildlife. Funded by wind companies (principally NextEra Renewable Energy, Inc.), California Energy Commission and East Bay Regional Park District, I have collaborated with a GIS analyst and managed a crew of five field biologists performing golden eagle behavior surveys and nocturnal surveys on bats and owls. The goal is to quantify flight patterns for development of predictive models to more carefully site new wind turbines in repowering projects. Focused behavior surveys began May 2012 and continue. Collision hazard models have been prepared for seven wind projects, three of which were built. Planning for additional repowering projects is underway.

Test avian safety of new mixer-ejector wind turbine (MEWT). Designed and implemented a before-after, control-impact experimental design to test the avian safety of a new, shrouded wind turbine developed by Ogin Inc. (formerly known as FloDesign Wind Turbine Corporation). Supported by a

$718,000 grant from the California Energy Commission's Public Interest Energy Research program and a 20% match share contribution from Ogin, I managed a crew of seven field biologists who performed periodic fatality searches and behavior surveys, carcass detection trials, nocturnal behavior surveys using a thermal camera, and spatial analyses with the collaboration of a GIS analyst. Field work began 1 April 2012 and ended 30 March 2015 without Ogin installing its MEWTs, but we still achieved multiple important scientific advances.

Reduce avian mortality due to wind turbines at Altamont Pass. Studied wildlife impacts caused by 5,400 wind turbines at the world's most notorious wind resource area. Studied how impacts are perceived by monitoring and how they are affected by terrain, wind patterns, food resources, range management practices, wind turbine operations, seasonal patterns, population cycles, infrastructure management such as electric distribution, animal behavior and social interactions.

Reduce avian mortality on electric distribution poles. Directed research toward reducing bird electrocutions on electric distribution poles, 2000-2007. Oversaw 5 founds of fatality searches at 10,000 poles from Orange County to Glenn County, California, and produced two large reports.

Cook *et al*. v. Rockwell International *et al*., No. 90-K-181 (D. Colorado). Provided expert testimony on the role of burrowing animals in affecting the fate of buried and surface-deposited radioactive and hazardous chemical wastes at the Rocky Flats Plant, Colorado. Provided expert reports based on four site visits and an extensive document review of burrowing animals. Conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. Discovered substantial intrusion of waste structures by burrowing animals. I testified in federal court in November 2005, and my clients were subsequently awarded a $553,000,000 judgment by a jury. After appeals the award was increased to two billion dollars.

Hanford Nuclear Reservation Litigation. Provided expert testimony on the role of burrowing animals in affecting the fate of buried radioactive wastes at the Hanford Nuclear Reservation, Washington. Provided three expert reports based on three site visits and extensive document review. Predicted and verified a certain population density of pocket gophers on buried waste structures, as well as incidence of radionuclide contamination in body tissue. Conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. Discovered substantial intrusion of waste structures by burrowing animals.

Expert testimony and declarations on proposed residential and commercial developments, gas-fired power plants, wind, solar and geothermal projects, water transfers and water transfer delivery systems, endangered species recovery plans, Habitat Conservation Plans and Natural Communities Conservation Programs. Testified before multiple government agencies, Tribunals, Boards of Supervisors and City Councils, and participated with press conferences and depositions. Prepared expert witness reports and court declarations, which are summarized under Reports (below).

Protocol-level surveys for special-status species. Used California Department of Fish and Wildlife and US Fish and Wildlife Service protocols to search for California red-legged frog, California tiger salamander, arroyo southwestern toad, blunt-nosed leopard lizard, western pond turtle, giant kangaroo rat, San Joaquin kangaroo rat, San Joaquin kit fox, western burrowing owl, Swainson's hawk, Valley elderberry longhorn beetle and other special-status species.

Conservation of San Joaquin kangaroo rat. Performed research to identify factors responsible for the

decline of this endangered species at Lemoore Naval Air Station, 2000-2013, and implemented habitat enhancements designed to reverse the trend and expand the population.

Impact of West Nile Virus on yellow-billed magpies. Funded by Sacramento-Yolo Mosquito and Vector Control District, 2005-2008, compared survey results pre- and post-West Nile Virus epidemic for multiple bird species in the Sacramento Valley, particularly on yellow-billed magpie and American crow due to susceptibility to WNV.

Workshops on HCPs. Assisted Dr. Michael Morrison with organizing and conducting a 2-day workshop on Habitat Conservation Plans, sponsored by Southern California Edison, and another 1-day workshop sponsored by PG&E. These Workshops were attended by academics, attorneys, and consultants with HCP experience. We guest-edited a Proceedings published in Environmental Management.

Mapping of biological resources along Highways 101, 46 and 41. Used GPS and GIS to delineate vegetation complexes and locations of special-status species along 26 miles of highway in San Luis Obispo County, 14 miles of highway and roadway in Monterey County, and in a large area north of Fresno, including within reclaimed gravel mining pits.

GPS mapping and monitoring at restoration sites and at Caltrans mitigation sites. Monitored the success of elderberry shrubs at one location, the success of willows at another location, and the response of wildlife to the succession of vegetation at both sites. Also used GPS to monitor the response of fossorial animals to yellow star-thistle eradication and natural grassland restoration efforts at Bear Valley in Colusa County and at the decommissioned Mather Air Force Base in Sacramento County.

Mercury effects on Red-legged Frog. Assisted Dr. Michael Morrison and US Fish and Wildlife Service in assessing the possible impacts of historical mercury mining on the federally listed California red-legged frog in Santa Clara County. Also measured habitat variables in streams.

Opposition to proposed No Surprises rule. Wrote a white paper and summary letter explaining scientific grounds for opposing the incidental take permit (ITP) rules providing ITP applicants and holders with general assurances they will be free of compliance with the Endangered Species Act once they adhere to the terms of a "properly functioning HCP." Submitted 188 signatures of scientists and environmental professionals concerned about No Surprises rule US Fish and Wildlife Service, National Marine Fisheries Service, all US Senators.

Natomas Basin Habitat Conservation Plan alternative. Designed narrow channel marsh to increase the likelihood of survival and recovery in the wild of giant garter snake, Swainson's hawk and Valley Elderberry Longhorn Beetle. The design included replication and interspersion of treatments for experimental testing of critical habitat elements. I provided a report to Northern Territories, Inc.

Assessments of agricultural production system and environmental technology transfer to China. Twice visited China and interviewed scientists, industrialists, agriculturalists, and the Directors of the Chinese Environmental Protection Agency and the Department of Agriculture to assess the need and possible pathways for environmental clean-up technologies and trade opportunities between the US and China.

Yolo County Habitat Conservation Plan. Conducted landscape ecology study of Yolo County to spatially prioritize allocation of mitigation efforts to improve ecosystem functionality within the County from the perspective of 29 special-status species of wildlife and plants. Used a hierarchically structured indicators approach to apply principles of landscape and ecosystem ecology, conservation biology, and local values in rating land units. Derived GIS maps to help guide the conservation area design, and then developed implementation strategies.

Mountain lion track count. Developed and conducted a carnivore monitoring program throughout California since 1985. Species counted include mountain lion, bobcat, black bear, coyote, red and gray fox, raccoon, striped skunk, badger, and black-tailed deer. Vegetation and land use are also monitored. Track survey transect was established on dusty, dirt roads within randomly selected quadrats.

Sumatran tiger and other felids. Upon award of Fulbright Research Fellowship, I designed and initiated track counts for seven species of wild cats in Sumatra, including Sumatran tiger, fishing cat, and golden cat. Spent four months on Sumatra and Java in 1988, and learned Bahasa Indonesia, the official Indonesian language.

Wildlife in agriculture. Beginning as post-graduate research, I studied pocket gophers and other wildlife in 40 alfalfa fields throughout the Sacramento Valley, and I surveyed for wildlife along a 200 mile road transect since 1989 with a hiatus of 1996-2004. The data are analyzed using GIS and methods from landscape ecology, and the results published and presented orally to farming groups in California and elsewhere. I also conducted the first study of wildlife in cover crops used on vineyards and orchards.

Agricultural energy use and Tulare County groundwater study. Developed and analyzed a data base of energy use in California agriculture, and collaborated on a landscape (GIS) study of groundwater contamination across Tulare County, California.

Pocket gopher damage in forest clear-cuts. Developed gopher sampling methods and tested various poison baits and baiting regimes in the largest-ever field study of pocket gopher management in forest plantations, involving 68 research plots in 55 clear-cuts among 6 National Forests in northern California.

Risk assessment of exotic species in North America. Developed empirical models of mammal and bird species invasions in North America, as well as a rating system for assigning priority research and control to exotic species in California, based on economic, environmental, and human health hazards.

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Environmental Protection Information Center
Goldberg, Kamin & Garvin, Attorneys at Law
Californians for Renewable Energy (CARE)
Seatuck Environmental Association
Friends of the Columbia Gorge, Inc.
Save Our Scenic Area
Alliance to Protect Nantucket Sound
Friends of the Swainson's Hawk
Alameda Creek Alliance
Center for Biological Diversity
California Native Plant Society
Endangered Wildlife Trust
and BirdLife South Africa
AquAlliance
Oregon Natural Desert Association
Save Our Sound
G3 Energy and Pattern Energy
Emerald Farms
Pacific Gas & Electric Co.
Southern California Edison Co.
Georgia-Pacific Timber Co.
Northern Territories Inc.
David Magney Environmental Consulting
Wildlife History Foundation
NextEra Energy Resources, LLC
FloDesign Wind Turbine
EDF Renewables
National Renewable Energy Lab
Altamont Winds LLC
Comstocks Business (magazine)
BioResource Consultants
Tierra Data
Black and Veatch
Terry Preston, Wildlife Ecology Research Center
EcoStat, Inc.
US Navy
US Department of Agriculture
US Forest Service
US Fish & Wildlife Service
US Department of Justice
California Energy Commission
California Office of the Attorney General
California Department of Fish & Wildlife
California Department of Transportation
California Department of Forestry
California Department of Food & Agriculture
Ventura County Counsel
County of Yolo
Tahoe Regional Planning Agency
Sustainable Agriculture Research & Education Program
Sacramento-Yolo Mosquito and Vector Control District
East Bay Regional Park District
County of Alameda
Don & LaNelle Silverstien
Seventh Day Adventist Church
Escuela de la Raza Unida
Susan Pelican and Howard Beeman
Residents Against Inconsistent Development, Inc.
Bob Sarvey
Mike Boyd
Hillcroft Neighborhood Fund
Joint Labor Management Committee, Retail Food Industry
Lisa Rocca
Kevin Jackson
Dawn Stover and Jay Letto
Nancy Havassy
Catherine Portman (for Brenda Cedarblade)
Ventus Environmental Solutions, Inc.
Panorama Environmental, Inc.
Adams Broadwell Professional Corporation

Representative special-status species experience

Common name	Species name	Description
Field experience		
California red-legged frog	*Rana aurora draytonii*	Protocol searches; Many detections
Foothill yellow-legged frog	*Rana boylii*	Presence surveys; Many detections
Western spadefoot	*Spea hammondii*	Presence surveys; Few detections
California tiger salamander	*Ambystoma californiense*	Protocol searches; Many detections
Coast range newt	*Taricha torosa torosa*	Searches and multiple detections
Blunt-nosed leopard lizard	*Gambelia sila*	Detected in San Luis Obispo County
California horned lizard	*Phrynosoma coronatum frontale*	Searches; Many detections
Western pond turtle	*Clemmys marmorata*	Searches; Many detections
San Joaquin kit fox	*Vulpes macrotis mutica*	Protocol searches; detections
Sumatran tiger	*Panthera tigris*	Research in Sumatra
Mountain lion	*Puma concolor californicus*	Research and publications
Point Arena mountain beaver	*Aplodontia rufa nigra*	Remote camera operation
Giant kangaroo rat	*Dipodomys ingens*	Detected in Cholame Valley
San Joaquin kangaroo rat	*Dipodomys nitratoides*	Research, conservation at NAS Lemoore
Monterey dusky-footed woodrat	*Neotoma fuscipes luciana*	Non-target captures and mapping of dens
Salt marsh harvest mouse	*Reithrodontomys raviventris*	Habitat assessment, monitoring
Salinas harvest mouse	*Reithrodontomys megalotus distichlus*	Captures; habitat assessment
California clapper rail	*Rallus longirostris*	Surveys and detections
Golden eagle	*Aquila chrysaetos*	Research in Altamont Pass
Swainson's hawk	*Buteo swainsoni*	Research in Sacramento Valley
Northern harrier	*Circus cyaeneus*	Research and publication
White-tailed kite	*Elanus leucurus*	Research and publication
Loggerhead shrike	*Lanius ludovicianus*	Research in Sacramento Valley
Least Bell's vireo	*Vireo bellii pusillus*	Detected in Monterey County
Willow flycatcher	*Empidonax traillii extimus*	Research at Sierra Nevada breeding sites
Burrowing owl	*Athene cunicularia hypugia*	Research at multiple locations
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Research and publication
Analytical		
Arroyo southwestern toad	*Bufo microscaphus californicus*	Research and report.
Giant garter snake	*Thamnophis gigas*	Research and publication
Northern goshawk	*Accipiter gentilis*	Research and publication
Northern spotted owl	*Strix occidentalis*	Research and reports
Alameda whipsnake	*Masticophis lateralis euryxanthus*	Expert testimony

Peer Reviewed Publications

Smallwood, K. S. In press. The challenges of repowering. Proceedings from the Conference on Wind Energy and Wildlife Impacts, March 2015, Berlin, Germany. Springer.

May, R., A.B. Gill, J. Köppel, R.H.W. Langston, M. Reichenbach, M. Scheidat, S. Smallwood and C.C. Voigt. In press. Future research directions. Proceedings from the Conference on Wind Energy and Wildlife Impacts, March 2015, Berlin, Germany. Springer.

Smallwood, K.S. 2016. Monitoring birds. M. Perrow, Ed., Wildlife and Wind Farms: conflicts and solutions. Pelagic Publishing. In press

Smallwood, K.S., L. Neher, and D.A. Bell. 2016. Siting to Minimize Raptor Collisions: an example from the Repowering Altamont Pass Wind Resource Area. M. Perrow, Ed., Wildlife and Wind Farms: conflicts and solutions. Pelagic Publishing. In press

Johnson, D. H., S. R. Loss, K. S. Smallwood, W. P. Erickson. 2016. Avian fatalities at wind energy facilities in North America: A comparison of recent approaches. Human–Wildlife Interactions 10(1): 7-18.

Sadar, M. J., D. S.-M. Guzman, A. Mete, J. Foley, N. Stephenson, K. H. Rogers, C. Grosset, K. S. Smallwood, J. Shipman, A. Wells, S. D. White, D. A. Bell, and M. G. Hawkins. 2015. Mange Caused by a novel Micnemidocoptes mite in a Golden Eagle (*Aquila chrysaetos*). Journal of Avian Medicine and Surgery 29(3):231-237.

Smallwood, K. S. 2015. Habitat fragmentation and corridors. Pages 84-101 in M. L. Morrison and H. A. Mathewson, Eds., Wildlife habitat conservation: concepts, challenges, and solutions. John Hopkins University Press, Baltimore, Maryland, USA.

Mete, A., N. Stephenson, K. Rogers, M. G. Hawkins, M. Sadar, D. Guzman, D. A. Bell, J. Shipman, A. Wells, K. S. Smallwood, and J. Foley. 2014. Emergence of Knemidocoptic mange in wild Golden Eagles (Aquila chrysaetos) in California. Emerging Infectious Diseases 20(10):1716-1718.

Smallwood, K. S. 2013. Introduction: Wind-energy development and wildlife conservation. Wildlife Society Bulletin 37: 3-4.

Smallwood, K. S. 2013. Comparing bird and bat fatality-rate estimates among North American wind-energy projects. Wildlife Society Bulletin 37:19-33. + Online Supplemental Material.

Smallwood, K. S., L. Neher, J. Mount, and R. C. E. Culver. 2013. Nesting Burrowing Owl Abundance in the Altamont Pass Wind Resource Area, California. Wildlife Society Bulletin: 37:787-795.

Smallwood, K. S., D. A. Bell, B. Karas, and S. A. Snyder. 2013. Response to Huso and Erickson Comments on Novel Scavenger Removal Trials. Journal of Wildlife Management 77: 216-225.

Bell, D. A., and K. S. Smallwood. 2010. Birds of prey remain at risk. Science 330:913.

Smallwood, K. S., D. A. Bell, S. A. Snyder, and J. E. DiDonato. 2010. Novel scavenger removal trials increase estimates of wind turbine-caused avian fatality rates. Journal of Wildlife Management 74: 1089-1097 + Online Supplemental Material.

Smallwood, K. S., L. Neher, and D. A. Bell. 2009. Map-based repowering and reorganization of a wind resource area to minimize burrowing owl and other bird fatalities. Energies 2009(2):915-943. http://www.mdpi.com/1996-1073/2/4/915

Smallwood, K. S. and B. Nakamoto. 2009. Impacts of West Nile Virus Epizootic on Yellow-Billed Magpie, American Crow, and other Birds in the Sacramento Valley, California. The Condor 111:247-254.

Smallwood, K. S., L. Rugge, and M. L. Morrison. 2009. Influence of Behavior on Bird Mortality in Wind Energy Developments: The Altamont Pass Wind Resource Area, California. Journal of Wildlife Management 73:1082-1098.

Smallwood, K. S. and B. Karas. 2009. Avian and Bat Fatality Rates at Old-Generation and Repowered Wind Turbines in California. Journal of Wildlife Management 73:1062-1071.

Smallwood, K. S. 2008. Wind power company compliance with mitigation plans in the Altamont Pass Wind Resource Area. Environmental & Energy Law Policy Journal 2(2):229-285.

Smallwood, K. S., C. G. Thelander. 2008. Bird Mortality in the Altamont Pass Wind Resource Area, California. Journal of Wildlife Management 72:215-223.

Smallwood, K. S. 2007. Estimating wind turbine-caused bird mortality. Journal of Wildlife Management 71:2781-2791.

Smallwood, K. S., C. G. Thelander, M. L. Morrison, and L. M. Rugge. 2007. Burrowing owl mortality in the Altamont Pass Wind Resource Area. Journal of Wildlife Management 71:1513-1524.

Cain, J. W. III, K. S. Smallwood, M. L. Morrison, and H. L. Loffland. 2005. Influence of mammal activity on nesting success of Passerines. J. Wildlife Management 70:522-531.

Smallwood, K.S. 2002. Habitat models based on numerical comparisons. Pages 83-95 *in* Predicting species occurrences: Issues of scale and accuracy, J. M. Scott, P. J. Heglund, M. Morrison, M. Raphael, J. Haufler, and B. Wall, editors. Island Press, Covello, California.

Morrison, M. L., K. S. Smallwood, and L. S. Hall. 2002. Creating habitat through plant relocation: Lessons from Valley elderberry longhorn beetle mitigation. Ecological Restoration 21: 95-100.

Zhang, M., K. S. Smallwood, and E. Anderson. 2002. Relating indicators of ecological health and integrity to assess risks to sustainable agriculture and native biota. Pages 757-768 *in* D.J. Rapport, W.L. Lasley, D.E. Rolston, N.O. Nielsen, C.O. Qualset, and A.B. Damania (eds.), Managing for Healthy Ecosystems, Lewis Publishers, Boca Raton, Florida USA.

Wilcox, B. A., K. S. Smallwood, and J. A. Kahn. 2002. Toward a forest Capital Index. Pages 285-298 *in* D.J. Rapport, W.L. Lasley, D.E. Rolston, N.O. Nielsen, C.O. Qualset, and A.B. Damania (eds.), Managing for Healthy Ecosystems, Lewis Publishers, Boca Raton, Florida USA.

Smallwood, K.S. 2001. The allometry of density within the space used by populations of Mammalian Carnivores. Canadian Journal of Zoology 79:1634-1640.

Smallwood, K.S., and T.R. Smith. 2001. Study design and interpretation of Sorex density estimates. Annales Zoologi Fennici 38:141-161.

Smallwood, K.S., A. Gonzales, T. Smith, E. West, C. Hawkins, E. Stitt, C. Keckler, C. Bailey, and K. Brown. 2001. Suggested standards for science applied to conservation issues. Transactions of the Western Section of the Wildlife Society 36:40-49.

Geng, S., Yixing Zhou, Minghua Zhang, and K. Shawn Smallwood. 2001. A Sustainable Agro-ecological Solution to Water Shortage in North China Plain (Huabei Plain). Environmental Planning and Management 44:345-355.

Smallwood, K. Shawn, Lourdes Rugge, Stacia Hoover, Michael L. Morrison, Carl Thelander. 2001. Intra- and inter-turbine string comparison of fatalities to animal burrow densities at Altamont Pass. Pages 23-37 in S. S. Schwartz, ed., Proceedings of the National Avian-Wind Power Planning Meeting IV. RESOLVE, Inc., Washington, D.C.

Smallwood, K.S., S. Geng, and M. Zhang. 2001. Comparing pocket gopher (*Thomomys bottae*) density in alfalfa stands to assess management and conservation goals in northern California. Agriculture, Ecosystems & Environment 87: 93-109.

Smallwood, K. S. 2001. Linking habitat restoration to meaningful units of animal demography. Restoration Ecology 9:253-261.

Smallwood, K.S. 2000. A crosswalk from the Endangered Species Act to the HCP Handbook and real HCPs. Environmental Management 26, Supplement 1:23-35.

Smallwood, K.S., J. Beyea and M. Morrison. 1999. Using the best scientific data for endangered species conservation. Environmental Management 24:421-435.

Smallwood, K.S. 1999. Scale domains of abundance among species of Mammalian Carnivora. Environmental Conservation 26:102-111.

Smallwood, K.S. 1999. Suggested study attributes for making useful population density estimates. Transactions of the Western Section of the Wildlife Society 35: 76-82.

Smallwood, K.S. and M.L. Morrison. 1999. Estimating burrow volume and excavation rate of pocket gophers (Geomyidae). Southwestern Naturalist 44:173-183.

Smallwood, K.S. and M.L. Morrison. 1999. Spatial scaling of pocket gopher (*Geomyidae*) density. Southwestern Naturalist 44:73-82.

Smallwood, K.S. 1999. Abating pocket gophers (*Thomomys* spp.) to regenerate forests in clearcuts. Environmental Conservation 26:59-65.

Smallwood, K.S. 1998. Patterns of black bear abundance. Transactions of the Western Section of the Wildlife Society 34:32-38.

Smallwood, K.S. 1998. On the evidence needed for listing northern goshawks (*Accipter gentilis*) under the Endangered Species Act: a reply to Kennedy. J. Raptor Research 32:323-329.

Smallwood, K.S., B. Wilcox, R. Leidy, and K. Yarris. 1998. Indicators assessment for Habitat Conservation Plan of Yolo County, California, USA. Environmental Management 22: 947-958.

Smallwood, K.S., M.L. Morrison, and J. Beyea. 1998. Animal burrowing attributes affecting hazardous waste management. Environmental Management 22: 831-847.

Smallwood, K.S, and C.M. Schonewald. 1998. Study design and interpretation for mammalian carnivore density estimates. Oecologia 113:474-491.

Zhang, M., S. Geng, and K.S. Smallwood. 1998. Nitrate contamination in groundwater of Tulare County, California. Ambio 27(3):170-174.

Smallwood, K.S. and M.L. Morrison. 1997. Animal burrowing in the waste management zone of Hanford Nuclear Reservation. Proceedings of the Western Section of the Wildlife Society Meeting 33:88-97.

Morrison, M.L., K.S. Smallwood, and J. Beyea. 1997. Monitoring the dispersal of contaminants by wildlife at nuclear weapons production and waste storage facilities. The Environmentalist 17:289-295.

Smallwood, K.S. 1997. Interpreting puma (*Puma concolor*) density estimates for theory and management. Environmental Conservation 24(3):283-289.

Smallwood, K.S. 1997. Managing vertebrates in cover crops: a first study. American Journal of Alternative Agriculture 11:155-160.

Smallwood, K.S. and S. Geng. 1997. Multi-scale influences of gophers on alfalfa yield and quality. Field Crops Research 49:159-168.

Smallwood, K.S. and C. Schonewald. 1996. Scaling population density and spatial pattern for terrestrial, mammalian carnivores. Oecologia 105:329-335.

Smallwood, K.S., G. Jones, and C. Schonewald. 1996. Spatial scaling of allometry for terrestrial, mammalian carnivores. Oecologia 107:588-594.

Van Vuren, D. and K.S. Smallwood. 1996. Ecological management of vertebrate pests in agricultural systems. Biological Agriculture and Horticulture 13:41-64.

Smallwood, K.S., B.J. Nakamoto, and S. Geng. 1996. Association analysis of raptors on an

agricultural landscape. Pages 177-190 in D.M. Bird, D.E. Varland, and J.J. Negro, eds., Raptors in human landscapes. Academic Press, London.

Erichsen, A.L., K.S. Smallwood, A.M. Commandatore, D.M. Fry, and B. Wilson. 1996. White-tailed Kite movement and nesting patterns in an agricultural landscape. Pages 166-176 in D.M. Bird, D.E. Varland, and J.J. Negro, eds., Raptors in human landscapes. Academic Press, London.

Smallwood, K.S. 1995. Scaling Swainson's hawk population density for assessing habitat-use across an agricultural landscape. J. Raptor Research 29:172-178.

Smallwood, K.S. and W.A. Erickson. 1995. Estimating gopher populations and their abatement in forest plantations. Forest Science 41:284-296.

Smallwood, K.S. and E.L. Fitzhugh. 1995. A track count for estimating mountain lion *Felis concolor californica* population trend. Biological Conservation 71:251-259

Smallwood, K.S. 1994. Site invasibility by exotic birds and mammals. Biological Conservation 69:251-259.

Smallwood, K.S. 1994. Trends in California mountain lion populations. Southwestern Naturalist 39:67-72.

Smallwood, K.S. 1993. Understanding ecological pattern and process by association and order. Acta Oecologica 14(3):443-462.

Smallwood, K.S. and E.L. Fitzhugh. 1993. A rigorous technique for identifying individual mountain lions *Felis concolor* by their tracks. Biological Conservation 65:51-59.

Smallwood, K.S. 1993. Mountain lion vocalizations and hunting behavior. The Southwestern Naturalist 38:65-67.

Smallwood, K.S. and T.P. Salmon. 1992. A rating system for potential exotic vertebrate pests. Biological Conservation 62:149-159.

Smallwood, K.S. 1990. Turbulence and the ecology of invading species. Ph.D. Thesis, University of California, Davis.

Peer-reviewed Reports

Sinclair, K. and E. DeGeorge. 2016. Framework for Testing the Effectiveness of Bat and Eagle Impact-Reduction Strategies at Wind Energy Projects. S. Smallwood, M. Schirmacher, and M. Morrison, eds., Technical Report NREL/TP-5000-65624, National Renewable Energy Laboratory, Golden, Colorado.

Smallwood, K. S. 2016. Bird and Bat Impacts and Behaviors at Old Wind Turbines at Forebay, Altamont Pass Wind Resource Area. Report CEC-500-2016-XXX, California Energy Commission Public Interest Energy Research program, Sacramento, California. In press.

Smallwood, K. S., and L. Neher. 2016. Comparing Utilization Data for Siting New Wind Power Generation. Report to California Energy Commission Public Interest Energy Research program. In Press.

Brown, K., K. S. Smallwood, J. Szewczak, and B. Karas. 2016. Final 2012-2015 Report Avian and Bat Monitoring Project Vasco Winds, LLC. Prepared for NextEra Energy Resources, Livermore, California.

Brown, K., K. S. Smallwood, J. Szewczak, and B. Karas. 2014. Final 2013-2014 Annual Report Avian and Bat Monitoring Project Vasco Winds, LLC. Prepared for NextEra Energy Resources, Livermore, California.

Brown, K., K. S. Smallwood, and B. Karas. 2013. Final 2012-2013 Annual Report Avian and Bat Monitoring Project Vasco Winds, LLC. Prepared for NextEra Energy Resources, Livermore, California. http://www.altamontsrc.org/alt_doc/p274_ventus_vasco_winds_2012_13_avian_bat_monitoring_report_year_1.pdf

Smallwood, K. S., L. Neher, D. Bell, J. DiDonato, B. Karas, S. Snyder, and S. Lopez. 2009. Range Management Practices to Reduce Wind Turbine Impacts on Burrowing Owls and Other Raptors in the Altamont Pass Wind Resource Area, California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2008-080. Sacramento, California. 183 pp. http://www.energy.ca.gov/2008publications/CEC-500-2008-080/CEC-500-2008-080.PDF

Smallwood, K. S., and L. Neher. 2009. Map-Based Repowering of the Altamont Pass Wind Resource Area Based on Burrowing Owl Burrows, Raptor Flights, and Collisions with Wind Turbines. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. CEC-500-2009-065. Sacramento, California. 63 pp. http://www.energy.ca.gov/2009publications/CEC-500-2009-065/CEC-500-2009-065.PDF

Smallwood, K. S., K. Hunting, L. Neher, L. Spiegel and M. Yee 2007. Indicating Threats to Birds Posed by New Wind Power Projects in California. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. Pending. Sacramento, California.

Smallwood, K. S. and C. Thelander. 2005. Bird mortality in the Altamont Pass Wind Resource Area, March 1998 – September 2001 Final Report. National Renewable Energy Laboratory, NREL/SR-500-36973. Golden, Colorado. 410 pp.

Smallwood, K. S. and C. Thelander. 2004. Developing methods to reduce bird mortality in the Altamont Pass Wind Resource Area. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. 500-01-019. Sacramento, California. 531 pp. http://www.energy.ca.gov/reports/500-04-052/2004-08-09_500-04-052.PDF

Thelander, C.G. S. Smallwood, and L. Rugge. 2003. Bird risk behaviors and fatalities at the Altamont Pass Wind Resource Area. Period of Performance: March 1998—December 2000. National Renewable Energy Laboratory, NREL/SR-500-33829. U.S. Department of

Commerce, National Technical Information Service, Springfield, Virginia. 86 pp.

Thelander, C.G., S. Smallwood, and L. Rugge. 2001. Bird risk behaviors and fatalities at the Altamont Wind Resource Area – a progress report. Proceedings of the American Wind Energy Association, Washington D.C. 16 pp.

Non-Peer Reviewed Publications

Smallwood, K. S. 2009. Methods manual for assessing wind farm impacts to birds. Bird Conservation Series 26, Wild Bird Society of Japan, Tokyo. T. Ura, ed., in English with Japanese translation by T. Kurosawa. 90 pp.

Smallwood, K. S. 2009. Mitigation in U.S. Wind Farms. Pages 68-76 in H. Hötker (Ed.), Birds of Prey and Wind Farms: Analysis of problems and possible solutions. Documentation of an International Workshop in Berlin, 21st and 22nd October 2008. Michael-Otto-Instiut im NABU, Goosstroot 1, 24861 Bergenhusen, Germany. http://bergenhusen.nabu.de/forschung/greifvoegel/

Smallwood, K. S. 2007. Notes and recommendations on wildlife impacts caused by Japan's wind power development. Pages 242-245 in Yukihiro Kominami, Tatsuya Ura, Koshitawa, and Tsuchiya, Editors, Wildlife and Wind Turbine Report 5. Wild Bird Society of Japan, Tokyo.

Thelander, C.G. and S. Smallwood. 2007. The Altamont Pass Wind Resource Area's Effects on Birds: A Case History. Pages 25-46 in Manuela de Lucas, Guyonne F.E. Janss, Miguel Ferrer Editors, Birds and Wind Farms: risk assessment and mitigation. Madrid: Quercus.

Neher, L. and S. Smallwood. 2005. Forecasting and minimizing avian mortality in siting wind turbines. Energy Currents. Fall Issue. ESRI, Inc., Redlands, California.

Jennifer Davidson and Shawn Smallwood. 2004. Laying plans for a hydrogen highway. Comstock's Business, August 2004:18-20, 22, 24-26.

Jennifer Davidson and Shawn Smallwood. 2004. Refined conundrum: California consumers demand more oil while opposing refinery development. Comstock's Business, November 2004:26-27, 29-30.

Smallwood, K.S. 2002. Review of "The Atlas of Endangered Species." By Richard Mackay. Environmental Conservation 30:210-211.

Smallwood, K.S. 2002. Review of "The Endangered Species Act. History, Conservation, and Public Policy." By Brian Czech And Paul B. Krausman. Environmental Conservation 29: 269-270.

Smallwood, K.S. 1997. Spatial scaling of pocket gopher (Geomyidae) burrow volume. Abstract in Proceedings of 44th Annual Meeting, Southwestern Association of Naturalists. Department of Biological Sciences, University of Arkansas, Fayetteville.

Smallwood, K.S. 1997. Estimating prairie dog and pocket gopher burrow volume. Abstract in Proceedings of 44th Annual Meeting, Southwestern Association of Naturalists. Department of

Biological Sciences, University of Arkansas, Fayetteville.

Smallwood, K.S. 1997. Animal burrowing parameters influencing toxic waste management. Abstract in Proceedings of Meeting, Western Section of the Wildlife Society.

Smallwood, K.S, and Bruce Wilcox. 1996. Study and interpretive design effects on mountain lion density estimates. Abstract, page 93 in D.W. Padley, ed., *Proceedings 5th Mountain Lion Workshop*, Southern California Chapter, The Wildlife Society. 135 pp.

Smallwood, K.S, and Bruce Wilcox. 1996. Ten years of mountain lion track survey. Page 94 in D.W. Padley, ed. Abstract, page 94 in D.W. Padley, ed., *Proceedings 5th Mountain Lion Workshop*, Southern California Chapter, The Wildlife Society. 135 pp.

Smallwood, K.S, and M. Grigione. 1997. Photographic recording of mountain lion tracks. Pages 75-75 in D.W. Padley, ed., *Proceedings 5th Mountain Lion Workshop*, Southern California Chapter, The Wildlife Society. 135 pp.

Smallwood, K.S., B. Wilcox, and J. Karr. 1995. An approach to scaling fragmentation effects. Brief 8, Ecosystem Indicators Working Group, 17 March, 1995. Institute for Sustainable Development, Thoreau Center for Sustainability – The Presidio, PO Box 29075, San Francisco, CA 94129-0075.

Wilcox, B., and K.S. Smallwood. 1995. Ecosystem indicators model overview. Brief 2, Ecosystem Indicators Working Group, 17 March, 1995. Institute for Sustainable Development, Thoreau Center for Sustainability – The Presidio, PO Box 29075, San Francisco, CA 94129-0075.

EIP Associates. 1996. Yolo County Habitat Conservation Plan. Yolo County Planning and Development Department, Woodland, California.

Geng, S., K.S. Smallwood, and M. Zhang. 1995. Sustainable agriculture and agricultural sustainability. Proc. 7th International Congress SABRAO, 2nd Industrial Symp. WSAA. Taipei, Taiwan.

Smallwood, K.S. and S. Geng. 1994. Landscape strategies for biological control and IPM. Pages 454-464 in W. Dehai, ed., Proc. International Conference on Integrated Resource Management for Sustainable Agriculture. Beijing Agricultural University, Beijing, China.

Smallwood, K.S. and S. Geng. 1993. Alfalfa as wildlife habitat. California Alfalfa Symposium 23:105-8.

Smallwood, K.S. and S. Geng. 1993. Management of pocket gophers in Sacramento Valley alfalfa. California Alfalfa Symposium 23:86-89.

Smallwood, K.S. and E.L. Fitzhugh. 1992. The use of track counts for mountain lion population census. Pages 59-67 in C. Braun, ed. Mountain lion-Human Interaction Symposium and Workshop. Colorado Division of Wildlife, Fort Collins.

Smallwood, K.S. and E.L. Fitzhugh. 1989. Differentiating mountain lion and dog tracks. Pages 58-63 in Smith, R.H., ed. Proc. Third Mountain Lion Workshop. Arizona Game and Fish Department, Phoenix.

Fitzhugh, E.L. and K.S. Smallwood. 1989. Techniques for monitoring mountain lion population levels. Pages 69-71 in Smith, R.H., ed. Proc. Third Mountain Lion Workshop. Arizona Game and Fish Department, Phoenix.

Reports to or by Alameda County Scientific Review Committee (Note: all documents linked to SRC website have since been removed by Alameda County)

Smallwood, K. S. 2014. Data Needed in Support of Repowering in the Altamont Pass WRA. http://www.altamontsrc.org/alt_doc/p284_smallwood_data_needed_in_support_of_repowering_in_the_altamont_pass_wra.pdf

Smallwood, K. S. 2013. Long-Term Trends in Fatality Rates of Birds and Bats in the Altamont Pass Wind Resource Area, California. http://www.altamontsrc.org/alt_doc/r68_smallwood_altamont_fatality_rates_longterm.pdf

Smallwood, K. S. 2013. Inter-annual Fatality rates of Target Raptor Species from 1999 through 2012 in the Altamont Pass Wind Resources Area. http://www.altamontsrc.org/alt_doc/p268_smallwood_inter_annual_comparison_of_fatality_rates_1999_2012.pdf

Smallwood, K. S. 2012. General Protocol for Performing Detection Trials in the FloDesign Study of the Safety of a Closed-bladed Wind Turbine. http://www.altamontsrc.org/alt_doc/p246_smallwood_flodesign_detection_trial_protocol.pdf

Smallwood, K. S., l. Neher, and J. Mount. 2012. Burrowing owl distribution and abundance study through two breeding seasons and intervening non-breeding period in the Altamont Pass Wind Resource Area, California. http://www.altamontsrc.org/alt_doc/p245_smallwood_et_al_burrowing_owl density_2012.pdf

Smallwood, K. S 2012. Draft study design for testing collision risk of Flodesign wind turbine in former AES Seawest wind projects in the Altamont Pass Wind Resource Area (APWRA). http://www.altamontsrc.org/alt_doc/p238_smallwood_floeesign_draft_study_design_april_2012.pdf

Smallwood, L. Neher, and J. Mount. 2012. Winter 2012 update on burrowing owl distribution and abundance study in the Altamont Pass Wind Resource Area, California. http://www.altamontsrc.org/alt_doc/p232_smallwood_et_al_winter_owl_survey_update.pdf

Smallwood, S. 2012. Status of avian utilization data collected in the Altamont Pass Wind Resource Area, 2005-2011. http://www.altamontsrc.org/alt_doc/p231_smallwood_apwra_use_data_2005_2011.pdf

Smallwood, K. S., L. Neher, and J. Mount. 2011. Monitoring Burrow Use of Wintering Burrowing Owls. http://www.altamontsrc.org/alt_doc/p229_smallwood_et_al_progress_monitoring_

burrowing_owl_burrow_use.pdf

Smallwood, K. S., L. Neher, and J. Mount. 2011. Nesting Burrowing Owl Distribution and Abundance in the Altamont Pass Wind Resource Area, California. http://www.altamontsrc.org/alt_doc/p228_smallwood_et_al_for_nextera_burrowing_owl_distribution_and_abundance_study.pdf

Smallwood, K. S. 2011. Draft Study Design for Testing Collision Risk of Flodesign Wind Turbine in Patterson Pass Wind Farm in the Altamont Pass Wind Resource Area (APWRA). http://www.altamontsrc.org/alt_doc/p100_src_document_list_with_reference_numbers.pdf

Smallwood, K. S. 2011. Sampling Burrowing Owls Across the Altamont Pass Wind Resource Area. http://www.altamontsrc.org/alt_doc/p205_smallwood_neher_progress_on_sampling_burrowing_owls_across_apwra.pdf

Smallwood, K. S. 2011. Proposal to Sample Burrowing Owls Across the Altamont Pass Wind Resource Area. http://www.altamontsrc.org/alt_doc/p198_smallwood_proposal_to_sample_burrowing_owls_across_apwra.pdf

Smallwood, K. S. 2010. Comments on APWRA Monitoring Program Update**.** http://www.altamontsrc.org/alt_doc/p191_smallwood_comments_on_apwra_monitoring_program_update.pdf

Smallwood, K. S. 2010. Inter-turbine Comparisons of Fatality Rates in the Altamont Pass Wind Resource Area. http://www.altamontsrc.org/alt_doc/p189_smallwood_report_of_apwra_fatality_rate_patterns.pdf

Smallwood, K. S. 2010. Review of the December 2010 Draft of M-21: Altamont Pass Wind Resource Area Bird Collision Study. http://www.altamontsrc.org/alt_doc/p190_smallwood_review_of_december_2010_monitoring_report.pdf

Alameda County SRC (Shawn Smallwood, Jim Estep, Sue Orloff, Joanna Burger, and Julie Yee). Comments on the Notice of Preparation for a Programmatic Environmental Impact Report on Revised CUPs for Wind Turbines in the Alameda County portion of the Altamont Pass. http://www.altamontsrc.org/alt_doc/p183_src_integrated_comments_on_nop.pdf

Smallwood, K. S. 2010. Review of Monitoring Implementation Plan. http://www.altamontsrc.org/alt_doc/p180_src_comments_on_dip.pdf

Burger, J., J. Estep, S. Orloff, S. Smallwood, and J. Yee. 2010. SRC Comments on CalWEA Research Plan. http://www.altamontsrc.org/alt_doc/p174_smallwood_review_of_calwea_removal_study_plan.pdf

Alameda County SRC (Smallwood, K. S., S. Orloff, J. Estep, J. Burger, and J. Yee). SRC Comments on Monitoring Team's Draft Study Plan for Future Monitoring. http://www.altamontsrc.org/alt_doc/p168_src_comments_on_m53_mt_draft_study_plan_for_future_monitoring.pdf

Smallwood, K. S. 2010. Second Review of American Kestrel-Burrowing owl (KB) Scavenger Removal Adjustments Reported in Alameda County Avian Monitoring Team's M21 for the Altamont Pass Wind Resource Area. http://www.altamontsrc.org/alt_doc/p171_smallwood_kb_removal_rates_follow_up.pdf

Smallwood, K. S. 2010. Assessment of Three Proposed Adaptive Management Plans for Reducing Raptor Fatalities in the Altamont Pass Wind Resource Area. http://www.altamontsrc.org/alt_doc/p161_smallwood_assessment_of_amps.pdf

Smallwood, K. S. and J. Estep. 2010. Report of Additional Wind Turbine Hazard Ratings in the Altamont Pass Wind Resource Area by Two Members of the Alameda County Scientific Review Committee. http://www.altamontsrc.org/alt_doc/p153_smallwood_estep_additional_hazard_ratings.pdf

Smallwood, K. S. 2010. Alternatives to Improve the Efficiency of the Monitoring Program. http://www.altamontsrc.org/alt_doc/p158_smallwood_response_to_memo_on_monitoring_costs.pdf

Smallwood, S. 2010. Summary of Alameda County SRC Recommendations and Concerns and Subsequent Actions. http://www.altamontsrc.org/alt_doc/p147_smallwood_summary_of_src_recommendations_and_concerns_1_11_10.pdf

Smallwood, S. 2010. Progress of Avian Wildlife Protection Program & Schedule. http://www.altamontsrc.org/alt_doc/p148_smallwood_progress_of_avian_wildlife_protection_program_1_11_10.pdf

Smallwood, S. 2010. Old-Generation Wind Turbines Rated for Raptor Collision Hazard by Alameda County Scientific Review Committee in 2010, an Update on those Rated in 2007, and an Update on Tier Rankings. http://www.altamontsrc.org/alt_doc/p155_smallwood_src_turbine_ratings_and_status.pdf

Smallwood, K. S. 2010. Review of American Kestrel-Burrowing owl (KB) Scavenger Removal Adjustments Reported in Alameda County Avian Monitoring Team's M21 for the Altamont Pass Wind Resource Area. http://www.altamontsrc.org/alt_doc/p154_smallwood_kb_removal_rates_041610.pdf

Smallwood, K. S. 2010. Fatality Rates in the Altamont Pass Wind Resource Area 1998-2009. P145_Smallwood Fatality Monitoring Results 12-31-09.

Smallwood, K. S. 2010. Comments on Revised M-21: Report on Fatality Monitoring in the Altamont Pass Wind Resource Area. P144 SRC Comments on 2009 Draft Monitoring Report M21.

Smallwood, K. S. 2009. http://www.altamontsrc.org/alt_doc/p129_smallwood_search_interval_summaries_supplemental_to_m39.pdf

Smallwood, K. S. 2009. Smallwood's review of M32. Alameda County SRC document P-111. 6 pp. http://www.altamontsrc.org/alt_doc/p111_smallwoods_review_of_m32.pdf

Smallwood, K. S. 2009. 3rd Year Review of 16 Conditional Use Permits for Windworks, Inc. and Altamont Infrastructure Company, LLC. Comment letter to East County Board of Zoning Adjustments. 10 pp + 2 attachments.

Smallwood, K. S. 2008. Weighing Remaining Workload of Alameda County SRC against Proposed Budget Cap. Alameda County SRC document not assigned. 3 pp.

Alameda County SRC (Smallwood, K. S., S. Orloff, J. Estep, J. Burger, and J. Yee). 2008. SRC Comments on August 2008 Fatality Monitoring Report, M21. Alameda County SRC document P-107. 21 pp. http://www.altamontsrc.org/alt_doc/p107_smallwood_review_of_july_2008_monitoring_report_m21.pdf

Smallwood, K. S. 2008. Burrowing Owl Carcass Distribution around Wind Turbines. Alameda County SRC document 106. 8 pp. http://www.altamontsrc.org/alt_doc/p106_smallwood_burrowing_owl_carcass_distribution_around_wind_turbines.pdf

Smallwood, K. S. 2008. Assessment of Relocation/Removal of Altamont Pass Wind Turbines Rated as Hazardous by the Alameda County SRC. Alameda County SRC document P-103. 10 pp. http://www.altamontsrc.org/alt_doc/p103_assessment_of_src_recommendations_to_relocate_rated_turbines.pdf

Smallwood, K. S. and L. Neher. 2008. Summary of wind turbine-free ridgelines within and around the APWRA. Alameda County SRC document P-102. 4 pp. http://www.altamontsrc.org/alt_doc/p102_smallwood_neher_wind_turbine_free_ridgelines.pdf

Smallwood, K. S. and B. Karas. 2008. Comparison of Mortality Estimates in the Altamont Pass Wind Resource Area when Restricted to Recent Fatalities. Alameda County SRC document P-101. 14 pp. http://www.altamontsrc.org/alt_doc/p101_smallwood_karas_mortality_restricted_to_recent.pdf

Smallwood, K. S. 2008. On the Misapplication of Mortality Adjustment Terms to Fatalities Missed During one Search and Found Later. Alameda County SRC document P-97. 3 pp. http://www.altamontsrc.org/alt_doc/p97_double_counting_of_missed_fatalities.pdf

Smallwood, K. S. 2008. Relative abundance of raptors outside the APWRA. Alameda County SRC document P-88. 6 pp. http://www.altamontsrc.org/alt_doc/p88_smallwood_relative_-abundance_of_birds_offsite.pdf

Smallwood, K. S. 2008. Comparison of mortality estimates in the Altamont Pass Wind Resource Area. Alameda County SRC document P-76. 19 pp. http://www.altamontsrc.org/alt_doc/p76_-mortality_estimates_apwra_2005_07.pdf

Alameda County SRC (Smallwood, K. S., S. Orloff, J. Estep, J. Burger, and J. Yee). 2010. Guidelines for siting wind turbines recommended for relocation to minimize potential collision-related mortality of four focal raptor species in the Altamont Pass Wind Resource Area. Alameda County SRC document P-70. P70 SRC Hazardous Turbine Relocation Guidelines

Alameda County SRC (Smallwood, K. S., S. Orloff, J. Estep, J. Burger, and J. Yee). December 11, 2007. SRC selection of dangerous wind turbines. Alameda County SRC document P-67. 8 pp. http://www.altamontsrc.org/alt_doc/p67_src_turbine_selection_12_11_07.pdf

Smallwood, S. October 6, 2007. Smallwood's Answers to Audubon's Queries about the SRC's Recommended Four Month Winter Shutdown of Wind Turbines in the Altamont Pass. Alameda County SRC document P-23. 7 pp. http://www.altamontsrc.org/alt_doc/s23_ss_answers_to_audubons_queries_on_winter_shutdown_recommendation.pdf

Smallwood, K. S. October 1, 2007. Dissenting Opinion on Recommendation to Approve of the AWI Blade Painting Study. Alameda County SRC document P-60. 4 pp. http://www.altamontsrc.org/alt_doc/p60_smallwood_dissenting_opinion_awi_blade_painting_study_10_2_07.pdf

Smallwood, K. S. July 26, 2007. Effects of Monitoring Duration and Inter-Annual Variability on Precision of Wind-Turbine Caused Mortality Estimates in the Altamont Pass Wind Resource Area, California. SRC Document P44, 16 pp. http://www.altamontsrc.org/alt_doc/p44_smallwood_effects_of_monitoring_period_and_variability_7_26_07.pdf

Smallwood, K. S. July 26, 2007. Memo: Opinion of some SRC members that the period over which post-management mortality will be estimated remains undefined. SRC Document P43, 5 pp. http://www.altamontsrc.org/alt_doc/p43_smallwood_on_monitoring_period_7_26_07.pdf

Smallwood, K. S. July 19, 2007. Smallwood's response to P24G. SRC Document P41, 4 pp. http://www.altamontsrc.org/alt_doc/p41_smallwood_response_to_p24_docs.pdf

Smallwood, K. S. April 23, 2007. New Information Regarding Alameda County SRC Decision of 11 April 2007 to Grant FPLE Credits for Removing and Relocating Wind Turbines in 2004. SRC Document P26, 12 pp. http://www.altamontsrc.org/alt_doc/p26_new_information_on_fple_credits.pdf

Alameda County SRC (Smallwood, K. S., S. Orloff, J. Estep, and J. Burger [J. Yee abstained]). April 17, 2007. SRC Statement in Support of the Monitoring Program Scope and Budget. 1pp.

Smallwood, K. S. April 15, 2007. Verification of Tier 1 & 2 Wind Turbine Shutdowns and Relocations. SRC Document P22, 5 pp. http://www.altamontsrc.org/alt_doc/p22_verification_to_tier_shutdowns_smallwood_4_15_07.pdf

Smallwood, S. April 15, 2007. Progress of Avian Wildlife Protection Program & Schedule. 4 pp.

Alameda County SRC (Smallwood, K. S., S. Orloff, J. Estep, J. Burger, and J. Yee). April 3, 2007. Alameda County Scientific Review Committee Replies to the Parties' Responses to its Queries and to Comments from the California Office of the Attorney General. SRC Document S20, http://www.altamontsrc.org/alt_doc/alt_settlement/s20_src_replies_to_parties_answers_04_03_07.pdf. 12 pp.

Smallwood, S. March 19, 2007. Estimated Effects of Full Winter Shutdown and Removal of Tier I & II Turbines. SRC Document S19, http://www.altamontsrc.org/alt_doc/alt_settlement/s19_

smallwood_estimated_effects_shutdown_and_tier_1_2_removal_3_19_07.pdf. 1 pp.

Smallwood, S. March 8, 2007. Smallwood's Replies to the Parties' Responses to Queries from the SRC and Comments from the California Office of the Attorney General. SRC Document S16, http://www.altamontsrc.org/alt_doc/alt_settlement/s16_smallwoods_replies_to_parties_response_3_9_07.pdf. 9 pp.

Smallwood, S. March 8, 2007. Estimated Effects of Proposed Measures to be Applied to 2,500 Wind Turbines in the APWRA Fatality Monitoring Plan. SRC Document S15, http://www.altamontsrc.org/alt_doc/alt_settlement/s15_smallwood_estimated_effects_proposed_measures_3_8_07.pdf. 2 pp.

Alameda County SRC (Smallwood, K. S., S. Orloff, J. Estep, J. Burger, and J. Yee). February 7, 2007. Analysis of Monitoring Program in Context of 1/1//2007 Settlement Agreement. 7 pp.

Smallwood, S. January 8, 2007. Smallwood's Concerns over the Agreement to Settle the CEQA Challenges. SRC Document S5, http://www.altamontsrc.org/alt_doc/alt_settlement/s5_smallwood_on_proposed_settlement_agreement.rtf. 5 pp.

Alameda County SRC (Smallwood, K. S., S. Orloff, J. Estep, J. Burger, and J. Yee). December 19, 2006. Altamont Scientific Review Committee (SRC) Recommendations to the County on the Avian Monitoring Team Consultants' Budget and Organization. 3 pp.

Reports to Clients

Smallwood, K. S., L. Neher, and D. A. Bell. 2016. Mitigating golden eagle impacts from repowering Altamont Pass Wind Resource Area and expanding Los Vaqueros Reservoir. Report to East Contra Costa County Habitat Conservation Plan Conservancy and Contra Costa Water District.

Smallwood, K. S. 2016. Report of Altamont Pass research as Vasco Winds mitigation. Report to NextEra Energy Resources, Inc., Office of the California Attorney General, Audubon Society, East Bay Regional Park District.

Smallwood, K. S., and L. Neher. 2016. Siting Wind Turbines to Minimize Raptor Collisions at Sand Hill Repowering Project, Altamont Pass Wind Resource Area. Report to Ogin, Inc., Waltham, Massachusetts.

Smallwood, K. S., and L. Neher. 2015a. Siting Wind Turbines to Minimize Raptor Collisions at Golden Hills Repowering Project, Altamont Pass Wind Resource Area. Report to NextEra Energy Resources, Livermore, California.

Smallwood, K. S., and L. Neher. 2015b. Siting Wind Turbines to Minimize Raptor Collisions at Golden Hills North Repowering Project, Altamont Pass Wind Resource Area. Report to NextEra Energy Resources, Livermore, California.

Smallwood, K. S., and L. Neher. 2015c. Siting Wind Turbines to Minimize Raptor Collisions at the Patterson Pass Repowering Project, Altamont Pass Wind Resource Area. Report to EDF

Renewable Energy, Oakland, California.

Smallwood, K. S., and L. Neher. 2014. Early Assessment of Wind Turbine Layout in Summit Wind Project. Report to Altamont Winds LLC, Tracy, California.

Smallwood, K. S. 2015. Review of Avian Use Survey Report for the Longboat Solar Project. Report to EDF Renewable Energy, Oakland, California.

Smallwood, K. S. 2014. Information Needed for Solar Project Impacts Assessment and Mitigation Planning. Report to Panorama Environmental, Inc., San Francisco, California.

Smallwood, K. S. 2014. Monitoring Fossorial Mammals in Vasco Caves Regional Preserve, California: Report of Progress for the period 2006-2014. Report to East Bay Regional Park District, Oakland, California.

Smallwood, K. S. 2013. First-year estimates of bird and bat fatality rates at old wind turbines, Forebay areas of Altamont Pass Wind Resource Area. Report to FloDesign in support of EIR. http://www.altamontsrc.org/alt_doc/deir/p278_smallwood_first_annual_report_of_turbine_experiment_forebay.pdf

Smallwood, K. S. and W. Pearson. 2013. Neotropical Bird Monitoring of Burrowing Owls (*Athene cunicularia*), Naval Air Station Lemoore, California. Tierra Data, Inc. report to Naval Air Station Lemoore.

Smallwood, K. S. 2013. Winter Surveys for San Joaquin kangaroo rat (*Dipodomys nitratoides*) and burrowing owls (*Athene cunicularia*) within Air Operations at Naval Air Station, Lemoore. Report to Tierra Data, Inc. and Naval Air Station Lemoore.

Smallwood, K. S. and M. L. Morrison. 2013. San Joaquin kangaroo rat (*Dipodomys n. nitratoides*) Conservation Research in Resource Management Area 5, Lemoore Naval Air Station: 2012 Progress Report (Inclusive of work during 2000-2012). Naval Facilities Engineering Command, Southwest, Desert Integrated Products Team, San Diego, California.

Smallwood, K. S. 2012. Fatality Rate Estimates at the Vantage Wind Energy Project, Year One. Unpublished report to Ventus Environmental, Portland, Oregon. 19 pp.

Smallwood, K. S. and L. Neher. 2012. Siting Wind Turbines to Minimize Raptor Collisions at North Sky River. Unpublished report to NextEra Energy Resources, LLC. 19 pp.

Smallwood, K. S. 2011. Monitoring Fossorial Mammals in Vasco Caves Regional Preserve, California: Report of Progress for the Period 2006-2011. Report to East Bay Regional Park District. 12 pp.

Smallwood, K. S. and M. L. Morrison. 2011. San Joaquin kangaroo rat (*Dipodomys n. nitratoides*) Conservation Research in Resource Management Area 5, Lemoore Naval Air Station: 2011 Progress Report (Inclusive of work during 2000-2011). Naval Facilities Engineering Command, Southwest, Desert Integrated Products Team, San Diego, California. 75 pp.

Smallwood, K. S. 2011. Draft Study Design for Testing Collision Risk of FloDesign Wind Turbine in Patterson Pass, Santa Clara, and Former AES Seawest Wind Projects in the Altamont Pass Wind Resource Area (APWRA). Report to FloDesign, Inc. 11 pp.

Smallwood, K. S. 2011. Comments on Marbled Murrelet Collision Model for the Radar Ridge Wind Resource Area. Unpublished report to EcoStat, Inc., and ultimately to US Fish and Wildlife Service. 17 pp.

Smallwood, K. S. 2011. Avian Fatality Rates at Buena Vista Wind Energy Project, 2008-2011. Report to Pattern Energy. 10 pp.

Smallwood, K. S. and L. Neher. 2011. Siting Repowered Wind Turbines to Minimize Raptor Collisions at Tres Vaqueros, Contra Costa County, California. Report to Pattern Energy. 13 pp.

Smallwood, K. S. and M. L. Morrison. 2011. San Joaquin kangaroo rat (*Dipodomys n. nitratoides*) Conservation Research in Resource Management Area 5, Lemoore Naval Air Station: 2010 Progress Report (Inclusive of work during 2000-2010). Naval Facilities Engineering Command, Southwest, Desert Integrated Products Team, San Diego, California. 68 pp.

Smallwood, K. S. 2010. Wind Energy Development and Avian Issues in the Altamont Pass, California. Report to Black & Veatch. 9 pp.

Smallwood, K. S. and L. Neher. 2010. Siting Repowered Wind Turbines to Minimize Raptor Collisions at the Tres Vaqueros Wind Project, Contra Costa County, California. Draft Report to the East Bay Regional Park District, Oakland, California. 39 pp.

Smallwood, K. S. and L. Neher. 2010. Siting Repowered Wind Turbines to Minimize Raptor Collisions at Vasco Winds. Unpublished report to NextEra Energy Resources, LLC, Livermore, California. 32 pp.

Smallwood, K. S. 2010. Baseline Avian and Bat Fatality Rates at the Tres Vaqueros Wind Project, Contra Costa County, California. Report to the East Bay Regional Park District, Oakland, California. 41 pp.

Smallwood, K. S. and M. L. Morrison. 2010. San Joaquin kangaroo rat (*Dipodomys n. nitratoides*) Conservation Research in Resource Management Area 5, Lemoore Naval Air Station: 2009 Progress Report (Inclusive of work during 2000-2009). Naval Facilities Engineering Command, Southwest, Desert Integrated Products Team, San Diego, California. 86 pp.

Smallwood, K. S. 2009. Mammal surveys at naval outlying landing field Imperial Beach, California, August 2009. Report to Tierra Data, Inc. 5 pp

Smallwood, K. S. 2009. Mammals and other Wildlife Observed at Proposed Site of Amargosa Solar Power Project, Spring 2009. Report to Tierra Data, Inc. 13 pp

Smallwood, K. S. 2009. Avian Fatality Rates at Buena Vista Wind Energy Project, 2008-2009. Report to members of the Contra Costa County Technical Advisory Committee on the Buena Vista Wind Energy Project. 8 pp.

Smallwood, K. S. 2009. Repowering the Altamont Pass Wind Resource Area more than Doubles Energy Generation While Substantially Reducing Bird Fatalities. Report prepared on behalf of Californians for Renewable Energy. 2 pp.

Smallwood, K. S. and M. L. Morrison. 2009. Surveys to Detect Salt Marsh Harvest Mouse and California Black Rail at Installation Restoration Site 30, Military Ocean Terminal Concord, California: March-April 2009. Report to Insight Environmental, Engineering, and Construction, Inc., Sacramento, California. 6 pp.

Smallwood, K. S. 2008. Avian and Bat Mortality at the Big Horn Wind Energy Project, Klickitat County, Washington. Unpublished report to Friends of Skamania County. 7 pp.

Smallwood, K. S. 2009. Monitoring Fossorial Mammals in Vasco Caves Regional Preserve, California: report of progress for the period 2006-2008. Unpublished report to East Bay Regional Park District. 5 pp.

Smallwood, K. S. and M. L. Morrison. 2008. San Joaquin kangaroo rat (*Dipodomys n. nitratoides*) Conservation Research in Resource Management Area 5, Lemoore Naval Air Station: 2008 Progress Report (Inclusive of work during 2000-2008). Naval Facilities Engineering Command, Southwest, Desert Integrated Products Team, San Diego, California. 84 pp.

Smallwood, K. S. and M. L. Morrison. 2008. Habitat Assessment for California Red-Legged Frog at Naval Weapons Station, Seal Beach, Detachment Concord, California. Naval Facilities Engineering Command, Southwest, Desert Integrated Products Team, San Diego, California. 48 pp.

Smallwood, K. S. and B. Nakamoto 2008. Impact of 2005 and 2006 West Nile Virus on Yellow-billed Magpie and American Crow in the Sacramento Valley, California. 22 pp.

Smallwood, K. S. and M. L. Morrison. 2008. Former Naval Security Group Activity (NSGA), Skaggs Island, Waste and Contaminated Soil Removal Project (IR Site #2), San Pablo Bay, Sonoma County, California: Re-Vegetation Monitoring. Report to U.S. Navy, Letter Agreement – N68711-04LT-A0045. Naval Facilities Engineering Command, Southwest, Desert Integrated Products Team, San Diego, California. 10 pp.

Smallwood, K. S. and M. L. Morrison. 2008. Burrowing owls at Dixon Naval Radio Transmitter Facility. Report to U.S. Navy. Naval Facilities Engineering Command, Southwest, Desert Integrated Products Team, San Diego, California. 28 pp.

Smallwood, K. S. and M. L. Morrison. 2008. San Joaquin kangaroo rat (*Dipodomys n. nitratoides*) Conservation Research in Resource Management Area 5, Lemoore Naval Air Station: 2007 Progress Report (Inclusive of work during 2001-2007). Naval Facilities Engineering Command, Southwest, Desert Integrated Products Team, San Diego, California. 69 pp.

Smallwood, K. S. and M. L. Morrison. 2007. A Monitoring Effort to Detect the Presence of the Federally Listed Species California Clapper Rail and Salt Marsh Harvest Mouse, and Wetland Habitat Assessment at the Naval Weapons Station, Seal Beach, Detachment Concord,

California. Installation Restoration (IR) Site 30, Final Report to U.S. Navy, Letter Agreement – N68711-05LT-A0001. U.S. Navy Integrated Product Team (IPT), West, Naval Facilities Engineering Command, San Diego, California. 8 pp.

Smallwood, K. S. and M. L. Morrison. 2007. San Joaquin kangaroo rat (*Dipodomys n. nitratoides*) Conservation Research in Resource Management Area 5, Lemoore Naval Air Station: 2006 Progress Report (Inclusive of work during 2001-2006). U.S. Navy Integrated Product Team (IPT), West, Naval Facilities Engineering Command, Southwest, Daly City, California. 165 pp.

Smallwood, K. S. and C. Thelander. 2006. Response to third review of Smallwood and Thelander (2004). Report to California Institute for Energy and Environment, University of California, Oakland, CA. 139 pp.

Smallwood, K. S. 2006. Biological effects of repowering a portion of the Altamont Pass Wind Resource Area, California: The Diablo Winds Energy Project. Report to Altamont Working Group. Available from Shawn Smallwood, puma@yolo.com . 34 pp.

Smallwood, K. S. 2006. Impact of 2005 West Nile Virus on Yellow-billed Magpie and American Crow in the Sacramento Valley, California. Report to Sacramento-Yolo Mosquito and Vector Control District, Elk Grove, CA. 38 pp.

Smallwood, K. S. and M. L. Morrison. 2006. San Joaquin kangaroo rat (*Dipodomys n. nitratoides*) Conservation Research in Resource Management Area 5, Lemoore Naval Air Station: 2005 Progress Report (Inclusive of work during 2001-2005). U.S. Navy Integrated Product Team (IPT), West, Naval Facilities Engineering Command, South West, Daly City, California. 160 pp.

Smallwood, K. S. and M. L. Morrison. 2006. A monitoring effort to detect the presence of the federally listed species California tiger salamander and California red-legged frog at the Naval Weapons Station, Seal Beach, Detachment Concord, California. Letter agreements N68711-04LT-A0042 and N68711-04LT-A0044, U.S. Navy Integrated Product Team (IPT), West, Naval Facilities Engineering Command, South West, Daly City, California. 60 pp.

Smallwood, K. S. and M. L. Morrison. 2006. A monitoring effort to detect the presence of the federally listed species California Clapper Rail and Salt Marsh Harvest Mouse, and wetland habitat assessment at the Naval Weapons Station, Seal Beach, Detachment Concord, California. Sampling for rails, Spring 2006, Installation Restoration (IR) Site 1. Letter Agreement – N68711-05lt-A0001, U.S. Navy Integrated Product Team (IPT), West, Naval Facilities Engineering Command, South West, Daly City, California. 9 pp.

Morrison, M. L. and K. S. Smallwood. 2006. Final Report: Station-wide Wildlife Survey, Naval Air Station, Lemoore. Department of the Navy Integrated Product Team (IPT) West, Naval Facilities Engineering Command Southwest, 2001 Junipero Serra Blvd., Suite 600, Daly City, CA 94014-1976. 20 pp.

Smallwood, K. S. and M. L. Morrison. 2006. Former Naval Security Group Activity (NSGA), Skaggs Island, Waste and Contaminated Soil Removal Project, San Pablo Bay, Sonoma County, California: Re-vegetation Monitoring. Department of the Navy Integrated Product Team (IPT) West, Naval Facilities Engineering Command Southwest, 2001 Junipero Serra Blvd., Suite 600,

Daly City, CA 94014-1976. 8 pp.

Dorin, Melinda, Linda Spiegel and K. Shawn Smallwood. 2005. Response to public comments on the staff report entitled *Assessment of Avian Mortality from Collisions and Electrocutions* (CEC-700-2005-015) (Avian White Paper) written in support of the 2005 Environmental Performance Report and the 2005 Integrated Energy Policy Report. California Energy Commission, Sacramento. 205 pp.

Smallwood, K. S. 2005. Estimating combined effects of selective turbine removal and winter-time shutdown of half the wind turbines. Unpublished CEC staff report, June 23. 1 p.

Erickson, W. and S. Smallwood. 2005. Avian and Bat Monitoring Plan for the Buena Vista Wind Energy Project Contra Costa County, California. Unpubl. report to Contra Costa County, Antioch, California. 22 pp.

Lamphier-Gregory, West Inc., Shawn Smallwood, Jones & Stokes Associates, Illingworth & Rodkin Inc. and Environmental Vision. 2005. Environmental Impact Report for the Buena Vista Wind Energy Project, LP# 022005. County of Contra Costa Community Development Department, Martinez, California.

Morrison, M. L. and K. S. Smallwood. 2005. A monitoring effort to detect the presence of the federally listed species California clapper rail and salt marsh harvest mouse, and wetland habitat assessment at the Naval Weapons Station, Seal Beach, Detachment Concord, California. Targeted Sampling for Salt Marsh Harvest Mouse, Fall 2005 Installation Restoration (IR) Site 30. Letter Agreement – N68711-05lt-A0001, U.S. Department of the Navy, Naval Facilities Engineering Command Southwest, Daly City, California. 6 pp.

Morrison, M. L. and K. S. Smallwood. 2005. A monitoring effort to detect the presence of the federally listed species California clapper rail and salt marsh harvest mouse, and wetland habitat assessment at the Naval Weapons Station, Seal Beach, Detachment Concord, California. Letter Agreement – N68711-05lt-A0001, U.S. Department of the Navy, Naval Facilities Engineering Command Southwest, Daly City, California. 5 pp.

Morrison, M. L. and K. S. Smallwood. 2005. Skaggs Island waste and contaminated soil removal projects, San Pablo Bay, Sonoma County, California. Report to the U.S. Department of the Navy, Naval Facilities Engineering Command Southwest, Daly City, California. 6 pp.

Smallwood, K. S. and M. L. Morrison. 2004. 2004 Progress Report: San Joaquin kangaroo rat (*Dipodomys nitratoides*) Conservation Research in Resources Management Area 5, Lemoore Naval Air Station. Progress report to U.S. Department of the Navy, Lemoore, California. 134 pp.

Smallwood, K. S. and L. Spiegel. 2005a. Assessment To Support An Adaptive Management Plan For The APWRA. Unpublished CEC staff report, January 19. 19 pp.

Smallwood, K. S. and L. Spiegel. 2005b. Partial Re-assessment of An Adaptive Management Plan For The APWRA. Unpublished CEC staff report, March 25. 48 pp.

Smallwood, K. S. and L. Spiegel. 2005c. Combining biology-based and policy-based tiers of priority for determining wind turbine relocation/shutdown to reduce bird fatalities in the APWRA. Unpublished CEC staff report, June 1. 9 pp.

Smallwood, K. S. 2004. Alternative plan to implement mitigation measures in APWRA. Unpublished CEC staff report, January 19. 8 pp.

Smallwood, K. S., and L. Neher. 2005. Repowering the APWRA: Forecasting and minimizing avian mortality without significant loss of power generation. California Energy Commission, PIER Energy-Related Environmental Research. CEC-500-2005-005. 21 pp. [Reprinted (in Japanese) in Yukihiro Kominami, Tatsuya Ura, Koshitawa, and Tsuchiya, Editors, Wildlife and Wind Turbine Report 5. Wild Bird Society of Japan, Tokyo.]

Morrison, M. L., and K. S. Smallwood. 2004. Kangaroo rat survey at RMA4, NAS Lemoore. Report to U.S. Navy. 4 pp.

Morrison, M. L., and K. S. Smallwood. 2004. A monitoring effort to detect the presence of the federally listed species California clapper rails and wetland habitat assessment at Pier 4 of the Naval Weapons Station, Seal Beach, Detachment Concord, California. Letter Agreement N68711-04LT-A0002. 8 pp. + 2 pp. of photo plates.

Smallwood, K. S. and M. L. Morrison. 2003. 2003 Progress Report: San Joaquin kangaroo rat (*Dipodomys nitratoides*) Conservation Research at Resources Management Area 5, Lemoore Naval Air Station. Progress report to U.S. Department of the Navy, Lemoore, California. 56 pp. + 58 figures.

Smallwood, K. S. 2003. Comparison of Biological Impacts of the No Project and Partial Underground Alternatives presented in the Final Environmental Impact Report for the Jefferson-Martin 230 kV Transmission Line. Report to California Public Utilities Commission. 20 pp.

Morrison, M. L., and K. S. Smallwood. 2003. Kangaroo rat survey at RMA4, NAS Lemoore. Report to U.S. Navy. 6 pp. + 7 photos + 1 map.

Smallwood, K. S. 2003. Assessment of the Environmental Review Documents Prepared for the Tesla Power Project. Report to the California Energy Commission on behalf of Californians for Renewable Energy. 32 pp.

Smallwood, K. S., and M. L. Morrison. 2003. 2002 Progress Report: San Joaquin kangaroo rat (*Dipodomys nitratoides*) Conservation Research at Resources Management Area 5, Lemoore Naval Air Station. Progress report to U.S. Department of the Navy, Lemoore, California. 45 pp. + 36 figures.

Smallwood, K. S., Michael L. Morrison and Carl G. Thelander 2002. Study plan to test the effectiveness of aerial markers at reducing avian mortality due to collisions with transmission lines: A report to Pacific Gas & Electric Company. 10 pp.

Smallwood, K. S. 2002. Assessment of the Environmental Review Documents Prepared for the

East Altamont Energy Center. Report to the California Energy Commission on behalf of Californians for Renewable Energy. 26 pp.

Thelander, Carl G., K. Shawn Smallwood, and Christopher Costello. 2002 Rating Distribution Poles for Threat of Raptor Electrocution and Priority Retrofit: Developing a Predictive Model. Report to Southern California Edison Company. 30 pp.

Smallwood, K. S., M. Robison, and C. Thelander. 2002. Draft Natural Environment Study, Prunedale Highway 101 Project. California Department of Transportation, San Luis Obispo, California. 120 pp.

Smallwood, K.S. 2001. Assessment of ecological integrity and restoration potential of Beeman/Pelican Farm. Draft Report to Howard Beeman, Woodland, California. 14 pp.

Smallwood, K. S., and M. L. Morrison. 2002. Fresno kangaroo rat (*Dipodomys nitratoides*) Conservation Research at Resources Management Area 5, Lemoore Naval Air Station. Progress report to U.S. Department of the Navy, Lemoore, California. 29 pp. + 19 figures.

Smallwood, K.S. 2001. Rocky Flats visit, April 4th through 6th, 2001. Report to Berger & Montaque, P.C. 16 pp. with 61 color plates.

Smallwood, K.S. 2001. Affidavit of K. Shawn Smallwood, Ph.D. in the matter of the U.S. Fish and Wildlife Service's rejection of Seatuck Environmental Association's proposal to operate an education center on Seatuck National Wildlife Refuge. Submitted to Seatuck Environmental Association in two parts, totaling 7 pp.

Magney, D., and K.S. Smallwood. 2001. Maranatha High School CEQA critique. Comment letter submitted to Tamara & Efren Compeán, 16 pp.

Smallwood, K.S. 2001. Preliminary Comments on the Proposed Blythe Energy Project. Submitted to California Energy Commission on March 15 on behalf of Californians for Renewable Energy (CaRE). 14 pp.

Smallwood, K. S. and D. Mangey. 2001. Comments on the Newhall Ranch November 2000 Administrative Draft EIR. Prepared for Ventura County Counsel regarding the Newhall Ranch Specific Plan EIR. 68 pp.

Magney, D. and K. S. Smallwood. 2000. Newhall Ranch Notice of Preparation Submittal. Prepared for Ventura County Counsel regarding our recommended scope of work for the Newhall Ranch Specific Plan EIR. 17 pp.

Smallwood, K. S. 2000. Comments on the Preliminary Staff Assessment of the Contra Costa Power Plant Unit 8 Project. Submitted to California Energy Commission on November 30 on behalf of Californians for Renewable Energy (CaRE). 4 pp.

Smallwood, K. S. 2000. Comments on the California Energy Commission's Final Staff Assessment of the MEC. Submitted to California Energy Commission on October 29 on behalf of Californians for Renewable Energy (CaRE). 8 pp.

Smallwood, K. S. 2000. Comments on the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP). Submitted to California Energy Commission on October 29 on behalf of Californians for Renewable Energy (CaRE). 9 pp.

Smallwood, K. S. 2000. Comments on the Preliminary Staff Assessment of the Metcalf Energy Center. Submitted to California Energy Commission on behalf of Californians for Renewable Energy (CaRE). 11 pp.

Smallwood, K. S. 2000. Preliminary report of reconnaissance surveys near the TRW plant south of Phoenix, Arizona, March 27-29. Report prepared for Hagens, Berman & Mitchell, Attorneys at Law, Phoenix, AZ. 6 pp.

Morrison, M.L., K.S. .Smallwood, and M. Robison. 2001. Draft Natural Environment Study for Highway 46 compliance with CEQA/NEPA. Report to the California Department of Transportation. 75 pp.

Morrison, M.L., and K.S. Smallwood. 1999. NTI plan evaluation and comments. Exhibit C in W.D. Carrier, M.L. Morrison, K.S. Smallwood, and Vail Engineering. Recommendations for NBHCP land acquisition and enhancement strategies. Northern Territories, Inc., Sacramento.

Smallwood, K. S. 1999. Estimation of impacts due to dredging of a shipping channel through Humboldt Bay, California. Court Declaration prepared on behalf of EPIC.

Smallwood, K. S. 1998. 1998 California Mountain Lion Track Count. Report to the Defenders of Wildlife, Washington, D.C. 5 pages.

Smallwood, K.S. 1998. Draft report of a visit to a paint sludge dump site near Ridgewood, New Jersey, February 26th, 1998. Unpublished report to Consulting in the Public Interest.

Smallwood, K.S. 1997. Science missing in the "no surprises" policy. Commissioned by National Endangered Species Network and Spirit of the Sage Council, Pasadena, California.

Smallwood, K.S. and M.L. Morrison. 1997. Alternate mitigation strategy for incidental take of giant garter snake and Swainson's hawk as part of the Natomas Basin Habitat Conservation Plan. Pages 6-9 and *iii* illustrations in W.D. Carrier, K.S. Smallwood and M.L. Morrison, Natomas Basin Habitat Conservation Plan: Narrow channel marsh alternative wetland mitigation. Northern Territories, Inc., Sacramento.

Smallwood, K.S. 1996. Assessment of the BIOPORT model's parameter values for pocket gopher burrowing characteristics. Report to Berger & Montague, P.C. and Roy S. Haber, P.C., Philadelphia. (peer reviewed).

Smallwood, K.S. 1997. Assessment of plutonium releases from Hanford buried waste sites. Report Number 9, Consulting in the Public Interest, 53 Clinton Street, Lambertville, New Jersey, 08530.

Smallwood, K.S. 1996. Soil Bioturbation and Wind Affect Fate of Hazardous Materials that were

Released at the Rocky Flats Plant, Colorado. Report to Berger & Montague, P.C., Philadelphia.

Smallwood, K.S. 1996. Second assessment of the BIOPORT model's parameter values for pocket gopher burrowing characteristics and other relevant wildlife observations. Report to Berger & Montague, P.C. and Roy S. Haber, P.C., Philadelphia.

Smallwood, K.S., and R. Leidy. 1996. Wildlife and Their Management Under the Martell SYP. Report to Georgia Pacific, Corporation, Martel, CA. 30 pp.

EIP Associates. 1995. Yolo County Habitat Conservation Plan Biological Resources Report. Yolo County Planning and Development Department, Woodland, California.

Smallwood, K.S. and S. Geng. 1995. Analysis of the 1987 California Farm Cost Survey and recommendations for future survey. Program on Workable Energy Regulation, University-wide Energy Research Group, University of California.

Smallwood, K.S., S. Geng, and W. Idzerda. 1992. Final report to PG&E: Analysis of the 1987 California Farm Cost Survey and recommendations for future survey. Pacific Gas & Electric Company, San Ramon, California. 24 pp.

Fitzhugh, E.L. and K.S. Smallwood. 1987. Methods Manual – A statewide mountain lion population index technique. California Department of Fish and Game, Sacramento.

Salmon, T.P. and K.S. Smallwood. 1989. Final Report – Evaluating exotic vertebrates as pests to California agriculture. California Department of Food and Agriculture, Sacramento.

Smallwood, K.S. and W. A. Erickson (written under supervision of W.E. Howard, R.E. Marsh, and R.J. Laacke). 1990. Environmental exposure and fate of multi-kill strychnine gopher baits. Final Report to USDA Forest Service –NAPIAP, Cooperative Agreement PSW-89-0010CA.

Fitzhugh, E.L., K.S. Smallwood, and R. Gross. 1985. Mountain lion track count, Marin County, 1985. Report on file at Wildlife Extension, University of California, Davis.

Comments on Environmental Documents

I was retained or commissioned to comment on environmental planning and review documents, including:

- Comments on proposed rule for incidental eagle take (2016, 49 pp);
- Revised Draft Giant Garter Snake Recovery Plan of 2015 (2016, 18 pp);
- Supplementary Reply Witness Statement Amherst Island Wind Farm, Ontario (2015, 38 pp);
- Witness Statement on Amherst Island Wind Farm, Ontario (2015, 31 pp);
- Second Reply Witness Statement on White Pines Wind Farm, Ontario (2015, 6 pp);
- Reply Witness Statement on White Pines Wind Farm, Ontario (2015, 10 pp);
- Witness Statement on White Pines Wind Farm, Ontario (2015, 9 pp);
- Proposed Section 24 Specific Plan Agua Caliente Band of Cahuilla Indians DEIS (2015, 9 pp);

- Replies to comments 24 Specific Plan Agua Caliente Band of Cahuilla Indians FEIS (2015, 6 pp);
- Sierra Lakes Commerce Center Project DEIR (2015, 9 pp);
- West Valley Logistics Center Specific Plan DEIR(2015, 10 pp);
- World Logistic Center Specific Plan FEIR (2015, 12 pp);
- Bay Delta Conservation Plan EIR/EIS (2014, 21 pp);
- Addison Wind Energy Project DEIR (2014, 32 pp);
- Response to Comments on the Addison Wind Energy Project DEIR (2014, 15 pp);
- Addison and Rising Tree Wind Energy Project FEIR (2014, 12 pp);
- Alta East Wind Energy Project FEIS (2013, 23 pp);
- Blythe Solar Power Project Staff Assessment, California Energy Commission (2013, 16 pp);
- Clearwater and Yakima Solar Projects DEIR (2013, 9 pp);
- Cuyama Solar Project DEIR (2014, 19 pp);
- Draft Desert Renewable Energy Conservation Plan (DRECP) EIR/EIS (2015, 49 pp);
- Kingbird Solar Photovoltaic Project EIR (2013, 19 pp);
- Lucerne Valley Solar Project Initial Study & Mitigated Negative Declaration (2013, 12 pp);
- Palen Solar Electric Generating System Final Staff Assessment of California Energy Commission, (2014, 20 pp);
- Rebuttal testimony on Palen Solar Energy Generating System (2014, 9 pp);
- Rising Tree Wind Energy Project DEIR (2014, 32 pp);
- Response to Comments on the Rising Tree Wind Energy Project DEIR (2014, 15 pp);
- Soitec Solar Development Project Draft PEIR (2014, 18 pp);
- Comment on the Biological Opinion (08ESMF-00-2012-F-0387) of Oakland Zoo expansion on Alameda whipsnake and California red-legged frog (2014; 3 pp);
- West Antelope Solar Energy Project Initial Study and Negative Declaration (2013, 18 pp);
- Willow Springs Solar Photovoltaic Project DEIR (2015, 28 pp);
- Alameda Creek Bridge Replacement Project DEIR (2015, 10 pp);
- Declaration on Tule Wind project FEIR/FEIS (2013; 24 pp);
- Sunlight Partners LANDPRO Solar Project Mitigated Negative Declaration (2013; 11 pp);
- Declaration in opposition to BLM fracking (2013; 5 pp);
- Rosamond Solar Project Addendum EIR (2013; 13 pp);
- Pioneer Green Solar Project EIR (2013; 13 pp);
- Reply to Staff Responses to Comments on Soccer Center Solar Project Mitigated Negative Declaration (2013; 6 pp);
- Soccer Center Solar Project Mitigated Negative Declaration (2013; 10 pp);
- Plainview Solar Works Mitigated Negative Declaration (2013; 10 pp);
- Reply to the County Staff's Responses on comments to Imperial Valley Solar Company 2 Project (2013; 10 pp);
- Imperial Valley Solar Company 2 Project (2013; 13 pp);
- FRV Orion Solar Project DEIR (PP12232) (2013; 9 pp);
- Casa Diablo IV Geothermal Development Project (3013; 6 pp);
- Reply to Staff Responses to Comments on Casa Diablo IV Geothermal Development Project (2013; 8 pp);
- FEIS prepared for Alta East Wind Project (2013; 23 pp);

- Metropolitan Air Park DEIR, City of San Diego (2013;);
- Davidon Homes Tentative Subdivision Map and Rezoning Project DEIR (2013; 9 pp);
- Analysis of Biological Assessment of Oakland Zoo Expansion Impacts on Alameda Whipsnake (2013; 10 pp);
- Declaration on Campo Verde Solar project FEIR (2013; 11pp);
- Neg Dec comments on Davis Sewer Trunk Rehabilitation (2013; 8 pp);
- Declaration on North Steens Transmission Line FEIS (2012; 62 pp);
- City of Lancaster Revised Initial Study for Conditional Use Permits 12-08 and 12-09, Summer Solar and Springtime Solar Projects (2012; 8 pp);
- J&J Ranch, 24 Adobe Lane Environmental Review (2012; 14 pp);
- Reply to the County Staff's Responses on comments to Hudson Ranch Power II Geothermal Project and the Simbol Calipatria Plant II (2012; 8 pp);
- Hudson Ranch Power II Geothermal Project and the Simbol Calipatria Plant II (2012; 9 pp);
- Desert Harvest Solar Project EIS (2012; 15 pp);
- Solar Gen 2 Array Project DEIR (2012; 16 pp);
- Ocotillo Sol Project EIS (2012; 4 pp);
- Beacon Photovoltaic Project DEIR (2012; 5 pp);
- Declaration on Initial Study and Proposed Negative Declaration for the Butte Water District 2012 Water Transfer Program (2012; 11 pp);
- Mount Signal and Calexico Solar Farm Projects DEIR (2011; 16 pp);
- City of Elk Grove Sphere of Influence EIR (2011; 28 pp);
- Comment on Sutter Landing Park Solar Photovoltaic Project MND (2011; 9 pp);
- Statement of Shawn Smallwood, Ph.D. Regarding Proposed Rabik/Gudath Project, 22611 Coleman Valley Road, Bodega Bay (CPN 10-0002) (2011; 4 pp);
- Declaration of K. Shawn Smallwood on Biological Impacts of the Ivanpah Solar Electric Generating System (ISEGS) (2011; 9 pp);
- Comments on Draft Eagle Conservation Plan Guidance (2011; 13 pp);
- Comments on Draft EIR/EA for Niles Canyon Safety Improvement Project (2011; 16 pp);
- Declaration of K. Shawn Smallwood, Ph.D., on Biological Impacts of the Route 84 Safety Improvement Project (2011; 7 pp);
- Rebuttal Testimony of Witness #22, K. Shawn Smallwood, Ph.D, on Behalf of Intervenors Friends of The Columbia Gorge & Save Our Scenic Area (2010; 6 pp);
- Prefiled Direct Testimony of Witness #22, K. Shawn Smallwood, Ph.D, on Behalf of Intervenors Friends of the Columbia Gorge & Save Our Scenic Area. Comments on Whistling Ridge Wind Energy Power Project DEIS, Skamania County, Washington (2010; 41 pp);
- Evaluation of Klickitat County's Decisions on the Windy Flats West Wind Energy Project (2010; 17 pp);
- St. John's Church Project Draft Environmental Impact Report (2010; 14 pp.);
- Initial Study/Mitigated Negative Declaration for Results Radio Zone File #2009-001 (2010; 20 pp);
- Rio del Oro Specific Plan Project Final Environmental Impact Report (2010;12 pp);
- Answers to Questions on 33% RPS Implementation Analysis Preliminary Results Report (2009: 9 pp);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania

County, Washington. Second Declaration to Friends of the Columbia Gorge, Inc. and Save Our Scenic Area (Dec 2008; 17 pp);

- Comments on Draft 1A Summary Report to CAISO (2008; 10 pp);
- County of Placer's Categorical Exemption of Hilton Manor Project (2009; 9 pp);
- Protest of CARE to Amendment to the Power Purchase and Sale Agreement for Procurement of Eligible Renewable Energy Resources Between Hatchet Ridge Wind LLC and PG&E (2009; 3 pp);
- Tehachapi Renewable Transmission Project EIR/EIS (2009; 142 pp);
- Delta Shores Project EIR, south Sacramento (2009; 11 pp + addendum 2 pp);
- Declaration of Shawn Smallwood in Support of Care's Petition to Modify D.07-09-040 (2008; 3 pp);
- The Public Utility Commission's Implementation Analysis December 16 Workshop for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 9 pp);
- The Public Utility Commission's Implementation Analysis Draft Work Plan for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 11 pp);
- Draft 1A Summary Report to California Independent System Operator for Planning Reserve Margins (PRM) Study (2008; 7 pp.);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania County, Washington. Declaration to Friends of the Columbia Gorge, Inc. and Save Our Scenic Area (Sep 2008; 16 pp);
- California Energy Commission's Preliminary Staff Assessment of the Colusa Generating Station (2007; 24 pp);
- Rio del Oro Specific Plan Project Recirculated Draft Environmental Impact Report (2008: 66 pp);
- Replies to Response to Comments Re: Regional University Specific Plan Environmental Impact Report (2008; 20 pp);
- Regional University Specific Plan Environmental Impact Report (2008: 33 pp.);
- Clark Precast, LLC's "Sugarland" project, Negative Declaration (2008: 15 pp.);
- Cape Wind Project Draft Environmental Impact Statement (2008; 157 pp.);
- Yuba Highlands Specific Plan (or Area Plan) Environmental Impact Report (2006; 37 pp.);
- Replies to responses to comments on Mitigated Negative Declaration of the proposed Mining Permit (MIN 04-01) and Modification of Use Permit 96-02 at North Table Mountain (2006; 5 pp);
- Mitigated Negative Declaration of the proposed Mining Permit (MIN 04-01) and Modification of Use Permit 96-02 at North Table Mountain (2006; 15 pp);
- Windy Point Wind Farm Environmental Review and EIS (2006; 14 pp and 36 Powerpoint slides in reply to responses to comments);
- Shiloh I Wind Power Project EIR (2005; 18 pp);
- Buena Vista Wind Energy Project Notice of Preparation of EIR (2004; 15 pp);
- Negative Declaration of the proposed Callahan Estates Subdivision (2004; 11 pp);
- Negative Declaration of the proposed Winters Highlands Subdivision (2004; 9 pp);
- Negative Declaration of the proposed Winters Highlands Subdivision (2004; 13 pp);
- Negative Declaration of the proposed Creekside Highlands Project, Tract 7270 (2004; 21

pp);

- On the petition California Fish and Game Commission to list the Burrowing Owl as threatened or endangered (2003; 10 pp);
- Conditional Use Permit renewals from Alameda County for wind turbine operations in the Altamont Pass Wind Resource Area (2003; 41 pp);
- UC Davis Long Range Development Plan of 2003, particularly with regard to the Neighborhood Master Plan (2003; 23 pp);
- Anderson Marketplace Draft Environmental Impact Report (2003: 18 pp + 3 plates of photos);
- Negative Declaration of the proposed expansion of Temple B'nai Tikyah (2003: 6 pp);
- Antonio Mountain Ranch Specific Plan Public Draft EIR (2002: 23 pp);
- Response to testimony of experts at the East Altamont Energy Center evidentiary hearing on biological resources (2002: 9 pp);
- Revised Draft Environmental Impact Report, The Promenade (2002: 7 pp);
- Recirculated Initial Study for Calpine's proposed Pajaro Valley Energy Center (2002: 3 pp);
- UC Merced -- Declaration of Dr. Shawn Smallwood in support of petitioner's application for temporary restraining order and preliminary injunction (2002: 5 pp);
- Replies to response to comments in Final Environmental Impact Report, Atwood Ranch Unit III Subdivision (2003: 22 pp);
- Draft Environmental Impact Report, Atwood Ranch Unit III Subdivision (2002: 19 pp + 8 photos on 4 plates);
- California Energy Commission Staff Report on GWF Tracy Peaker Project (2002: 17 pp + 3 photos; follow-up report of 3 pp);
- Initial Study and Negative Declaration, Silver Bend Apartments, Placer County (2002: 13 pp);
- UC Merced Long-range Development Plan DEIR and UC Merced Community Plan DEIR (2001: 26 pp);
- Initial Study, Colusa County Power Plant (2001: 6 pp);
- Comments on Proposed Dog Park at Catlin Park, Folsom, California (2001: 5 pp + 4 photos);
- Pacific Lumber Co. (Headwaters) Habitat Conservation Plan and Environmental Impact Report (1998: 28 pp);
- Final Environmental Impact Report/Statement for Issuance of Take authorization for listed species within the MSCP planning area in San Diego County, California (Fed. Reg. 62 (60): 14938, San Diego Multi-Species Conservation Program) (1997: 10 pp);
- Permit (PRT-823773) Amendment for the Natomas Basin Habitat Conservation Plan, Sacramento, CA (Fed. Reg. 63 (101): 29020-29021) (1998);
- Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). (Fed. Reg. 64(176): 49497-49498) (1999: 8 pp);
- Review of the Draft Recovery Plan for the Arroyo Southwestern Toad (*Bufo microscaphus californicus*) (1998);
- Ballona West Bluffs Project Environmental Impact Report (1999: oral presentation);
- California Board of Forestry's proposed amended Forest Practices Rules (1999);
- Negative Declaration for the Sunset Skyranch Airport Use Permit (1999);
- Calpine and Bechtel Corporations' Biological Resources Implementation and Monitoring

Program (BRMIMP) for the Metcalf Energy Center (2000: 10 pp);

- California Energy Commission's Final Staff Assessment of the proposed Metcalf Energy Center (2000);
- US Fish and Wildlife Service Section 7 consultation with the California Energy Commission regarding Calpine and Bechtel Corporations' Metcalf Energy Center (2000: 4 pp);
- California Energy Commission's Preliminary Staff Assessment of the proposed Metcalf Energy Center (2000: 11 pp);
- Site-specific management plans for the Natomas Basin Conservancy's mitigation lands, prepared by Wildlands, Inc. (2000: 7 pp);
- Affidavit of K. Shawn Smallwood in Spirit of the Sage Council, et al. (Plaintiffs) vs. Bruce Babbitt, Secretary, U.S. Department of the Interior, et al. (Defendants), Injuries caused by the No Surprises policy and final rule which codifies that policy (1999: 9 pp).

Comments on other Environmental Review Documents:

- Proposed Regulation for California Fish and Game Code Section 3503.5 (2015: 12 pp);
- Statement of Overriding Considerations related to extending Altamont Winds, Inc.'s Conditional Use Permit PLN2014-00028 (2015; 8 pp);
- Draft Program Level EIR for Covell Village (2005; 19 pp);
- Bureau of Land Management Wind Energy Programmatic EIS Scoping document (2003: 7 pp.);
- NEPA Environmental Analysis for Biosafety Level 4 National Biocontainment Laboratory (NBL) at UC Davis (2003: 7 pp);
- Notice of Preparation of UC Merced Community and Area Plan EIR, on behalf of The Wildlife Society—Western Section (2001: 8 pp.);
- Preliminary Draft Yolo County Habitat Conservation Plan (2001; 2 letters totaling 35 pp.);
- Merced County General Plan Revision, notice of Negative Declaration (2001: 2 pp.);
- Notice of Preparation of Campus Parkway EIR/EIS (2001: 7 pp.);
- Draft Recovery Plan for the bighorn sheep in the Peninsular Range (*Ovis candensis*) (2000);
- Draft Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*), on behalf of The Wildlife Society—Western Section (2000: 10 pp.);
- Sierra Nevada Forest Plan Amendment Draft Environmental Impact Statement, on behalf of The Wildlife Society—Western Section (2000: 7 pp.);
- State Water Project Supplemental Water Purchase Program, Draft Program EIR (1997);
- Davis General Plan Update EIR (2000);
- Turn of the Century EIR (1999: 10 pp);
- Proposed termination of Critical Habitat Designation under the Endangered Species Act (Fed. Reg. 64(113): 31871-31874) (1999);
- NOA Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, termed the HCP 5-Point Policy Plan (Fed. Reg. 64(45): 11485 - 11490) (1999; 2 pp + attachments);
- Covell Center Project EIR and EIR Supplement (1997).

Position Statements I prepared the following position statements for the Western Section of The Wildlife Society, and one for nearly 200 scientists:

- Recommended that the California Department of Fish and Game prioritize the extermination of the introduced southern water snake in northern California. The Wildlife Society--Western Section (2001);
- Recommended that The Wildlife Society—Western Section appoint or recommend members of the independent scientific review panel for the UC Merced environmental review process (2001);
- Opposed the siting of the University of California's 10th campus on a sensitive vernal pool/grassland complex east of Merced. The Wildlife Society--Western Section (2000);
- Opposed the legalization of ferret ownership in California. The Wildlife Society--Western Section (2000);
- Opposed the Proposed "No Surprises," "Safe Harbor," and "Candidate Conservation Agreement" rules, including permit-shield protection provisions (Fed. Reg. Vol. 62, No. 103, pp. 29091-29098 and No. 113, pp. 32189-32194). This statement was signed by 188 scientists and went to the responsible federal agencies, as well as to the U.S. Senate and House of Representatives.

Posters at Professional Meetings

Leyvas, E. and K. S. Smallwood. 2015. Rehabilitating injured animals to offset and rectify wind project impacts. Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 9-12 March 2015.

Smallwood, K. S., J. Mount, S. Standish, E. Leyvas, D. Bell, E. Walther, B. Karas. 2015. Integrated detection trials to improve the accuracy of fatality rate estimates at wind projects. Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 9-12 March 2015.

Smallwood, K. S. and C. G. Thelander. 2005. Lessons learned from five years of avian mortality research in the Altamont Pass WRA. AWEA conference, Denver, May 2005.

Neher, L., L. Wilder, J. Woo, L. Spiegel, D. Yen-Nakafugi, and K.S. Smallwood. 2005. Bird's eye view on California wind. AWEA conference, Denver, May 2005.

Smallwood, K. S., C. G. Thelander and L. Spiegel. 2003. Toward a predictive model of avian fatalities in the Altamont Pass Wind Resource Area. Windpower 2003 Conference and Convention, Austin, Texas.

Smallwood, K.S. and Eva Butler. 2002. Pocket Gopher Response to Yellow Star-thistle Eradication as part of Grassland Restoration at Decommissioned Mather Air Force Base, Sacramento County, California. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and Michael L. Morrison. 2002. Fresno kangaroo rat (*Dipodomys nitratoides*) Conservation Research at Resources Management Area 5, Lemoore Naval Air Station. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and E.L. Fitzhugh. 1989. Differentiating mountain lion and dog tracks. Third Mountain Lion Workshop, Prescott, AZ.

Smith, T. R. and K. S. Smallwood. 2000. Effects of study area size, location, season, and allometry on reported *Sorex* shrew densities. Annual Meeting of the Western Section of The Wildlife Society.

Presentations at Professional Meetings and Seminars

Mitigation of Raptor Fatalities in the Altamont Pass Wind Resource Area. Raptor Research Foundation Meeting, Sacramento, California, 6 November 2015.

From burrows to behavior: Research and management for burrowing owls in a diverse landscape. California Burrowing Owl Consortium meeting, 24 October 2015, San Jose, California.

The Challenges of repowering. Keynote presentation at Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 10 March 2015.

Research Highlights Altamont Pass 2011-2015. Scientific Review Committee, Oakland, California, 8 July 2015.

Siting wind turbines to minimize raptor collisions: Altamont Pass Wind Resource Area. US Fish and Wildlife Service Golden Eagle Working Group, Sacramento, California, 8 January 2015.

Evaluation of nest boxes as a burrowing owl conservation strategy. Sacramento Chapter of the Western Section, The Wildlife Society. Sacramento, California, 26 August 2013.

Predicting collision hazard zones to guide repowering of the Altamont Pass. Conference on wind power and environmental impacts. Stockholm, Sweden, 5-7 February 2013.

Impacts of Wind Turbines on Wildlife. California Council for Wildlife Rehabilitators, Yosemite, California, 12 November 2012.

Impacts of Wind Turbines on Birds and Bats. Madrone Audubon Society, Santa Rosa, California, 20 February 2012.

Comparing Wind Turbine Impacts across North America. California Energy Commission Staff Workshop: Reducing the Impacts of Energy Infrastructure on Wildlife, 20 July 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. California Energy Commission Staff Workshop: Reducing the Impacts of Energy Infrastructure on Wildlife, 20 July 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. Alameda County Scientific Review Committee meeting, 17 February 2011

Comparing Wind Turbine Impacts across North America. Conference on Wind energy and Wildlife impacts, Trondheim, Norway, 3 May 2011.

Update on Wildlife Impacts in the Altamont Pass Wind Resource Area. Raptor Symposium, The Wildlife Society—Western Section, Riverside, California, February 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. Raptor Symposium, The Wildlife

Society - Western Section, Riverside, California, February 2011.

Wildlife mortality caused by wind turbine collisions. Ecological Society of America, Pittsburgh, Pennsylvania, 6 August 2010.

Map-based repowering and reorganization of a wind farm to minimize burrowing owl fatalities. California burrowing Owl Consortium Meeting, Livermore, California, 6 February 2010.

Environmental barriers to wind power. Getting Real About Renewables: Economic and Environmental Barriers to Biofuels and Wind Energy. A symposium sponsored by the Environmental & Energy Law & Policy Journal, University of Houston Law Center, Houston, 23 February 2007.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Meeting with Japan Ministry of the Environment and Japan Ministry of the Economy, Wild Bird Society of Japan, and other NGOs Tokyo, Japan, 9 November 2006.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Symposium on bird collisions with wind turbines. Wild Bird Society of Japan, Tokyo, Japan, 4 November 2006.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. California Society for Ecological Restoration (SERCAL) 13th Annual Conference, UC Santa Barbara, 27 October 2006.

Fatality associations as the basis for predictive models of fatalities in the Altamont Pass Wind Resource Area. EEI/APLIC/PIER Workshop, 2006 Biologist Task Force and Avian Interaction with Electric Facilities Meeting, Pleasanton, California, 28 April 2006.

Burrowing owl burrows and wind turbine collisions in the Altamont Pass Wind Resource Area. The Wildlife Society - Western Section Annual Meeting, Sacramento, California, February 8, 2006.

Mitigation at wind farms. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Incorporating data from the California Wildlife Habitat Relationships (CWHR) system into an impact assessment tool for birds near wind farms. Shawn Smallwood, Kevin Hunting, Marcus Yee, Linda Spiegel, Monica Parisi. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Toward indicating threats to birds by California's new wind farms. California Energy Commission, Sacramento, May 26, 2005.

Avian collisions in the Altamont Pass. California Energy Commission, Sacramento, May 26, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. EPRI Environmental Sector Council, Monterey, California, February 17, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. The Wildlife Society—Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Associations between avian fatalities and attributes of electric distribution poles in California. The Wildlife Society - Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Minimizing avian mortality in the Altamont Pass Wind Resources Area. UC Davis Wind Energy Collaborative Forum, Palm Springs, California, December 14, 2004.

Selecting electric distribution poles for priority retrofitting to reduce raptor mortality. Raptor Research Foundation Meeting, Bakersfield, California, November 10, 2004.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. Annual Meeting of the Society for Ecological Restoration, South Lake Tahoe, California, October 16, 2004.

Lessons learned from five years of avian mortality research at the Altamont Pass Wind Resources Area in California. The Wildlife Society Annual Meeting, Calgary, Canada, September 2004.

The ecology and impacts of power generation at Altamont Pass. Sacramento Petroleum Association, Sacramento, California, August 18, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Consortium meeting, Hayward, California, February 7, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Symposium, Sacramento, November 2, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. National Wind Coordinating Committee, Washington, D.C., November 17, 2003.

Raptor Behavior at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

California mountain lions. Ecological & Environmental Issues Seminar, Department of Biology, California State University, Sacramento, November, 2000.

Intra- and inter-turbine string comparison of fatalities to animal burrow densities at Altamont Pass. National Wind Coordinating Committee, Carmel, California, May, 2000.

Using a Geographic Positioning System (GPS) to map wildlife and habitat. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Suggested standards for science applied to conservation issues. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

The indicators framework applied to ecological restoration in Yolo County, California. Society for Ecological Restoration, September 25, 1999.

Ecological restoration in the context of animal social units and their habitat areas. Society for Ecological Restoration, September 24, 1999.

Relating Indicators of Ecological Health and Integrity to Assess Risks to Sustainable Agriculture and Native Biota. International Conference on Ecosystem Health, August 16, 1999.

A crosswalk from the Endangered Species Act to the HCP Handbook and real HCPs. Southern California Edison, Co. and California Energy Commission, March 4-5, 1999.

Mountain lion track counts in California: Implications for Management. Ecological & Environmental Issues Seminar, Department of Biological Sciences, California State University, Sacramento, November 4, 1998.

"No Surprises" -- Lack of science in the HCP process. California Native Plant Society Annual Conservation Conference, The Presidio, San Francisco, September 7, 1997.

In Your Interest. A half hour weekly show aired on Channel 10 Television, Sacramento. In this episode, I served on a panel of experts discussing problems with the implementation of the Endangered Species Act. Aired August 31, 1997.

Spatial scaling of pocket gopher (*Geomyidae*) density. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Estimating prairie dog and pocket gopher burrow volume. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Ten years of mountain lion track survey. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Study and interpretive design effects on mountain lion density estimates. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Small animal control. Session moderator and speaker at the California Farm Conference, Sacramento, California, Feb. 28, 1995.

Small animal control. Ecological Farming Conference, Asylomar, California, Jan. 28, 1995.

Habitat associations of the Swainson's Hawk in the Sacramento Valley's agricultural landscape. 1994 Raptor Research Foundation Meeting, Flagstaff, Arizona.

Alfalfa as wildlife habitat. Seed Industry Conference, Woodland, California, May 4, 1994.

Habitats and vertebrate pests: impacts and management. Managing Farmland to Bring Back Game Birds and Wildlife to the Central Valley. Yolo County Resource Conservation District, U.C. Davis, February 19, 1994.

Management of gophers and alfalfa as wildlife habitat. Orland Alfalfa Production Meeting and Sacramento Valley Alfalfa Production Meeting, February 1 and 2, 1994.

Patterns of wildlife movement in a farming landscape. Wildlife and Fisheries Biology Seminar Series: Recent Advances in Wildlife, Fish, and Conservation Biology, U.C. Davis, Dec. 6, 1993.

Alfalfa as wildlife habitat. California Alfalfa Symposium, Fresno, California, Dec. 9, 1993.

Management of pocket gophers in Sacramento Valley alfalfa. California Alfalfa Symposium, Fresno, California, Dec. 8, 1993.

Association analysis of raptors in a farming landscape. Plenary speaker at Raptor Research Foundation Meeting, Charlotte, North Carolina, Nov. 6, 1993.

Landscape strategies for biological control and IPM. Plenary speaker, International Conference on Integrated Resource Management and Sustainable Agriculture, Beijing, China, Sept. 11, 1993.

Landscape Ecology Study of Pocket Gophers in Alfalfa. Alfalfa Field Day, U.C. Davis, July 1993.

Patterns of wildlife movement in a farming landscape. Spatial Data Analysis Colloquium, U.C. Davis, August 6, 1993.

Sound stewardship of wildlife. Veterinary Medicine Seminar: Ethics of Animal Use, U.C. Davis. May 1993.

Landscape ecology study of pocket gophers in alfalfa. Five County Grower's Meeting, Tracy, California. February 1993.

Turbulence and the community organizers: The role of invading species in ordering a turbulent system, and the factors for invasion success. Ecology Graduate Student Association Colloquium, U.C. Davis. May 1990.

Evaluation of exotic vertebrate pests. Fourteenth Vertebrate Pest Conference, Sacramento, California. March 1990.

Analytical methods for predicting success of mammal introductions to North America. The Western Section of the Wildlife Society, Hilo, Hawaii. February 1988.

A state-wide mountain lion track survey. Sacramento County Dept Parks and Recreation. April 1986.

The mountain lion in California. Davis Chapter of the Audubon Society. October 1985.

Ecology Graduate Student Seminars, U.C. Davis, 1985-1990: Social behavior of the mountain lion;

Mountain lion control; Political status of the mountain lion in California.

Other forms of Participation at Professional Meetings

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Berlin, Germany, March 2015.

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Stockholm, Sweden, February 2013.

- Workshop co-presenter at Birds & Wind Energy Specialist Group (BAWESG) Information sharing week, Bird specialist studies for proposed wind energy facilities in South Africa, Endangered Wildlife Trust, Darling, South Africa, 3-7 October 2011.

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Trondheim, Norway, 2-5 May 2011.

- Chair of Animal Damage Management Session, The Wildlife Society, Annual Meeting, Reno, Nevada, September 26, 2001.

- Chair of Technical Session: Human communities and ecosystem health: Comparing perspectives and making connection. Managing for Ecosystem Health, International Congress on Ecosystem Health, Sacramento, CA August 15-20, 1999.

- Student Awards Committee, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

- Student Mentor, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Printed Mass Media

Smallwood, K.S., D. Mooney, and M. McGuinness. 2003. We must stop the UCD biolab now. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2002. Spring Lake threatens Davis. Op-Ed to the Davis Enterprise.

Smallwood, K.S. Summer, 2001. Mitigation of habitation. The Flatlander, Davis, California.

Entrikan, R.K. and K.S. Smallwood. 2000. Measure O: Flawed law would lock in new taxes. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2000. Davis delegation lobbies Congress for Wildlife conservation. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 1998. Davis Visions. The Flatlander, Davis, California.

Smallwood, K.S. 1997. Last grab for Yolo's land and water. The Flatlander, Davis, California.

Smallwood, K.S. 1997. The Yolo County HCP. Op-Ed to the Davis Enterprise.

Radio/Television

PBS News Hour,

FOX News, Energy in America: Dead Birds Unintended Consequence of Wind Power Development, August 2011.

KXJZ Capital Public Radio -- Insight (Host Jeffrey Callison). Mountain lion attacks (with guest Professor Richard Coss). 23 April 2009;

KXJZ Capital Public Radio -- Insight (Host Jeffrey Callison). Wind farm Rio Vista Renewable Power. 4 September 2008;

KQED QUEST Episode #111. Bird collisions with wind turbines. 2007;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. December 27, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. May 3, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. February 8, 2001;

KDVS Speaking in Tongues (host Ron Glick & Shawn Smallwood), California Energy Crisis: 1 hour. Jan. 25, 2001;

KDVS Speaking in Tongues (host Ron Glick), Headwaters Forest HCP: 1 hour. 1998;

Davis Cable Channel (host Gerald Heffernon), Burrowing owls in Davis: half hour. June, 2000;

Davis Cable Channel (hosted by Davis League of Women Voters), Measure O debate: 1 hour. October, 2000;

KXTV 10, In Your Interest, The Endangered Species Act: half hour. 1997.

Reviews of Journal Papers (Scientific journals for whom I've provided peer review)

Journal	**Journal**
American Naturalist	Journal of Animal Ecology
Journal of Wildlife Management	Western North American Naturalist
Auk	Journal of Raptor Research
Biological Conservation	National Renewable Energy Lab reports
Canadian Journal of Zoology	Oikos
Ecosystem Health	The Prairie Naturalist
Environmental Conservation	Restoration Ecology
Environmental Management	Southwestern Naturalist
Functional Ecology	The Wildlife Society--Western Section Trans.
Journal of Zoology (London)	Proc. Int. Congress on Managing for Ecosystem Health
Journal of Applied Ecology	Transactions in GIS
Ecology	Tropical Ecology
Biological Control	The Condor

Committees

- Scientific Review Committee, Alameda County, Altamont Pass Wind Resource Area
- Ph.D. Thesis Committee, Steve Anderson, University of California, Davis
- MS Thesis Committee, Marcus Yee, California State University, Sacramento

Other Professional Activities or Products

Testified in Federal Court in Denver during 2005 over the fate of radio-nuclides in the soil at Rocky Flats Plant after exposure to burrowing animals. My clients won a judgment of $553,000,000. I have also testified in many other cases of litigation under CEQA, NEPA, the Warren-Alquist Act, and other environmental laws. My clients won most of the cases for which I testified.

Testified before Environmental Review Tribunals in Ontario, Canada regarding proposed White Pines and Amherst Island Wind Energy projects.

Testified in Skamania County Hearing in 2009 on the potential impacts of zoning the County for development of wind farms and hazardous waste facilities.

Testified in deposition in 2007 in the case of O'Dell et al. vs. FPL Energy in Houston, Texas.

Testified in Klickitat County Hearing in 2006 on the potential impacts of the Windy Point Wind Farm.

Memberships in Professional Societies

The Wildlife Society
Raptor Research Foundation

Honors and Awards

Fulbright Research Fellowship to Indonesia, 1987
J.G. Boswell Full Academic Scholarship, 1981 college of choice
Certificate of Appreciation, The Wildlife Society—Western Section, 2000, 2001
Northern California Athletic Association Most Valuable Cross Country Runner, 1984
American Legion Award, Corcoran High School, 1981, and John Muir Junior High, 1977
CIF Section Champion, Cross Country in 1978
CIF Section Champion, Track & Field 2 mile run in 1981
National Junior Record, 20 kilometer run, 1982
National Age Group Record, 1500 meter run, 1978

Community Activities

District 64 Little League Umpire, 2003-2007
Dixon Little League Umpire, 2006-07
Davis Little League Chief Umpire and Board member, 2004-2005
Davis Little League Safety Officer, 2004-2005
Davis Little League Certified Umpire, 2002-2004
Davis Little League Scorekeeper, 2002
Davis Visioning Group member
Petitioner for Writ of Mandate under the California Environmental Quality Act against City of Woodland decision to approve the Spring Lake Specific Plan, 2002
Served on campaign committees for City Council candidates

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Santa Monica, California 90405
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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education:

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on VOC filtration.
M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.
B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience:

Dr. Rosenfeld is the Co-Founder and Principal Environmental Chemist at Soil Water Air Protection Enterprise (SWAPE). His focus is the fate and transport of environmental contaminants, risk assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling, oil spills, boilers, incinerators and other industrial and agricultural sources relating to nuisance and personal injury. His project experience ranges from monitoring and modeling of pollution sources as they relate to human and ecological health. Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing petroleum, chlorinated solvents, pesticides, radioactive waste, PCBs, PAHs, dioxins, furans, volatile organics, semi-volatile organics, perchlorate, heavy metals, asbestos, PFOA, unusual polymers, MtBE, fuel oxygenates and odor. Dr. Rosenfeld has evaluated greenhouse gas emissions using various modeling programs recommended by California Air Quality Management Districts.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist
Bureau of Land Management, Kremmling Colorado 1990; Scientist

Publications:

Chen, J. A., Zapata, A R., Sutherland, A. J., Molmen, D. R,. Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2010). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences*. 113–125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.** (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health*. 73(6), 34-46.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2010). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2009). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Petroleum Industry*. Amsterdam: Elsevier Publishing.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. *WIT Transactions on Ecology and the Environment, Air Pollution,* 123 (17), 319-327.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. *Organohalogen Compounds*, 70, 000527-000530.

Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing,

Rosenfeld P.E., and Suffet, I.H. (Mel) (2007). Anatomy of an Odor Wheel. *Water Science and Technology*.

Rosenfeld, P.E., Clark, J.J.J., Hensley A.R., Suffet, I.H. (Mel) (2007). The use of an odor wheel classification for evaluation of human health risk criteria for compost facilities. *Water Science And Technology*.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

Rosenfeld P. E., J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004.* New Orleans, October 2-6, 2004.

Rosenfeld, P.E., and Suffet, I.H. (2004). Understanding Odorants Associated With Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.

Rosenfeld, P. E., Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

Rosenfeld, P.E., Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS–6), Sacramento, CA Publication #442-02-008.

Rosenfeld, P.E., and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

Rosenfeld, P.E., and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality.* 29, 1662-1668.

Rosenfeld, P.E., C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affect on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.

Rosenfeld, P.E., and C.L. Henry. (2001). Activated Carbon and Wood Ash Sorption of Wastewater, Compost, and Biosolids Odorants. *Water Environment Research*, 73, 388-393.

Rosenfeld, P.E., and Henry C. L., (2001). High carbon wood ash effect on biosolids microbial activity and odor. *Water Environment Research*. 131(1-4), 247-262.

Chollack, T. and **P. Rosenfeld. (**1998). Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant*. The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993.

Deposition and/or Trial Testimony:

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September, 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio

John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the Court of Common Pleas for the Second Judicial Circuit, State of South Carolina, County of Aiken
David Anderson, et al., *Plaintiffs*, vs. Norfolk Southern Corporation, et al., *Defendants*.
Case Number: 2007-CP-02-1584

In the Circuit Court of Jefferson County Alabama
Jaeanette Moss Anthony, et al., *Plaintiffs*, vs. Drummond Company Inc., et al., *Defendants*
Civil Action No. CV 2008-2076
Rosenfeld Deposition: September 2010

In the Ninth Judicial District Court, Parish of Rapides, State of Louisiana
Roger Price, et al., *Plaintiffs*, vs. Roy O. Martin, L.P., et al., *Defendants*.
Civil Suit Number 224,041 Division G
Rosenfeld Deposition: September 2008

In the United States District Court, Western District Lafayette Division
Ackle et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 2:07CV1052
Rosenfeld Deposition: July 2009

In the United States District Court for the Southern District of Ohio
Carolyn Baker, et al., *Plaintiffs*, vs. Chevron Oil Company, et al., *Defendants*.
Case Number 1:05 CV 227
Rosenfeld Deposition: July 2008

In the Fourth Judicial District Court, Parish of Calcasieu, State of Louisiana
Craig Steven Arabie, et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 07-2738 G

In the Fourteenth Judicial District Court, Parish of Calcasieu, State of Louisiana
Leon B. Brydels, *Plaintiffs*, vs. Conoco, Inc., et al*., Defendants*.
Case Number 2004-6941 Division A

In the District Court of Tarrant County, Texas, 153rd Judicial District
Linda Faust, *Plaintiff*, vs. Burlington Northern Santa Fe Rail Way Company, Witco Chemical Corporation A/K/A Witco Corporation, Solvents and Chemicals, Inc. and Koppers Industries, Inc., *Defendants*.
Case Number 153-212928-05
Rosenfeld Deposition: December 2006, October 2007
Rosenfeld Trial: January 2008

In the Superior Court of the State of California in and for the County of San Bernardino
Leroy Allen, et al., *Plaintiffs*, vs. Nutro Products, Inc., a California Corporation and DOES 1 to 100, inclusive, *Defendants*.
John Loney, Plaintiff, vs. James H. Didion, Sr.; Nutro Products, Inc.; DOES 1 through 20, inclusive, *Defendants*.
Case Number VCVVS044671
Rosenfeld Deposition: December 2009
Rosenfeld Trial: March 2010

In the United States District Court for the Middle District of Alabama, Northern Division
James K. Benefield, et al., *Plaintiffs*, vs. International Paper Company, *Defendant*.
Civil Action Number 2:09-cv-232-WHA-TFM
Rosenfeld Deposition: July 2010, June 2011

In the Superior Court of the State of California in and for the County of Los Angeles
Leslie Hensley and Rick Hensley, *Plaintiffs*, vs. Peter T. Hoss, as trustee on behalf of the Cone Fee Trust; Plains Exploration & Production Company, a Delaware corporation; Rayne Water Conditioning, Inc., a California Corporation; and DOES 1 through 100, *Defendants.*
Case Number SC094173
Rosenfeld Deposition: September 2008, October 2008

In the Superior Court of the State of California in and for the County of Santa Barbara, Santa Maria Branch
Clifford and Shirley Adelhelm, et al., all individually, *Plaintiffs*, vs. Unocal Corporation, a Delaware Corporation; Union Oil Company of California, a California corporation; Chevron Corporation, a California corporation; ConocoPhillips, a Texas corporation; Kerr-McGee Corporation, an Oklahoma corporation; and DOES 1 though 100, *Defendants.*
Case Number 1229251 (Consolidated with case number 1231299)
Rosenfeld Deposition: January 2008

In the United States District Court for Eastern District of Arkansas, Eastern District of Arkansas
Harry Stephens Farms, Inc, and Harry Stephens, individual and as managing partner of Stephens Partnership, *Plaintiffs*, vs. Helena Chemical Company, and Exxon Mobil Corp., successor to Mobil Chemical Co., *Defendants.*
Case Number 2:06-CV-00166 JMM (Consolidated with case number 4:07CV00278 JMM)
Rosenfeld Deposition: July 2010

In the United States District Court for the Western District of Arkansas, Texarkana Division
Rhonda Brasel, et al., *Plaintiffs*, vs. Weyerhaeuser Company and DOES 1 through 100, *Defendants.*
Civil Action Number 07-4037
Rosenfeld Deposition: March 2010
Rosenfeld Trial: October 2010

In the District Court of Texas 21st Judicial District of Burleson County
Dennis Davis, *Plaintiff*, vs. Burlington Northern Santa Fe Rail Way Company, *Defendant.*
Case Number 25,151
Rosenfeld Trial: May 2009

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013

Exhibit G

APPENDIX C: 1987 MEMORANDUM OF UNDERSTANDING

On February 17, 1987, UCSF entered into a Memorandum of Understanding (MOU) with the City and County of San Francisco regarding communication and oversight of University master planning, construction and real estate utilization. The MOU was signed by the Chancellor and the Vice Chancellor for Resource Management and Planning Services of UCSF and by the Mayor and Director of Planning of San Francisco. Because of its brevity and importance, the MOU is included here in its entirety:

I. The intent of this memorandum of understanding is to foster harmonious relations between the City and County of San Francisco (hereafter City) and the University of California, San Francisco (hereafter UCSF) regarding the growth and development of UCSF facilities within the City's boundaries.

II. Each party is chartered to operate under provisions of the State Constitution which govern their cooperation with neighboring communities, and these factors are recognized by all parties.

   1. The University of California, Board of Regents, is the overseeing body of UCSF.
   2. Transfer of title to any lands of UCSF must be accomplished in accordance with existing statutes or through the Board of Regents.
   3. The City Charter spells out the duties, responsibilities, and limitations of the Mayor, Board of Supervisors, and Department of City Planning.
   4. The Director of the Department of City Planning is responsible to the City Planning Commission and he is required at all times to represent the best City planning interest.
   5. Existing direct relationships between City departments and UCSF programs located at UCSF will continue without reference to this memorandum of agreement. This specifically includes all health programs and routine operational matters.

III. The principal concerns of this agreement are the responsibilities of the City and UCSF for oversight of land uses and the development, maintenance and use of physical facilities.

   1. The City is responsible for the reasonable development, maintenance and reuse of land in accordance with the Master Plan of the City and County, as adopted and modified from time to time by the City Planning Commission and as expressed in the City's zoning ordinance. The City requires that all major institutions submit institutional master plans to the City Planning Commission for their review.
   2. UCSF maintains a health science center and the requisite facilities to provide educational programs, research and medical services, which may require expansion, contraction or modification over time. The UCSF institutional master plan is submitted to the University of California, Board of Regents for review and approval. The UCSF campus agrees to continue submitting its long-range development plan to the City Planning Commission.

IV. In an effort to improve communication between UCSF and the City regarding changes in the land use and development plans of UCSF, the parties to this memorandum agree that:

   1. UCSF staff and the City Planning Commission staff will meet at least once a year to review long-range development plans for UCSF and City development and services plans. Such meetings will be convened by UCSF and the results of them reported in writing to the City Planning Commission at a regularly scheduled meeting.
   2. UCSF will advise the City in writing of all matters concerning master planning, construction and real property utilization initiated by UCSF which may have an impact on the City. The City Planning Commission will review such proposals and advise UCSF in writing as to the conformance of such development with the Master Plan of San Francisco and Planning Code Section 304.5 (Institutional Master Plans) with recommendations, if any, for amendment to the proposal.
   3. UCSF will modify its 1982 Long Range Development Plan, as required over time, and the City Planning Commission may hold at least one public hearing on all such modifications prior to preparation of written comments.
   4. UCSF shall notify the City of and the City shall attend hearings conducted by UCSF pursuant to the California Environmental Quality Act.
   5. UCSF will maintain campus advisory committees, composed of neighborhood representatives, at both its Parnassus Heights and Laurel Heights campuses, and will invite the City Planning Commission, Municipal Railway and Department of Public Works to participate in those meetings. The Mayor will urge those City departments to participate on the Committees.
   6. The City Planning Commission will advise UCSF in

writing of all matters coming to the Commission's attention concerning master plans, construction and real estate utilization which may have an impact on UCSF.

7. Should the City Planning Commission and UCSF disagree on any matter which is the subject of this MOU, either party may request the participation of the Mayor and the Chancellor in attempting to resolve the dispute.

V. This memorandum does not confer or surrender any authority beyond that already possessed by each party concerned. Further, it does not abrogate any requirement by either party to coordinate matters of master planning with the Association of Bay Area Governments (ABAG) or other appropriate agencies.

1. For the City, the Director of City Planning shall be the responsible designee.
2. For UCSF, the Vice Chancellor for Resource Management and Planning Services shall be the responsible designee.

Exhibit H

THE CASE FOR HOUSING IMPACTS ASSESSMENT:

THE HUMAN HEALTH AND SOCIAL IMPACTS OF INADEQUATE HOUSING AND THEIR CONSIDERATION IN CEQA POLICY AND PRACTICE

PHES TECHNICAL RESEARCH REPORT
MAY 2004

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC HEALTH
OCCUPATIONAL & ENVIRONMENTAL HEALTH SECTION
PROGRAM ON HEALTH, EQUITY, & SUSTAINABILITY

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INTRODUCTION

The California Environmental Quality Act (CEQA)[1] requires governmental agencies to provide a public accounting of all potentially adverse impacts of decisions that change the environment. While some consider CEQA to be concerned exclusively with the physical environment, the aims of CEQA extend to human well being. For example, CEQA's policy goals include maintaining "…conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations," and "..,providing a decent home and satisfying living environment for every Californian." (California Government Code §21000) Under CEQA, a local agency must consider reasonably foreseeable "… environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly."[2]

Traditionally, health and human impact assessment within environmental review has focused on hazardous environmental agents such as air pollutants. While such impacts are important, the relationships between the physical environment and human health include many other neglected dimensions.

Unmet housing needs in San Francisco result in particularly significant public health costs. Inadequate or unaffordable housing forces San Francisco residents into crowded or substandard conditions; requires them to compromise access to jobs and services, and quality education; and requires them to work multiple jobs to make ends meet. The Department of Public Health witnesses these effects when we care for the homeless, in the course of our enforcement of environmental health and housing standards, and through our efforts to improve the housing of those with environmentally related illnesses such as asthma.

Unmet housing needs also have indirect environmental and economic consequences. High housing costs are disincentives for business development or expansion which also means reduced economic opportunities for residents. High cost housing in regional job centers such as San Francisco is one factor that drives development of lower cost housing on the urban fringe, contributing to traffic congestion and air pollution, as well as the loss of regional farmland and open space.[3]

As one strategy to ensure adequate affordable housing in San Francisco, the San Francisco Department of Health, in partnership with the City's Department of Planning, has researched how environmental impact analysis might more

[1] CEQA, similar to NEPA, predated the more proscriptive environmental regulatory approaches such as the Clean Water Act aiming instead to ensure transparency and accountability in decision making. CEQA requires public agencies to produce an Environmental Impact Report (EIR) prior to making public decision that may have significant adverse environmental effects. (California Public Resources Code, Environmental Protection, §21000) An EIR must analysis on all potentially significant adverse environmental impacts, feasible alternatives, and steps to avoid or limit impacts. If an EIR concludes that a project would have significant impacts, the agency can not approve it until it either they determine that mitigation or alternatives are infeasible or that the project's benefits outweigh the adverse impacts.

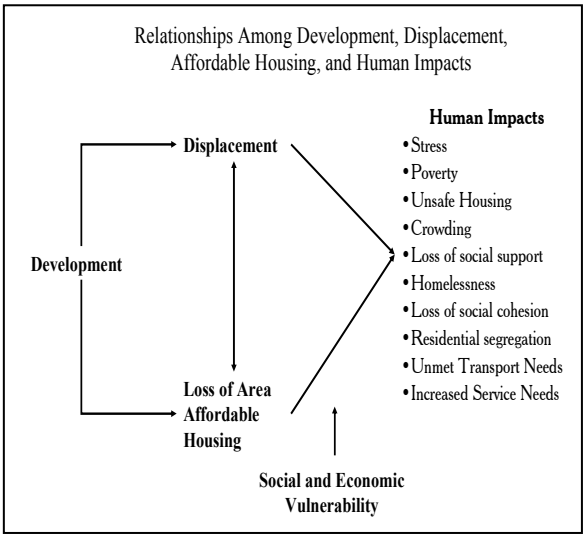
[2] CEQA Guidelines. Title 14. California Code of Regulations. (Accessed at http://ceres.ca.gov/topic/env_law/ceqa/guidelines/)

[3] http://www.brookings.edu/views/speeches/downs/20030529_downs.htm

comprehensively account for impacts on affordable housing and residential displacement.

CEQA guidelines allow cities to determine their own impacts of concern, screening criteria, assessment and evaluative methodologies, and preferred mitigation measures. In addition, though the guidelines provide a list of potential adverse impacts on the environment they do not provide a way of judging whether the effects are significant in a particular set of circumstances. One way for local jurisdictions and public agencies to ensure consistent and objective determinations in their environmental review is to adopt a 'threshold of significance.'[4]

CEQA authorizes local governments to adopt by "…ordinance, resolution, rule, or regulation" locally specific "objectives, criteria, and procedures for the evaluation of projects." (California Government Code §21082). These 'thresholds of significance' are qualitative or quantitative standards that provide local agencies a way to differentiate whether a particular environmental effect is significant. Thresholds may be based on health based standards, service capacity standards, ecological tolerance standards, policies and goals within the city's general plan, or any other standard based on environmental quality. Ideally, threshold development should involve public participation and the documentation of a threshold should include (1) a definition for the effect (2) the reasons the effect is significant (3) the criteria at which effect becomes significant (4) references and sources (5) potential mitigation measures if available.



Methods to consider impacts on housing affordability and residential displacement exist; however, these methods have not been applied to impact assessment practice in San Francisco. In California, several local jurisdictions (Los Angeles, Santa Barbara, and LakeTahoe) have adopted comprehensive, environmental review guidelines which include thresholds of significance for housing impacts. San Francisco adopted level of service standards (LOS) for the evaluation of impacts on automobile and transit in 2002 but does not have consistent evaluative criteria for several other important environmental effects included effects on housing.

This technical report outlines several ways that impacts on housing affordability and residential displacement can be included in the process of environmental review. It also provides the groundwork for developing local significance thresholds criteria for housing impacts. We have organized this document into three sections: (1) Social and health consequences of housing affordability and residential displacement; (2)

[4] Thresholds of Significance: Criteria for Defining Environmental Significance. CEQA Technical Advice Series Govenor's Office of Planning and Research 1994 Accessed May 24th 2004 at: http://ceres.ca.gov/topic/env_law/ceqa/more/tas/threshld.pdf

Interpretation of CEQA policy and guidelines with regards to the analysis of social, health, and environmental justice impacts; (3) Public agency guidelines for affordable housing and displacement impact assessment.

The first section provides a scan of the public health and social science research that relates affordability and displacement to adverse human outcomes. We organized this section using a public health framework that relates project development to residential displacement and housing affordability and these effects to indirect adverse human impacts. (The framework used in this report is illustrated in the figure above.) The second section considers the impacts on affordability and displacement as indirect social impacts, as indirect human health impacts, as environmental justice impacts, and as impacts that affect long term environmental policy goals. The third section provides a scan of impact assessment methods and practice applicable to housing impacts analysis bringing together a number of federal, state, and local tools and guidelines.

SECTION I. SOCIAL AND HEALTH CONSEQUENCES OF HOUSING AFFORDABILITY AND RESIDENTIAL DISPLACEMENT

The pathways between affordable housing, residential displacement, and human health and well being are numerous and complex. The impacts of any particular project or program that affects housing affordability or displaces residents depend on both contextual and individual factors including the availability of affordable housing units, the extent of relocation assistance provided, the income and savings of displaced residents, and the availability of social support networks.

This section provides a summary of available evidence on the adverse human consequences of housing affordability and residential displacement. Sources include case studies, interviews, and studies on homelessness, and public health and social science research.

Unmet Needs for Affordable Housing in California and San Francisco

According to *Slum Housing in LA*, a recent publication by UCLA's Advanced Policy Institute, the Federal goal of "securing the health and living standards of its people…" has only been met for upper and moderate income groups, while communities that are poor in both rural and inner city areas lack adequate housing. [5] Three in ten US households have housing affordability problems.

The affordable housing crisis is particularly acute in California. In San Francisco, only 7.3% of households currently earn enough to afford the median sale price of housing.[6] In addition, the fair market rent for a two-bedroom apartment is $1,904 which is affordable only to those who make 90% of the average family's median income of $86,100.[7] Exacerbating this situation, the gap between the minimum wage and the minimum hourly wage required to afford adequate housing has increased. Currently, over 35,000 low income renters pay more than 50% of their income in rent. Even individuals earning modest wages, such as, public service employees and those in the construction trades simply cannot afford to live where they work.[8]

A related factor, affecting low income renters, is the unmet demand for subsidized housing programs. In California, over two-thirds of qualifying low income households remains on waiting lists for housing assistance.[9] The state has 186,000 rental units housing 450,000 low income people which benefited from public finance. About 70% of this stock, over 120,000 units, represents housing in the HUD Section 8 program for which rent subsidy contracts are expiring. The conversion of subsidized housing will further aggravate unmet demand for low income housing.

[5] Richman N, Pitkin B. Understanding Slum: The Case of Los Angeles, USA. 2003 UCLA Advanced Policy Institute. Los Angeles, CA.

[6] San Francisco Planning Department. Update of the Housing Element of the General Plan. (Accessed at: http://www.ci.sf.ca.us/planning/citywide/c1_housing_element.htm)

[7] National Low Income Housing Coalition Out of Reach 2003: America's Housing Wage Climbs. (Accessed at: http://www.nlihc.org/oor2003/)

[8] Governor' Environmental Goals and Policy Report. Office of Planning and Research 2003

[9] Forbes, Elaine. 2000

While the population of San Francisco is growing, San Francisco is not currently meeting the housing production goals of moderate income, low income and very low income communities. The Mayor's Office of Housing estimates that the City needs to build 19,000 units of affordable housing between 2001 and 2005 to meet its needs. Furthermore, according to the Housing Element of the General Plan, the strongest job growth is expected in the service and retail sectors; however, much of that growth is represented by low and medium wage jobs including cashiers, waiters and cooks, sales people and clerks, and painters, carpenters and electricians.

The Relationship between Displacement and Affordable Housing

Residential displacement has become a critical issue in California where housing shortage disproportionately affects low income and minority populations. Displacement can occur in the context of demolition or redevelopment of residential property or the conversion of rental units to ownership housing. Displacement also occurs in the context of gentrification when neighborhoods change in a way that inflates rents. Structural forces that contribute to displacement of individuals and families and unsatisfactory relocation in San Francisco include the relatively high cost of housing relative to incomes, the large unmet need for housing particularly at lower income levels, and the high cost of land and housing. Given that San Francisco is a setting with a limited supply of affordable housing, residents displaced through eviction or redevelopment are unlikely to be successfully relocated into adequate and affordable housing replacement housing.

Human Health Impacts of Inadequate Housing

Residential displacement or the permanent loss of area affordable housing can be expected to lead to diverse health effects. Both displaced residents and those entering the housing market may have to pay more for housing.[10] Some may accept affordable but inadequate, substandard, or poorer quality housing. Some may move out of the city or region while others may move into a temporary living situation with a friend or family member. Finally, some may become homeless. Low income individuals and families are more susceptible to adverse consequences after displacement as they have limited options for relocation.

Stress Displacement may increase levels of psychological and physiological stress, for example, by creating a new economic strain among low income individuals. If residents are displaced away from jobs or schools, longer commutes may be a further source of stress and reduce time for leisure or family activities. For children, frequent family relocation leads to children's grade repetitions, school suspensions, and emotional and behavioral problems.[11] Living in resource poor neighborhoods, frequent school changes, and substandard housing all contribute to poor child development and school

[10] Hartman, Chester. Comment on "Neighborhood revitalization and displacement: A review of the evidence. Journal of the American Planning Association. 1979;45:488-491.

[11] Cooper, Merrill. Housing Affordability: A Children's Issue. Canadian Policy Research Networks Discussion Paper. Ottawa. 2001

performance.[12]

A number of scientific studies have demonstrated health consequences of psychosocial stress. For example, a randomized study of healthy human volunteers demonstrated that chronic stress doubled the rate at which inoculation with a common cold virus led to a clinical infection. [13] Other studies have linked the experience of stress with chronic diseases including heart disease, hypertension, and diabetes.[14] Among pregnant women, stress has also been associated with a greater likelihood for pre-term delivery and low birth weight birth – both factors that potentially lead to developmental delays and increased infant morbidity and mortality.

Poverty There is little doubt that poverty leads to poor health. Numerous research studies in diverse countries show that poverty contributes to a poorer subjective sense of health, higher mortality, less emotional stability, worse chronic conditions, and poorer physical functioning.[15]

Unaffordable housing is both a dimension of poverty and a contributor to poverty. Households with incomes several times the full-time minimum wage can pay more than half of their incomes for housing.[16] When housing is unaffordable, people often sacrifice other material needs including food, clothing, and health care services. Nationally, those with incomes in the bottom fifth of the income distribution and paying 50% of their incomes for housing have an average of $417 to cover all non-housing monthly expenses.[17] Lack of affordable housing has also been linked to inadequate nutrition, especially among children. A recent survey of American cities found that low paying jobs and high housing costs are the most frequently cited reasons for hunger.[18] Children from low-income families receiving housing subsidies showed increased growth compared with children whose families were on a subsidy waiting list, an observation consistent with the idea that subsidies provide a protective effect against childhood malnutrition.

Unaffordable housing may add to psychosocial stress. People required to work extra hours or at multiple jobs may sacrifice personal leisure family relationships. Time pressured parents may choose either more punitive or low-effort strategies to resolve conflict with children.[19] Studies have shown that economic strains such as being unable to pay the bills cause depression in mothers and harsh parenting styles. Displacement and relocation may also result in job loss with potential further aggravation of

[12] Ross, DP & Roberts, P. Income and child well being: A new perspective on the policy debate. Canadian Council for Social Development. Ottawa. 1999.
[13] Cohen, Sheldon et al. Types of Stressor that increase susceptibility to the common cold in Healthy Adults. Health Psychology. 1998; 17(3):214-223.
[14] McEwen, Bruce E. Protective and damaging effects of stress mediators. New England Journal of Medicine. 1998; 338(3): 171-179.
[15] Phipps, Shelly. The Impact of Poverty on Health: A Scan of the Research Literature. Ottawa. Canadian Institute for Health Information 2003.
[16] The State of the Nation's Housing. Joint Center for Housing Studies of Harvard University. 2003.
[17]
[18] Sandel, M, Sharfstein, J, Shaw, R. There's no place like home: How America's Housing Crisis Threatens our Children. Housing America. San Francisco. 1999.
[19] Dunn, James R. A population health approach to housing: A framework for research. Report prepared for the National Housing research Committee and the Canada Mortgage and Housing Committee. University of Calgary. 2002.

economic strain and psychosocial stress.

Overcrowding Statewide, 24% of renter households are overcrowded while in San Francisco over 30% of renter households are characterized as overcrowded.[20] [21] Families frequently double up as a way to cope with the lack of affordable housing. Similarly, displaced residents find temporary lodging with families or friends. Overcrowding results in respiratory infections in adults and ear infection in children.[22] Overcrowding also means the lack of quiet space for children to do homework, negatively impacting their development, education, and future life opportunities.[23]

Housing Safety Over half of the San Francisco's housing was built over 50 years ago and requires significant rehabilitation to maintain habitability; 94% of the housing stock was built before 1978. Most of the city's pre-1950 dilapidated housing stock is located in low-income neighborhoods. A number of environmental conditions in older and poorly maintained housing affect health. Inadequate heating can lead to overexposure to cold. Poorly maintained paint leads to lead poisoning. Other unsafe conditions include exposed heating sources, unprotected windows and slippery surfaces that increase risks for injuries. Older units and low-income units tend also to have a greater likelihood of deferred maintenance.

Indoor Air Quality Irritants and allergens present in one's home environments contribute to asthma. Some of the most important allergens implicated in the development and recurrence of asthma include house dust mites, cockroach antigens, cat dander, mold spores, and pollens.[24] Old carpeting serves as a reservoir for dust, allergens and chemicals. Kitchens and baths, particularly in older housing stock, often lack adequate ventilation increasing problems associated with moisture and mold.

Since 1999, SFDPH has conducted several hundred assessments for asthmatic children and adults and identified through evaluation research the role of housing affordability as a barrier to reducing asthma triggers in the home. While SFDPH enforces laws to ensure the safety and habitability of housing, inspectors have found many instances where substandard and unhealthy conditions exist yet tenants are reluctant to initiate enforcement actions. Commonly, tenants are fearful of landlord reprisal or eviction in an unaffordable housing market.

Social Support If displaced residents are forced to relocate outside of their neighborhood, valuable supportive family and community relationships can be lost both for those leaving and well as for those remaining behind. Strong social relationships and community cohesion are protective of health in multiple ways. Neighbors, friends, and family provide material as well as emotional support. Support, perceived or provided, can buffer stressful

[20] Govenor's Environmental Goals and Policy Report. Op Cit.
[21] Based on San Francisco data from the 1999 American Housing Survey. (Accessed at: http://www.census.gov/hhes/www/ahs.html)
[22] Krieger, J & Higgens, DL. Housing and Health: Time again for Public Health Action. American Journal of Public Health. 2002; 92: 758-768.
[23] Cooper, M. op cit.
[24] Institute of Medicine. Clearing the Air: Asthma and Indoor Air Exposures. National Academy Press. Washington D.C. 2000.

situations, prevents damaging feelings of isolation, and contributes to a sense of self-esteem and value.[25] The magnitude of the effect of social support on health is substantial and has been illustrated by several prospective long term studies in the United States. For example, in the Alameda County Study, those with fewer social contacts (e.g. marriage, family, friends, and group membership) had twice the risk of early death, even accounting for income, race, smoking, obesity, and exercise.[26]

Homelessness One of the most severe consequences of both unaffordable housing and displacement is homelessness. Hunger and homelessness are on the rise in major American cities, according to a 2003 survey by the U.S. Conference of Mayors.[27] Requests for emergency shelter assistance increased by an average of 13 percent in the 25 large cities surveyed. Twenty-three participating cities reported that lack of affordable housing was the leading cause of homelessness.

Over 350,000 Californians are estimated to be homeless.[28] A particularly disturbing trend is the rise of family homelessness. It is estimated that between 80,000 and 95,000 homeless children exist in California.[29] The USCM survey documents that Eighty-four percent of the cities have turned away homeless families from emergency shelters due to lack of resources.

Homelessness contributes to a number of other well described physical, behavioral and mental health problems in adults and children. Lack of housing and the overcrowding found in temporary housing for the homeless have been found to contribute to morbidity from respiratory infections and activation of tuberculosis. Substandard housing, such as that used by the homeless population, often lack safe drinking water and hot water for washing; often have ineffective waste disposal, intrusion by disease vectors (e.g., insects and rats); and often have inadequate food storage, all of which have long been identified as contributing to the spread of infectious diseases. [30] A 1994 study of children living in homeless shelters in the Los Angeles area found that the vast majority (78%) of homeless children interviewed suffered from depression, a behavioral problem, or severe academic delay.[31] Among sheltered homeless men and women, age adjusted death rates are several fold higher than in the general population.[32]

Homelessness is strongly linked to hunger. Temporary housing for homeless children often lacks cooking facilities.[33] In the 2003 US

[25] Cohen, S, Underwood, LG, Gottlieb, BH. Social Support Measurement and Intervention. Oxford University Press. New York. 2000.
[26] Berkman LF, Syme SL Social networks, host resistance, and mortality: a nine-year follow-up study of Alameda County residents. American Journal of Epidemiology. 1979; 109(2):186-204.
[27] The United States Conference of Mayors Hunger and Homelessness Study December 2003.
[28] Governor's Environmental Goals and Policy Report. Op Cit.
[29] Governor's Environmental Goals and Policy Report Op Cit.
[30] US Conference of Mayors
[31] Zima BT, Wells KB, Freeman HE. Emotional and behavioral problems and severe academic delays among sheltered homeless children in Los Angeles County. American Journal of Public Health. February 1994 Vol 84: 260-264
[32] Barrow, SM, Herman, DB, Cordova P, Stuening, EL. Mortality among Homeless Shelter Residents in New York City. American Journal of Public Health. 1999; 89: 529-534.
[33] Krieger J, Higgins DL. Housing and Health: Time Again for Public Health Action. American Journal of Public Health. May 2002, Vol 92, No. 5: 758-768

Conference of Mayors' (USCM) survey, requests for emergency food assistance increased by an average of 17 percent over the past year. The USCM survey finds that 59 percent of individuals requesting emergency food assistance were members of families with children and their parents, and that 39 percent of the adults requesting such assistance were employed. Eighty-seven percent of the cities surveyed expect that requests for emergency food assistance will increase again over the next year. Ninety-one percent of cities participating in the survey expect that requests for emergency food assistance by families with children will increase next year. Eighty-eight percent expect that requests for emergency shelter will increase next year, and 80% expect requests for shelter by homeless families will increase in 2004.

Social Cohesion One of the most significant effects of eviction and displacement may be the erosion of social capital and social cohesion which are social indicators strongly associated with health, education, and neighborhood safety.[34]

The New York Times recently profiled a community, Franklin Square, as one of the few places in the NY area where housing affordability is promoted resulting in the integration of generations residing side-by-side. In addition to the richness of sharing experiences across generations, the Franklin Square community benefits from long-term residents who invest in maintaining the built environment, invest in the community, and contribute to community cohesion and youth development:

> "'[Franklin Square] It's just a wonderful, very stable community,' said Julie Soffientini, an assistant school superintendent who moved in 30 years ago and raised two daughters with her husband, Raymond. She said she appreciated the clean streets, well-kept properties and convenient local shopping."
>
> "Pupils begin at the Franklin Square Union Free School District, an elementary district with an enrollment of 1,975 in three schools, all for kindergarten through Grade 6. Statistics released by the state Department of Education in October showed that 99.3 percent of fourth grade students in the district met or exceeded state standards in math. Elementary school students in the Franklin Square district consistently score above state averages on other standardized tests."

The example provided above illustrates the positive impacts on society by long-term resident investment: cleaner streets, resulting in reduced cost of City-subsidized loitering cleaning; higher school performance, particularly among the younger aged-group, which results in higher school completion.

In contrast, the erosion of neighborhoods as a result of forced displacement results in the reduction of long-term residents who are most likely to invest in their communities. In areas where residents feel less invested because of the continual threat of displacement, one can find depilated environmental conditions, such as broken windows on buildings, loitering and illegal disposing of hazardous substances. Furthermore, neighborhoods where residents have little incentive to invest are shown to have higher high school drop out rates, as well as crime rates.

[34] Putnam, Robert. Social Capital: Measurement and Consequences. ISUMA. 2001(Spring): 41-51.

Segregation The loss of affordable housing and displacement may also lead to residential segregation and 'ghettoization'. Displacement may contribute to residential segregation (by ethnicity, income, or class) if available housing for displaced residents is not available in integrated neighborhoods. A study that examined expiring HUD Section 8 agreements with private owners in California, found that, on average, families relocated to relatively more racially-segregated communities.[35]

Racially segregated neighborhoods tend to have less neighborhood amenities such as schools, libraries and public transportation due to economic, political and linguistic isolation, and racism. Research has documented the health impacts of residential segregation. Many studies have shown, for example a strong association between segregation and homicide rates. Besides an excess in mortality, studies have also demonstrated a relationship between residential segregation and negative health outcomes including teenage childbearing, tuberculosis, cardiovascular disease, availability of food establishments serving healthy fare and exposure to toxic air pollutants.[36]

Strong evidence for the effects of segregated environments comes from the HUD Moving to Opportunity demonstration program. This program, implemented in five US cities, evaluated the health and social effects of relocating households from public or subsidized housing in high poverty neighborhoods to private rental housing in non-poverty neighborhoods. The program design involved a random assignment of families to an experimental group (vouchers for housing in low poverty neighborhoods and relocation assistance) a section 8 group (geographically unrestricted vouchers), and a control group and longitudinal follow-up of families over 10 years. The executive summary of the interim evaluation (midpoint of follow up) testify to the social value of non-poverty area residence. [37]

> From the families' perspectives, the principal benefit of the move was a substantial improvement in housing and neighborhood conditions. Families who moved with program vouchers largely achieved the single objective that loomed largest for them at baseline: living in a home and neighborhood where they and their children could feel and be safe from crime and violence. On a list of observable characteristics, their homes and neighborhoods were substantially more desirable than those where control group members lived. These benefits accrued to families in both the experimental group and the Section 8 group, although the improvements tended to be roughly twice as large for experimental group families, who were required to move to low-poverty areas, at least initially.
>
> Perhaps not surprisingly, these improvements in living environment led to significant gains in

[35] Forbes E. Eroding Neighborhood Integration: The Impact of California's Expiring Section 8 Rent Subsidy Contracts on Low-Income Family Housing. 2000 The Ralph and Goldy Lewis Center for Regional Policy Studies. UCLA, School of Public Policy and Social Research. Los Angeles, California

[36] Acevedo-Garcia D, Lochner KA, Osypuk TL, Subramanian SV. Future Directions in Residential Segregation and Health Research: A Multilevel Approach. American Journal of Public Health. 2003; 93:215-221

[37] U.S. Department of Housing and Urban Development Moving to Opportunity for Fair Housing Demonstration Program: Interim Impacts Evaluation. 2003 (accessed at www.huduser.org)

mental health among adults in the experimental group. The levels of psychological distress and depression were substantially reduced in this group. In addition, adults in both the experimental and Section 8 groups experienced substantial reductions in obesity for reasons we do not yet understand. Among the children in these families, girls appear to have benefited from the move in several ways. They experienced improved psychological well-being, reporting lower rates of psychological distress, depression, and generalized anxiety disorder, and improved perceptions of their likelihood of going to college and getting a well paid, stable job as an adult. These girls' behaviors changed as well, with a smaller proportion working instead of attending school. They were less likely to engage in risky behavior or to use marijuana. Finally, both these girls and society as a whole benefited from a reduced number of arrests for violent crimes.

Increased Transportation System Demands Displaced residents may find that affordable and adequate replacement housing only exists far from their current neighborhoods, potentially, meaning that they will live far from jobs and schools. Relocation may thus create a new demand for public transportation services or alternatively new demands for automobile purchase and use. Studies on the effects of urban sprawl have found that low income families, children and the elderly are disproportionately affected by the longer distances needed to travel as a result of relocation to the outskirts of a city or a region. The working poor rely on both urban public transit systems to hold steady jobs and access health care, child care and other critical social services. Former welfare recipients are particularly dependent upon the provision of reliable and convenient transportation services.

Increased Demands for Social Services For a project that results in significant displacement or relocation to non comparable housing, the magnitude of human health and social impacts may be severe. This may result in the need to fund and develop new social services to address the human impacts. For example, displacement may potentially result in new demand for safety net services for health and welfare, for mental health services, and for special educational services for children. In San Francisco, services for homeless adults and children cost the City millions of dollars and over the past several years demand for services has greatly exceeded capacity. The demand for such services is indirectly related to the magnitude of the adverse displacement outcomes.

Displacement in California and San Francisco

During the period from March 2002 through February 2003, a total of 1,643 various eviction notices were filed with the department. This figure includes 93 notices given due to failure to pay rent, which are not required to be filed with the department. The number of notices filed with the department for this period represents a 22% decrease over the prior year's filings (2,101).

The largest declines were in owner occupancy evictions, 516, or a 29% decrease, nuisance declined by 10% to 251 and eviction notices for breach declined by nearly 40% to 231. The only increases were in temporary capital improvement evictions which increased from 44

to 68, or a 26% increase and Ellis Act evictions, from 148 buildings to 187 for a 26% increase for the period. In San Francisco, the Ellis Act, a state law which says that landlords have the unconditional right to "go out of business" is used by property owners to 'change the use' of the building (condominium conversions) resulting in evictions.

Reasons for Just-Cause Evictions 2001/02 and 2002/03[38]

Just Cause	2001/02	2002/03
Owner-Occupied	726	516
Demolish/remove unit	113	67
Capital improvement (temporary)	44	68
Ellis eviction	148	187

While the issues of affordable housing, displacement, and gentrification are high on the public agenda, limited recent research has tracked the direct consequences of displacement on people. A 1999-2000 analysis of Ellis evictions in San Francisco conducted by the San Francisco Tenants' Union reveals that:

- Seniors, people with disabilities and children are most likely to become victims of the Ellis Act, comprising 51% of all Ellis Act evictions since 1999.

- Those most apt to be evicted are renters with long-term tenancies and affordable rents. Those evicted under Ellis had an average tenancy of over 11 years and were paying an average rent of $1,024 for a 2 bedroom apartment.

- Further, the Ellis Act is resulting in the loss of thousands of affordable units. For every new affordable unit that is built, 5 affordable units are lost.

Accounts from local housing advocacy organizations reveal some consequences of forced eviction among low-income families and the elderly. St. Peter's Housing, a Mission district-based non-profit organization serving low income families around housing issues and landlord/tenant problems, for example, report that a significant proportion of the families they serve are forced to separate to obtain temporary shelter, while other families resort to overcrowding in illegal units and yet other families are forced to leave their neighborhoods and the City in order to secure an affordable place to live.

St. Peter estimates that at least 20% of their clients have one or more family member aged 60 years or older. According to St. Peter's Housing, elderly residents and families are more frequently displaced, experience particularly high levels discrimination in securing housing, and are most vulnerable for separation as a result of eviction. The following case history illustrates the complexity of housing issues confronted by families with elderly members:

> An elderly couple was forced to separate (from their daughter and grandchildren) and to resort to live in an illegal in-law unit. The unit was so poorly maintained that the stairs leading to the entrance of the unit collapsed resulting in the broken hip of the elderly woman. The elderly woman reported the incidence to St. Peter's for advice. St. Peter reported this case the

[38] Rent Stabilization and Arbitration Board, April 28, 2003

> Department of Building Inspections (DBI) whose inspector cited the owner for the illegal unit, and forced the owner to shut down the illegal unit. DBI's inspection is in itself intended to protect families from living in substandard conditions and yet, in this particularly case, served to aggravate the elderly couple living situation. The elderly couple was not only forced to separate from their family, but were now suffering from the injured hip and its incurred health care cost, and as a result of the inspection was now faced with displacement. [Personal communication, St. Peter's Housing, December 2003]

The effects of displacement as a result of the lack of affordable housing among the senior population are heightened among its Gay and Lesbian subgroups. Recent, cross-sectional evidence of GLBT elderly living in the greater Los Angeles Area shows that:

- Same-sex partners cannot share a room in most care facilities, forcing many GLBT older adults retreat back into the closet, in order to secure housing at nursing homes.
- Same-sex partners cannot receive Social Security survivor benefits.
- GLBT older adults do not have the same family support systems as their heterosexual counterparts.
- There are many government programs that target the elderly, but none are geared towards GLBT older adults.[39]

[39] Gay and Lesbian Elder Housing of Los Angeles Website: http://www.glehc.org/facts.htm, accessed on December 3, 2003

SECTION II SOCIAL, HEALTH, AND ENVIRONMENTAL JUSTICE IMPACTS IN CEQA POLICY

As discussed in the section above, the lack of housing affordability in California and its human impacts suggests that environmental impact assessment (EIA) should consider how a development project might impact housing affordability or displaced residents. Four ways in which these issues fit into the framework of the California Environmental Quality Act (CEQA) include:

- As potential indirect social and economic impacts on population and housing;
- As indirect health impacts of physical or social impacts;
- As environmental justice impacts;
- As impacts requiring evaluation for consistency with city, regional and state housing and environmental policy goals.

Adverse Social and Economic Effects of Impacts on Population and Housing

CEQA considers the loss of housing requiring construction of new housing and the displacement of people as potential adverse environmental impacts requiring analysis in the environmental checklist provided in CEQA Guidelines. The checklists screening questions include:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

However, impacts on population and housing may have particular adverse effects on parts of the population. For example, if a project replaces low income housing with market rate housing, this may disproportionately and adversely impact those with lower income. This type of impact may be considered an adverse social impact. Under CEQA, adverse social and economic impacts may be analyzed in determining the significance of physical environmental changes. Title 14, section 15064, subsection (e) of the California Administrative Code provides the following guidance:

> Economic and social changes resulting from a project shall not be treated as significant effects on the environment. *Economic or social changes may be used, however, to determine that a physical change shall be regarded as a significant effect on the environment.* Where a physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project. Alternatively, economic and social effects of a physical change may be used to determine that the physical change is a significant effect on the environment. *If the physical change causes adverse economic or social effects on people, those adverse effects may be used as a factor in determining whether the physical change is significant.* [Emphasis added]

For example, if a project would cause overcrowding of a public facility and the overcrowding causes an

> adverse effect on people, the overcrowding would be regarded as a significant effect.

Despite the guidance above, the inclusion of social and economic impacts under CEQA is controversial. Many interpret the language in section 15064, subsection (e) to mean that the analysis of indirect adverse social and economic effects may be considered in an EIR but are not, strictly speaking, required.[40] According to the California Department of Transportation: "Many people in California, including some decision-makers, harbor the general belief that CEQA addresses only purely "environmental" issues, not social, demographic, or economic issues often raised by proposed projects. This is erroneous. The assumption however is understandable due to the complex linkage that must be demonstrated between the physical, social, and economic environment, and the determination of 'Significance'."[41]

Some case law has directly addressed this issue. In Citizen's Association for Sensible Development of Bishop Area v. County of Inyo,[42] the courts reconciled the ambiguity of section 15064, subsection (e) with subsections (d) and (f) which discussed evaluation of secondary or indirect consequences of a project. In the Bishop case, the Court ruled that subsection (f) gave the lead agency discretion to determine whether the consequences of social and economic changes were significant but did not give it discretion not to consider these consequences at all. In their ruling, the Court interpreted section 15064 as follows: "the lead agency shall consider the secondary or indirect environmental consequences of economic and social changes, but may find them to be insignificant."

Indirect Health Impacts

Environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly are considered mandatory findings of significance in accordance with CEQA Guidelines Section 15065.

> A lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where any of the following conditions occur: (d) The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

As discussed in the evidence provided above, housing affordability and displacement affect health in numerous ways. Projects that have area or regional affects on the availability of affordable housing may be considered to have potential indirect adverse health consequences. Since displaced residents may not be relocated in adequate housing, the potential indirect health impacts of displacement also warrant consideration.

Environmental Justice Impacts

Environmental justice is rooted in the Equal Protection Clause of the U.S. Constitution and can be advanced using National Environmental

[40] Bass, RE., Herson, AI, Bogdan, KM. CEQA Deskbook A step-by-step guide on how to comply with the California Environmental Quality Act. Solano Press. Point Arena, 2001.
[41] Guidelines for Community Impact Assessment. California Department of Transportation. 1997
[42] Citizen's Association for Sensible Development v. County of Inyo, 172Cal.App.3d 151 (1985)

Policy Act (NEPA) as well as the Civil Rights Act of 1964. Environmental Justice provides another rationale for considering the effects on affordable housing or the displacement of low income residents under CEQA. California Law defines Environmental Justice as "… the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies."[43]

While environmental justice analysis and efforts in California have historically emphasized disproportionate health effects of toxic physical environmental agents, the concept of environmental justice is broader than the physical environment and human health. As stated in the 1997 President's Council of Economic Quality (CEQ) guidance adverse environmental justice effects can be also economic, social, cultural, and ecological impacts directly or indirectly related to physical environmental changes or impacts. 1997 CEQ Guidance states:

> When determining whether environmental effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable:
> (a) Whether there is or will be an impact on the natural or physical environment that significantly (as employed by NEPA) and adversely affects a minority population, low-income population, or Indian tribe. Such effects may include ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment; and
> (b) Whether environmental effects are significant (as employed by NEPA) and/or may be having an adverse impact on minority populations, low-income populations, or Indian tribes that appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group; and
> (c) Whether the environmental effects occur or would occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

In California, Assembly Bill 1553 requires that the principles of environmental justice be incorporated into state guidelines for local general plans. As discussed below, this broader definition of environmental justice effects is consistent with adverse environmental effects under NEPA and CEQA as well as the 2003 State of California General Plan Guidelines Section on Environmental Justice and Sustainability and the 2003 Governor's Environmental Goals and Policy Report. The 2003 General Plan Guidelines include mixed-income housing development as a component of sustainability and environmental justice. Even from the standpoint of public health, inequitable social and economic effects can be equally if not more important that inequitable environment quality effects. An environmental justice analysis of projects that result in population or housing loss could focus on the potential for disproportionate impacts to low income and minority populations both living in the current units as well as effects on the market for affordable housing in the region.

[43] California Government Code Section 65040.12

Consistency with Local, Regional and State Land Use Policy

CEQA guidelines consider potential significant environmental impacts to include: "Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?" Local policies related to affordable housing can be found in the Housing Element of the General Plan, the HUD Consolidated Plan, and local ordinances related to rent and to eviction prevention.

California State law defines also a jurisdictions fair share housing goals in terms of four categories of affordability through the Regional Housing Needs Determination (RHND) process, devised to address the need for and planning of housing across a range of affordability and in all communities throughout California. Each jurisdiction within the Bay Area (101 cities, 9 counties) is given a share of the anticipated regional housing need. The Bay Area's regional housing need is specified by the California State Department of Housing and Community Development (HCD) and finalized through negotiations with Association of Bay Area Governments. The timeframe for this RHND process is January 1, 1999, through June 30, 2006, (a seven and a half year planning period). The current RHND requires 5244 units affordable to very low income residents, 2136 units affordable to low income residents, 5639 units affordable to moderate income residents, and 7363 units affordable to above moderate income residents. While San Francisco has met its market rate housing targets in recent years, it has not met moderate income, low income and very low income housing needs.

Total Need	Very Low	Low	Moderate	Above Moderate
20,372	5,244	2,126	5,639	7,363

The 2003 State of California General Plan Guidelines may also be viewed as applicable impacts on affordable housing.[44] The guideline's section on sustainability and environmental justice emphasize the need to carefully match employment potential, housing demand by income level and type, and new housing production.

The importance of ensuring adequate and affordable housing for every sector of the population to long term environmental quality and ecological sustainability is also emphasized in the 2003 Governor's Environmental Goals and Policy Report.[45] These State policies together with the emphasis on long term environmental goals in CEQA guidelines Section 15065 (b) suggests that impacts on housing affordability and adequacy are also potential mandatory findings of significance.

[44] 2003 State of California General Plan Guidelines. Office of Planning and Research. 2003

[45] Governor's Environmental Goals and Policy Report. Office of Planning and Research. 2003 (Accessed at: http://www.opr.ca.gov/EnvGoals/PDFs/EGPR--11-10-03.pdf)

SECTION III IMPACT ASSESSMENT METHODS AND GUIDELINES FOR AFFORDABLE HOUSING AND DISPLACEMENT

A number of federal, state and local agencies consider displacement of low-income populations and loss affordable housing as potentially adverse impacts in the context of Environmental Impact Assessment. Examples of methods and guidelines are provided below:

Social Impact Assessment (SIA) The practice of SIA dates back to the construction of the trans-Alaska pipeline. At the time, critics argued that the Environmental Impact Statement (EIS) produced for that project failed to address potential social effects such as the influx of tens of thousands of non-native construction workers on the culture of the Inuit. In 1994, the U.S. Federal Government published a set of guidelines for SIA to support social assessment under NEPA.[46] Social impacts are defined as "…the consequences to human populations of any public or private actions-that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society." The guidelines categorized social impact variables as follows:

1. Population Characteristics mean present population and expected change, ethnic and racial diversity, and influxes and outflows of temporary residents as well as the arrival of seasonal or leisure residents.

2. Community and Institutional Structures mean the size, structure, and level of organization of local government including linkages to the larger political systems. They also include historical and present patterns of employment and industrial diversification, the size and level of activity of voluntary associations, religious organizations and interests groups, and finally, how these institutions relate to each other.

3. Political and Social Resources refer to the distribution of power authority, the interested and affected publics, and the leadership capability and capacity within the community or region.

4. Individual and Family Changes refer to factors which influence the daily life of the individuals and families, including attitudes, perceptions, family characteristics and friendship networks. These changes range from attitudes toward the policy to an alteration in family and friendship networks to perceptions of risk, health, and safety.

5. Community Resources: Resources include patterns of natural resource and land use; the availability of housing and community services to include health, police and fire protection and sanitation facilities. A key to the continuity and survival of human communities are their historical and cultural resources. Under this collection of variables we also consider possible

[46] http://www.nmfs.noaa.gov/sfa/social_impact_guide.htm

changes for indigenous people and religious sub-cultures.

U.S. Department of Transportation Community Impact Assessment Guidance Among transportation agencies, changes in policies have included redefining the definition of "environment" to include "the natural environment, the built environment, the cultural and social fabric of our country and our neighborhoods, and the quality of life of the people who live here,' and considering project mediated effects on community cohesion; public facilities; employment; tax and property values; displacement of people, businesses, and farms; and adverse impacts on community and regional growth.

DOT guidelines for community impact assessment consider a number of social and economic factors.[47] They further recognize that while community impact assessment should not be exhaustive, it should focus on community goals and issues of community concern and controversy. The guidelines identify that displacement can involve, neighborhoods, businesses, and people. (www.ciatrans.net) Recommended analysis of impacts on residential displacement include the number and type (multi-family, single family) of residences displaced and the particular needs of vulnerable groups (disabled, minority, elderly).

Council on Environmental Quality Environmental Justice Guidance The Council on Environmental Quality, the federal agency tasked with oversight of NEPA and government compliance with Executive Order 12898 developed guidance to assist federal agencies with addressing environmental justice concerns in the context of NEPA procedures. This guidance suggests that agencies should 'determine whether minority populations, low-income populations, or Indian tribes are present in the affected area…consider data concerning the potential for multiple or cumulative exposure to human health or environmental hazards…recognize the interrelated cultural, social, occupational, historical, or economic factors that may multiply the natural and physical environmental effects…[and]…should assure meaningful community representation in the process.[48]

California Department of Transportation The California Department of Transportation (CalTrans) reference documents for CEQA provide specific guidance for the evaluation of impacts on population and on housing displacement. The 1997 Guidelines for Community Impact Assessment point out that the disproportionate displacement of vulnerable populations can have significant adverse human impacts:

> Certain population groups such as senior citizens, low income residents and non English speaking people often have strong community ties and depend on primary social relationships and important support networks that can be severed upon relocation. Households with school aged children may consider relocation especially disruptive if school transfers would be involved. Disabled people and those

[47] Federal Highway Administration Community Impact Assessment Website (Accessed at: www.ciatrans.net)

[48] Environmental Justice: Guidance under the National Environmental Policy Act. Council on Environmental Quality. 1997.

> without automobile transportation often have special relocation problems.

The guidelines suggest investigating the demographics of the residents to determine if any vulnerable groups (Low income, minority, seniors, disabled, and children) would be impacted. The guidelines suggest evaluating the effects on the stock of affordable housing:

> A loss of a substantial number of houses affordable to people with low and moderate incomes may have an effect on the community stock of affordable housing. This could have the effect of increasing the demand for housing in a given sector of the market, bidding up the cost of that housing if the market supply is constrained and thereby disproportionately affecting certain income groups.

Similarly, the 2003 Desk Guide for Environmental Justice in Transportation Planning and Investments. The environmental justice guidelines categorize social and economic impacts into land use and development, population and housing, and fiscal and economic. These guidelines suggest analysis of population and housing impacts consider a number of variables. These include:

- Property acquisition and displacement
- Access to neighborhoods
- Community Cohesion
- Safety and security
- Visual and aesthetic quality
- Property values and gentrification

A particular concern emphasized by CalTrans is impacts of displacement and relocation on neighborhood or community cohesion. The decision tree for residential displacement includes assessment of the availability of relocation housing in the community where displacement is occurring. Social impacts considerations identified by CalTrans related to cohesion include:

- Is there evidence that community cohesion exists?
- Will the proposed project affect interaction among persons and groups?
- Will the proposed project cause redistribution of the population or an influx or loss of populations?
- Will certain people be separated or set apart from others?

City of Los Angeles Thresholds Guide In its *1998 CEQA Thresholds Guide*, the City of Los Angeles uses the following screening criteria for evaluating significant effects on population and housing displacement.[49]

- *Would the project result in the net loss of any existing housing units affordable to very low income or low income households (as defined by federal and/or City standards), through demolition, conversion, or other means.*

The Los Angeles guidelines evaluate the significance of population and housing impacts by considering the following factors:

- The net change in market rate and affordable units in the project area
- The current and anticipated supply of market rate and affordable units in the project area

[49] http://www.ci.la.ca.us/EAD/EADWeb-AQD/Thresholds_PDF/introceq.pdf

- The demographics of the project area
- The consistency with city and regional housing policies

The guidelines also suggest the following two mitigation measure for displacement of affordable housing:

- Exceed the statutory requirements for relocation assistance
- Increase the number of housing units affordable to lower income households

Tahoe Regional Planning Agency (TRPA) The TRPA Initial Environmental Checklist[50] requires a response to and evidence for the following questions relevant to the displacement of low income residents and the loss of affordable housing:

- Will the proposal include or result in the temporary or permanent displacement of residents?
- Will the proposal decrease the amount of housing in the Tahoe Region historically or currently being rented at rates affordable by lower and very-low-income households?
- Will the proposal result in the loss of housing for lower-income and very-low-income households?

Mitigation of affordable housing loss is required for project approval. According to planners at the TRPA any loss of affordable housing due to redevelopment has to be either rebuilt on site or offsite taking into account similar accessibility to transport resources. A recent example of such mitigation occurred with the proposed development of the 138 unit Round Hill Vacation Resort. The development of the time share condominium involved the removal of the 186 unit Lake Park Apartments. To mitigate displacement, the project included the construction of 67 new apartment units offsite prioritized for displaced tenants, affordable housing restrictions for the new apartments, phased demolition over 24 months with eviction of no more than 8 units per month, and relocation assistance.[51]

County of Santa Barbara Santa Barbara's 1993 Environmental Thresholds and Guideline Manual[52] provide a specific threshold for the loss of affordable housing. The rationale for establishing such a threshold comes from the county's affordable housing policies. The Santa Barbara County Housing Element documents a substantial shortfall in affordable housing opportunities and the preservation of the existing affordable housing stock is a stated goal of the Housing Element. According to the Element, "the loss or demolition of existing affordable units can displace very low to moderate income persons and further restricts the housing market." The threshold for Very Low to Moderate Income Housing Units is as follows:

- *The loss of four or more very low to moderate income housing opportunities through demolition, conversion, or other means represents a significant housing impact. Affordability is determined on the basis of the applicable definitions within the County's Comprehensive Plan and Coastal Plan.*

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[50] http://www.trpa.org/Applications/new_applications2003/IECFINAL%20APRIL%202002%20Comp.pdf

[51] Lyn Barnett, Tahoe Regional Planning Association,. Personal Communication. and Balloffet and Associates. Round Hill Vacation Resort / Lake vista Apartments Environmental Assessment.

[52] http://ceres.ca.gov/planning/ceqa/thresholds.html

Mitigations to assist persons residing in those units shall be applied.

Santa Barbara's CEQA guidance also provides the following mitigation measures:

- *Mitigations would include extended length of notice to quit premises, relocation expenses, demolished or converted units through physical on or off-site replacement or by the payment of fees. Onsite replacement of low or moderate income housing is the preferable alternative. If onsite replacement is infeasible, the units shall be replaced offsite. Payment of an in-lieu fee shall occur only if on and off-site replacement are proven to be infeasible. Housing mitigation fees shall be sufficient to provide replacement of the demolished or converted units.*

Appendix I Model Housing Impacts Analysis

Screening Criteria

- Will the project result a decrease in the supply of housing?
- Will the project result in an increase in the demand for housing?
- Will the proposal result in the loss of housing affordability, availability or quality for low income or otherwise sensitive populations?
- Will low income or otherwise sensitive be displaced or relocated?

Setting Variables

- The demographics of the project area and locality
- The current and anticipated supply of housing units in the project area and locality disaggregated by affordability;
- Availability of vacant units in the project area and locality disaggregated by level of affordability;
- The quality (safety, environmental conditions...) of available housing units in the project area and locality (sources: census, local housing complaint data)
- Evidence of social cohesion in project area(e.g. organization, interactions, relationships, and support among residents)
- Access to public services in the project area (transportation, schools, childcare...)
- The number and type of employment opportunities in proximity to the project area

Analysis Variables

- The net change in market rate units historically or currently being rented at rates affordable by lower and very-low-income households in the project area
- The net change in affordable (including section 8, permanently affordable, and rent-controlled) units historically or currently being rented at rates affordable by lower and very-low-income households in the project area
- Existence within the displaced population of a higher than average proportion of ethnic minority, low income, medically vulnerable or health sensitive populations among displaced residents
- The location and comparability of replacement housing for displaced households;
- Effects on support (food, advice, childcare, elder care) provided to and by displaced residents
- Increased dependence on public assistance or public services
- Changes in accessibility to or utilization of public services
- Changes in the number of family or relatives living in close proximity
- Effects on crowding: changes in the number of individuals per room in the project area
- Changes in accessibility to public transportation
- Changes in the need for automobile ownership or use

Significance Criteria

- Net loss of housing supply relative to demand in the area, locality, or region;
- Net loss of affordable housing in the project area or locality;
- Significant reduction in housing quality or safety;
- Significant number of residents relocated to non-comparable housing;
- Any residents made temporarily or permanently homeless;
- Loss of community cohesion in project area;
- Increase of local residential segregation.

Mitigation Measures

- Change land use / zoning controls to enable increased housing density;
- Develop relocation plan consistent with California State Relocation Assistance and Property Acquisition Guidelines;
- Construct of replacement affordable housing onsite or offsite;
- Housing impact fees.

Appendix O-NZA

NATHAN ZAKHEIM ASSSOCIATES

CURRICULUM VITAE FOR NATHAN ZAKHEIM
DIRECTOR: NZA (REVISED 2020)

Since 1966, NZA has led the field of mural conservation with innovative conservation techniques and state of the art treatment of murals.

NZA has conserved more murals of every type, including fresco, oil, marouflage, tempera, and acrylic than any other firm in the United States.

ACADEMIC BACKGROUND:

1962
Graduated Santa Barbara High School.

1962 –1965
Attended San Francisco State College Major in Music; Minor in English Literature, (later BA Degree in English Literature, minor in Psychology).

1968–1977
Vedic Studies culminating in Bhakti Shastri Degree and Bhakti Bhaibava Advanced Degree.

1966–Present:
Independent Study in Solvency Parameters, Adhesives, Advanced Conservation Techniques, Product Development, Surface Preparation, Coatings and Paint Systems.

APPRENTICESHIP:

1953–1966
Apprenticed to Bernard Zakheim, in Fresco, Oils, Tempera, Wood and Stone Sculpture, Machine Shop, Wood Shop, Color Analysis, Upholstery, Draping, Egg Tempera, Ceramic and Bronze casting, Chemical Applications, Art History, Art Theory, Arranged Workshop Education with known contemporary artists of WPA and later periods. Curation and Preparator studies.

1953–1962
Studied with Phyllis Wrightson: Watercolor Techniques, Tempera, Block Printing, Fabric Printing and Painting, Linoleum Printing, Art History, Museum Studies, Field Studies, Lives of Great Artists, Art as a Medium for Social Action.

1966–1970
Private study of the new field of Scientific Conservation, utilizing State-of-the-Art Industrial Resources in the field of Chemistry, and modern conservation techniques.

1980–1984
Studied the works and techniques of Gustav Berger and apprenticed with the famous conservator Franz Trevors. During this time NZA developed several unique conservation procedures that are in general use today.

Areas of Conservation Expertise: Fresco, Marouflage, Contemporary Acrylic Mural Paintings, Egg Tempera, Casein Murals, Easel Paintings, Objects, Sculpture, PVA Murals, Church Interiors, Architectural Ornamentation, Decorative Painting.

PROFESSIONAL PAPERS PRESENTED TO WAAC AND MURAL CONSERVANCY SYMPOSIA:

1. Conservation of Orozco's Prometheus Fresco.

1. Conservation of Rico Lebrun's Genesis Fresco.

2. Numerous papers on Wall Preparation for Fresco and Acrylic Murals.

3. Conservation Study for "Los Streetscapers" Mural lawsuit.

4. Conservation of six Arthur Mathews murals at the State Capitol.

5. Conservation study for "Lilly Ann" mural lawsuit.

6. Column, "The Mural Doctor" for Mural Conservancy of Los Angeles Magazine

7. Numerous lectures on Wall Preparation, Pigment Use, Paint Systems, Coatings, Consolidation of Murals, etc., to Artists Groups as well as Conservator Meetings.

8. Conservation Parameters for City of Inglewood, (Helen Lundeburg Petrachrome wall)

9. Complete Salvage, Conservation, Re–installation Procedures for 1800 categories of items for the House of Hospitality. Balboa Park, San Diego.
(Supervised complete conservation of this $26,00,000.00 Project.

10. **Fauxcademy** weeklong presentation at the Venetian Hotel in Las Vegas for 400 attendees at the Fauxcademy Convention Las Vegas Nevada.One-week Power Point discourse on Fresco Technique and Conservation to four hundred symposium participants. PowerPoint presentation on NZA innovative Fresco Conservation techniques as well as innovative use of modern chemistry for the treatment and consolidation of Out-of-Door Acrylic Wall Murals.

11. **City Of Bishop California**:
    Extensive presentation on innovative mural techniques showing a lengthy PowerPoint demonstration of all techniques. Panel discussions, field demonstration of techniques, seminar participation.

12. **City Of Lindsay California**:
    PowerPoint presentation, field demonstration of techniques, and panel discussions.

13. **City Of Lompoc California**:
    Presentation of innovative NZA mural techniques.

A BRIEF SUMMARY OF THE CORE CONTRIBUTIONS OF NZA TO THE FIELD OF MURAL CONSERVATION:

1. NZA has developed a number of innovative varieties of "stacco" removal of very large frescoes by 1967 and at the age of 23, garnering international acclaim in the rarified field of Fresco Conservation.

2. NZA selected to conserve the famous Arthur Mathews murals for the California State Capitol Restoration Project in 1980.

3. NZA was employed by the City of San Diego (through the offices of the prominent Restoration Architect Wayne Donaldson) to completely supervise and manage the salvage, conservation and re-installation of 1,800 categories of historic and artistic features from the Historic House of Hospitality (From 1915 Balboa Exposition) situated in Balboa Park in San Diego in 1996.

   NZA created work procedures for the Salvage of the House of Hospitality, and directly supervised and participated in the removal of complete rooms without damage.

   These rooms, once conserved were replaced in the reconstructed building, as well as a very large proscenium arch in the main theater of that building. (The house of Hospitality is the first and only National Historic Reconstruction Project to be designated as one of approximagtely1800 Historic Monuments)

4. **NZA has performed innovative conservations techniques during the treatment by NZA, of frescoes painted by Orozco, Diego Rivera, Ramos Martinez, Bernard Zakheim, Ralph Stackpole, Victor Arnautoff, Millard Sheets, Albert Herter, Claire Falkenstein, Tanaka, Kent Twitchell, Judith Baca, Lorenzo Davis, Willy Herron, Rubin Brucelin, Rico Lebrun, and over 100 other artists.**

5. NZA developed a Proprietary Strappo Process for the removal of Acrylic Murals painted on concrete, stucco, and other masonry surfaces .

   This revolutionary technique resulted in a major change in state and federal law.

   Prior to the NZA Proprietary Strappo Acrylic Mural Removal technique, Out of Door Acrylic murals were not considered protected artworks under law, due to the fact that They could not be removed without also removing the masonry wall on which they were painted.

   Now by the NZA Strappo method, murals can be easily removed from their masonry walls without damage to the mural or unacceptable damage to the wall.

   On the basis of NZA's Strappo Technique, California Assemblyman Alan Sieruti was able to put through passage of legislation that then included Murals painted directly on Masonry surfaces as protected under California and then under Federal Law.

   NOTE:

   NZA developed a method of Consolidating Acrylic Murals painted over unstable and de laminating multiple paint sub-layers in such a way that all the paint layers become fused into one thick paint layer, **with the result that the longevity of the mural can not only be assured for over fifty years, but subsequent Consolidant applications can increase the longevity of a Treated Mural into perpetuity.**

6. NZA innovated its proprietary "Strappo" method of removal of very large Acrylic, Oil, and Fresco murals, involving removal of only the layer of mural paint from the masonry surface on which it has been directly painted, subsequently transferring this paint layer to a support surface, and then to another wall for permanent or temporary display.

7. **As a result of this process developed by NZA, Alan Sieroty, a member of California Legislature, facilitated the inclusion of out-of-door murals as protected under California Law, such that murals could now be removed**

from a building without substantially altering the surface of the building. NZA invented this technique for the Howard Warshaw, Channing Peake murals in Santa Barbara (13' x 25' x2 murals in 1976).

8. In 2003-2005, NZA removed the Kent Twitchell "7th St Altarpiece" double mural **painted directly on a concrete overpass support (55' x 20' each)** perfectly, using the Strappo Method invented by NZA.

9. In 3003-2005, **NZA removed 26 figures** of the Kent Twitchell Marathon Mural (250 ft long) and conserved them at the Playa Vista Howard Hughes aircraft hangar Studio of NZA.

10. In 2002, NZA perfected the greatest breakthrough technology for the conservation and maintenance of Acrylic out-of-door Murals in the history of the genre.

By this technology, involving **deeply penetrating Consolidant application of Paraloid B-72, both very old and very damaged Acrylic Murals** as well as brand-new Acrylic Murals (utilizing innovative wall preparation protocols designed by NZA) **can now be preserved into perpetuity,** at a low cost, using relatively low cost labor not requiring significant technical skill levels.

This method, which involves using the same technical-grade consolidant (used to consolidate Michaelangelo's Sistine Chapel Murals), fully complies with the letter as well as the spirit of the Code of Ethics of the AIC, IIC, and WAAC.

11. Up until 2009, NZA operated out of two large studio/labs (one for large works of art, and one for museum quality easel art, sculpture, objects etc.), NZA has maintained an extensive practice for museums, collectors and galleries using advanced conservation techniques.

12. NZA documents all of its projects, and all methods used and materials and chemicals used are fully noted and open for peer review as desired.

13. In addition to the mural projects completed by NZA, NZA has also conserved thousands of fine easel paintings by very prominent artists in the NZA Conservation Facility. NZA conserves paintings for many prominent galleries and collectors as well as museums in the Los Angeles area.

14. NZA, awarded thirteen mural panels out of a total of sixteen murals selected for conservation by Cal Trans, and **contracted by Cultural Affairs Department of Los Angeles, has been in the fortunate position to clearly demonstrate the new standards established by NZA for Continuously Renewable Mural Conservation, with spectacular success**.

PARTIAL LIST OF MURALS AND OUT OF DOOR ART CONSERVED:

1960's

1. **Removal of Cole Hall Frescos:** ("Ancient Medicine and Rational Medicine" University of California San Francisco - by Bernard Zakheim. (Relocated to HSW 2 at UCSF**. NZA introduced Proprietary Stacco method which revolutionized Stacco removal of Frescoes in Florence as well as Israel**.

1970's

1. "Ancient Jewish Wedding" Fresco: San Francisco Jewish Community Center Partial conservation of Bernard Zakheim Fresco in Courtyard of CCSF. San Francisco

2. "Almaden Indians" Panel Egg Tempera**: De Saisset Museum (University of Santa Clara) - by Clay Spohn**

3. Fresco: Piedmont High School - Claire (Von) Falkenstein

4. Celotex Mural: Piedmont High School

5, Fresco: Piedmont High School - by Tarada

6. Mural Piednont High School by Ralph Stackpole

7. Conservation of very large Earthquake Damaged Council Chamber Stenciled Ceiling for **Santa Barbara County Courthouse by** Dan Grosbeck

8. Removal of Historic "Eagles Gate Facade" from "Eagles Gate, Salt Lake City for Church of the Latter Day Saints.

9. Full Conservation of 12 Toland Hall Frescos "History of Medicine in California": University of California San Francisco - by Bernard Zakheim (These Frescoes had been wallpapered, the wallpaper painted with Oil and Alkyd paints, as well as holes drilled in each panel to hang portraits of UCSF Dignitaries.

10. **Richmond Post Office**: removal of **Victor Arnoutoff** Marouflage mural.

11. **Removal of Eagles Gate Terra Cotta Façade**: Salt Lake City Mormon Church for re-installation in lobby of new high rise office bld. (Time of Brigham Young)

12. **Reinstallation of 2 Cole Hall Frescos:** University of California San Francisco by Bernard Zakheim.

13. **Carved Wooden Polychrome Double Doorway Façade** in Barcelona Design: Santa Barbara County Library. (remove, consolidate friable wood, replicate polychrome, and re-install with rubber snakes to ward off pigeons).

14. **"Spirit of the Sea"** Sandstone Sculpture: Santa Barbara County Courthouse - **Revolutionary barium hydroxide reconsolidation of loose sandstone particles**

1980's

1. **"Prometheus" Fresco:** Pomona College Claremont- **by Jose Clemente Orozco.** All adjacent walls to mural were injected with low viscosity epoxy. A chimney behind the mural had a brick wall directly attached to the mural plaster. The bricks were removed, and the back of the mural fiberglassed with steel supports. Extensive consolidation of front of mural and Inpainting with Fresco Pigments. (3 year project)

2. **2 Frescos: Scripps College**, Claremont - **by Ramos Martinez.** (Clean and consolidate)

3. **"Genesis" Fresco Secco**: Pomona College Claremont- **by Rico Lebrun.** Painted with Poly Vinyl Acetate, the mural paint layer had been pushed away from the surface of the Keane Cement. A mist custom, Barium Hydroxide was applied with a Bonzai Sprayer, and the efflourescence dissolved, bringing the shreds of the Mural Paint Layer back in perfect alignment on the mural surface. B-72 was used to re-adhere the mural to the Kean Cement support. (3 year project)

4. Elaborate Conservation of deteriorated Sandstone Sculpture in front of Santa Barbara Courthouse. (**Consolidated deteriorated Sandstone with a proprietary formulation of Barium Hydroxide).**

5. **6 Historic Marouflage Murals: California State Capitol Building - By Arthur Mathews.** (Remove very darkened varnish, consolidate with Paraloid B-72, build 12 curved Aluminum Honeycomb Panels, apply Murals with vacuum and BEVA 371 Reversible Heat Seal adhesive, transported from Los Angeles to Sacramento and **installed by NZA into Designated Spaces in the Interpretive Museum of the Restored State Capital Museum). (8'x10' each)**

6. **6 Marouflage Murals**: Santa Barbara High School, (Clean, remove graffiti, in-paint, Museum Varnish).

7. **2 Marouflage Murals**: Santa Barbara Public Library **- By Albert Herter** (Remove Murals from library walls, conserve, and prepare hollow wooden mounting support, adhere with Beva 371, remount on library wall, install

conserved historic picture frame, create replica lower section of picture frame for one of the panels).

8. **2 Acrylic (Don Quixote) Murals** removed by Strappo: Santa Barbara City Library(12.5'x25' each) – One painted by Channing Peake and the other by Howard Warshaw. (This project was the inception of the NZA Strappo Technique, never before utilized for removal of Out of Door Acrylic Murals. The murals were pained directly on a previously painted wall using Shiva Color Acrylic Paint System. Each mural was consolidated with B-72, and a facing muslin was attached with rubber cement. The Mural was removed with air hammers vibrating the surface and then lined with fiberglass and re-mounted on a hollow fiberglass support. The murals were installed in the re-constructed Library entryway. The damage was so slight that all inpainting was accomplished by six assistants working a total of six hours. The Mural was then varnished and re-installed)

9. **4 Marouflage Murals**: Doheny Museum at St. John's Seminary, Oxnard California– By Detlef Samman (4'x20' each)

10. **2 Marouflage Murals**: Doheny Museum – **By Charles M Russell.** (Remove from wall, consolidate with B-72, museum varnish, mount on custom spring loaded stretcher bars designed and crafted by NZA mount in library room at Doheny Museum). (4'x20' each)

11. **1 Large Fresco** by lesser known artist: Ralph Stackpole's Studio Montgomery Street ,San Francisco.

12. **1 Small Fresco**: By Ralph Stackpole. **Ralph Stackpole's Studio**, Montgomery Street, San Francisco.

13. **Repair of Several Frescos**: Coit Tower of San Francisco – By Bernard Zakheim, Victor Arnoutoff, Tarada, Lucien Labaudt and others.

14. **Four Limestone Sculptures:** Santa Barbara Florentine Four Seasons - For Henry Andrea (Reconstruct loss areas and consolidate friable crumbled areas with **NZA proprietary Barium Hydroxide Consolidant.**

1990's

1. **Stacco removal of 3 Large Frescos**: Coronado Island - By Ramos Martinez, Using NZA proprietary "drawbridge technology" to lower the frescoes once separated from their support.

2. **I 4ft x 14ft Fresco:** Downtown LA Bullocks - By Millard Sheets (Strappo Removal mount on fiberglass support, install at Natural History Museum)

3. **8 4'x10' Oil Paintings** (painted directly on drywall): Laguna Beach High School - By Megan Jones (Strappo Removal)
   Rainforest Mural: Beverly Connection (Strappo Removal) (10'x 30')

4. **Don Bachardy Mural**: Peter Norton's House - By Kent Twitchell (Strappo Removal, then mounted on non-woven fabric.) (painted directly on Stucco Support)

5. **St. Lucy's and St. Gertrude Murals** - By George Yepes Consultation and Technical Support:

6. **World Wall Mural** Support System Design, and Preventative Conservation and Consolidation - By Judy Baca and SPARC (complete consolidation with multiple applications of B-72.) (800 gallons of B-72 applied). From completely faded, after consolidated, murals appeared to have regained 90% of "lost color" (fading was caused by loss of refractive index when the acrylic paint crumbled under UV light. The B-72 dissolved the Acrylic Mural Paint, and "re-formed" it so that the existent pigmentation was completely re-vitalized/

7. "**Guadalupe Mural"** Conserved and mounted on strong hollow wooden support) (Six Panels) - By Judy Baca of SPARC

9. **Historic Re-Construction of Marouflage Mural**: Downtown LA Federal Building - **By Lucien Labaudt** (12'x20') The Mural was re-constructed and mounted on a large custom panel that was then hung with iron clips to the wall of the Federal Building.

9. **"You Are the Star":** Hollywood, CA – Full Conservation and Consolidation of Acrylic Mural by Thomas Suraya

10. **Westminster Presbyterian Church**, Pasadena, CA – 100'x 400' Ceiling Mural Reconstruction following earthquake damage. Damaged areas of ceiling were completely re-painted using 35 shades of Mural Paint to match the original Heinsbergen patterns.

11. **Holy Cross Church**: Main St. Los Angeles – Conservation earthquake damage of 20'x 30'Apse Mural

12. **Westminster Presbyterian Church**: Fabrication of **multi-ton Replicate Spires** on top of Westminster Presbyterian Church Steeple **crafted from steel and fiberglass**. (Originals had fallen after earlier earthquakes) (Silicone casts were taken of the spire elements that had been distributed in many neighborhoods of Congregational Members in Pasadena. **Molds were taken "In Situ"** and then assembled into usable structures at a later date prior to installation on top of the Church Steeple).

13. Ventura Community Presbyterian Church: Conservation of Apse Mural. (Remove very dark varnish removed exposing vivid 22 carat gold leaf halos around saints in painting)

14. **Six church interiors:** After the 1992 earthquake in Los Angeles, NZA conserved six complete Church interiors including several Churches for the Catholic Archdiocese of Los Angeles, as well as a videography project for the installation of a George Yepes mural under the authority of Cardinal Mahoney of Los Angeles.

15. **Church of the Advent:** Adams St., Los Angeles - Conservation of Altar, Apse Mosaics, Tile, Floor, and aspects of Church Interior Design. (reconstruct apse cast glass mosaic. From several hundred shattered pieces. Replicate pottery floor tiles, move altar to face congregaton,, re-construct old altar).

16. **Transfiguration Church:** Martin Luther King Jr. Blvd., Los Angeles –Full conservation of 20'x30'Apse Murals, full conservation o6'x10' Stations of the Cross.

17. **Villa Park Murals**: Pasadena, CA – Acrylic **(15'high by 200'long)** (Clean, consolidate, apply B-72 as protective Consolidant. Apply anti graffiti coating.

18. **Brandelli's Brig Mural**: Venice Beach, CA – Innovative, state-of-the-art consolidation of totally flaked and cleaving acrylic over unspecified flaking paint – **By Art Mortimer** (Application of substantial spray coatings of B-72. so **At least ten layers of paint were laminated together so that the paint layer of the mural became more than ¼ inch thick.** Mural was pulled from wall in sections, and then reapplied to consolidated wall surface using Nova Super Gel. Although previously extremely flaked and delaminated, when consolidation process was complete, **In-painting was minimal.**

19. **Earthling Bookstore** Mural Installation: Santa Barbara – Marouflage

20. **"American Rhythm"** Marouflage Mural. By James Doherty. Full restoration of mural assembled out of a dozen torn pieces lined and then mounted on a structured wooden support in lobby of MCA Records and Universal Music

22. **Joel Silver "Flores De Mexico" Installation:** Conservation and installation of of "Flores de Mexico"Fresco by **Ramos Martinez in the Ricardo Legorreta designed home of Producer Joel Silver** - onto a 2 ton shock-mounted steel installation module designed and built by NZA. (Fresco on heavy steel support.

23. **Conservation of Still Life Fresco**: La Avenida Co. - By Ramos Martinez (installed in Coronado Library)

24. **Emergency Conservation of 2 Murals**: (Cal Trans) "Seventh St. Altarpiece" – By Kent Twitchell Los Angeles (100'x75') east exterior wall - By Kent Twitchell

25. **Wall Preparation, Product Design** and Technological Support for La Chamber Orchestra "Harbor Freeway Overture mural " By Kent Twitchell 3 panels 100' high. X 200' wide.

26. **Wall Preparation Technical Support and Installation**: White Memorial Hospital Mural - By George Yepes

27. "Mary Star of the Sea": 12' high Bronze Sculpture, San Pedro, CA - Repair extensive shattered damage to hollow cast figure caused by 1992 Earthquake . Reconstruct interior support system with expanded foam and aggregate epoxy. Prepare exterior surface with high tech epoxy coating and **apply 22 karat gold leaf.** install with Crane onto **120' tower of Mary Star of the Sea Church.**

28. **Federal building: Los Angeles, CA.** In depth cleaning and full Conservation of two Limestone Sculptures (14' high).

    Numerous Earthquake Damaged Liturgical Sculptures for Catholic and Lutheran Churches.

29. **Historic Reconstruction Of The House Of Hospitality; Balboa Park,** San Diego,California.Conservation Director for the twenty six million dollar Historic Reconstruction of the House of Hospitality in Balboa Park San Diego. NZA was hired by the City of San Diego and worked under the authority of Wayne Donaldson AIA to guide, instruct and plan the conservation of 1,800 salvageable design elements from the House of Hospitality, generate conservation parameters for the conservation of each item, and generate re- installation parameters for re-Hospitality is designated as a Historic Landmark, and its demolition and reconstruction in exact replica of the original was unprecedented in the history of Historic Preservation under the guidelines of the Department of the Interior. The project garnered more than 24 major awards for excellence in planning and execution. NZA was responsible for the salvage, conservation and re-installation segments of the project being within budget and within deadline.

30. **Santa Barbara Presidio** NZA crafted twenty wrought-iron sconces for the Santa Barbara Presidio restoration project. (The sconces were installed in the Presidio Chapel, and are fully authentic to the time, craftsmanship and patina).

31. **LA Mural Conservancy** Frank Romero Mural "Going to the Olympics": Consolidation of Mural Surface.

32. **Computer program for Michael Jackson mural**. (By Kent Twitchell) (Computer program created Pixels ¼ inch x ¼ with code in each pixel to show color to be used specific to each pixel. Result was a dramatically effective innovation in Mural Painting. Mural was to be installed on the East side of the El Capitan Theater in Hollywood. NZA designed a light show and faux smoke to be projected onto the mural the mural had Jackson with his arm on a steel mechanical strut extending beyond the wall on which the mural was to be applied. NZA invented a use for a polyester non-woven fabric on which the mural was painted as "marauflage". (Due to Mr Jackson's disastrous events in 1993, the project was abandoned after the earthquake caused significant damage to the El Capitan 0

33. **Chamber Orchestra Mural. "Harbor Freeway Overture"** (By Kent Twitchell) NZA developed the same pixel system as above, and the mural canvas was printed out on non-woven fabric and painted by a "paint by numbers" system. NZA installed the mural using Nova Gel and Nova Super Gel as adhesive. (100'x140').

34. **Veteran's auditorium**. Fresno Remove heavy overpaint from 8 large panels by **Heinsbergen.** Re-apply composition gold leaf "wave" designs around each mural segment. Inpaint and Museum Varnish.

35. **"Rainforest Mural"** (Beverly Connection) (Strappo removal of Acrylic Mural, mount on panels and transport to Ojai after conservation.

36. **"Two 12' Limestone Sculptures" Federal Building LA.** Remove discolored linseed oil Consolidant from the Indiana Limestone. (Solvent Vaccuum Treatment)

37. **"12 Garth Benton Marouflage Murals"** Parson's Technologies. (Clean, consolidate, in-paint, and final varnish.

2000'S

1. **"Theory and Science"** Fresco Secco Murals (reconstructon of lower 30%) by **Frederick Olmstead**: San Francisco City College. (Entry Staircase).

6. **Fresco: Stock Exchange,** San Francisco (Now City Club) - **By Diego Rivera**

7. **Conservation of Fresco: Art Institute San Francisco - By Diego Rivera (Designed for Rivera by Bernard Zakheim).**

8. **Applications of Consolidant Paraloid B-72 Judy Baca Great Wall Mural (½ mile long x 20' high)**

9. **Conservation and Removal of 12 Murals**: By Garth Benton for **Parson's Technologies** in Pasadena California.

10. **Conservation of Entry Way Mural and City Council Mural** in Burbank Calif. City hall**. (By Hugo Balin.)** (10' w x 20' high)

11. **Joel Silver Studios: Venice Beach Post Office** – Remove and Conserve Marouflage mural of Abbot Kinney By **Edward Biberman,** mount on 2" Aluminum Honeycomb Panel, **7'x17.' Abbot Kenney Mural for Producer Joel Silver (Producer of the Matrix Series)** (As of 3/18/2014) the fully conserved mural is **on display in the midst of three Interpretive Historic Rooms dedicated to the display of the Biberman Mural at Los Angeles County Museum of Art).**

12. **Curved Fresco Secco Mural**: MD Anderson Medical Center, Houston, TX – By Peter Hurd. **16.5' high, 48' long**, and **curved in a J-Shape on 5/8" crumbly plaster. Removed intact without damage.** Truss structure applied to back of mural, and full consolidation of friable 7/8" plaster consolidated with low viscosity Epoxy. Re-installed in City Library in Artesia Arizona .**Fresco Secco mural was painted on 5/8" friable plaster surface supported only by light expanded mesh, and ¾" "c" shape vertical rods** attached to the horizontal rods with baling wire. NZA applied an 8-ton multi-angled truss support to the front, and and an equal truss fabrication which was epoxied to the back of the consolidated mural. **The mural was removed in one piece** and shipped from Houston Texas to Artesia Arizona, where it has been installed in a new Municipal Library there

13. **Bernard Zakheim Collection**: Full conservation of over 30 large Wooden Warsaw Ghetto Holocaust Sculptures by Bernard Zakheim as well 16 full size frescoes and over three hundred oil and watercolor paintings.

14. **Ramos Martinez Mural**: Conservation And Installation of a Ramos Martinez for **The Coronado City Library,** Coronado California. NZA removed the six-ton fresco, 47' long and 8' tall, from the La Avenida Inn in 1995. In due time it was **brought to the NZA Studio Facility in the historic Howard Hughes airport buildings, in Playa Vista, California.** The conservation took two years and cost more than $250,000.00 to complete. The fresco is now installed by NZA in the City of Coronado Library facility. NZA moved the fresco from storage in North County, San Diego by air ride gooseneck truck to the Howard Hughes Airport facility, and similarly moved the fresco back to Coronado. Under the guidance and participation of NZA, in-house personnel
performed all installation work, and NZA served as consultant to the engineering staff that designed the installation framework. NZA Installed the multi-ton steel framework and expanding column systems

15. **One Block Long Mural** Los Angeles Cultural Affairs Department: Mid City Magnet School, Conserve, remove graffiti, in-paint and re-paint several sections of highly damaged areas.

16. **Judith Baca Sparc "Great Wall" Mural** Clean and consolidate **12' high mural x one half mile long.**

17. **City Of 29 Palms**: Consolidate 20 very large city murals: (we were honored celebrity guests of the City of 29 Palms.)

18. **B'nai Tikkvah Synagogue:** Remove and pack very large altar sculpture for storage.

19. **Two Marouflage Murals For Lincoln High School**, LAUSD. (5'x30' ft each Remove, conserve at **NZA Howard Hughes Airport studio**, mount on Gator Board, Apply to hallway wall with heavy Velcro.

20. **Hollenbeck High School**: Dorr Bothwell Lobby of High School Auditorium Frieze and Mural, For City Of LA. (Full conservation In Situ)

21. **Exact Replication Of Bernard Zakheim Mural**: Mineola Texas. Working from black and white photos, NZA, Nathan Zakheim working with three sons and two daughters, re-created this Mural with colors from Period Paintings by BZ. (7'x 15')(Installed in Mineola Texas with great honors and fanfare!

22. **Thirteen Banksy "Happy Coppers"**: figures. For English collecter/dealer Stuart Holt. (Remove wall composed of 2x4's and drywall, isolate and remount figures after removing total overpaint. Re-mount on display panels, and prepare to ship to England).

23. **San Diego State University:** Remove Tempera Mural From Concrete substrate and add interpretive portion destroyed during early remodel of building. Mount on custom designed panel, re-install in SDSU Library.

24. **Workman's Circle Mural**: Remove Graffiti, consolidate cracks and loose pieces of stucco on mural wall, Re-build loose structural elements behind the mural, work with original artist, Eliseo Silva, on re-touches of damaged mural (image.15'x 40')

25. **Jaya Mural for Venice Arts Council**: Consolidate and Supervise Artist repainting of Mural. Re-Consolidate after Artist's extensive restoration, and apply NZA proprietary anti-graffiti coating.

26. **"You are the Star"** Suraya (20' x 100'
Remove Urethane coating, consolidate and retouch.

27. **Los Angeles Unified School District**: 2 Bas Reliefs for Lincoln High School (consolidate, back with fiberglass, re-tone, strip and re-finish frames).

28. **Los Angeles Unified School District** : Lincoln statue for Lincoln High School. Strip multiple layers of paint, consolidate, strengthen casting from within, replace damaged segment.

29. **Workman's Circle :**(Robertson Blvd., Los Angeles). (15' x 40')
Remove Graffiti, strengthen wall, consolidate cracks with epoxy, re-touch damages, consolidate with B-72, and ply 2-part NZA AG Anti-Graffiti Coating.

30. **"Sex and Chocolate" by Banksy**. Remove from textured brick wall using NZA Strappo technique, and adhere salvaged paint layer to a 3-d fiberglass custom cast support, **(cast from original textured brick wall)** in-paint and crate for shipment to England.

31 **"13 Happy Coppers" By Banksy.**
Removed 20'x8' plasterboard wall, brought to NZA Conservation Facility, removed damagedover paint, and reinstalled on new supports as per Stuart Holt directions. Packed and Shipped to England.

32. **Conservation And Graffti Abatement Of Six Murals For City Of LA.**

33. **Conservation And Graffiti Abatement Of Four Murals For Operation Clean Sweep LA.**

34. **Two Hugo Ballin Murals For City Of Burbank** (Burbank City Hall)

35. **Lincoln High School:** Two Bas Relief Sculpture, And A Full Size Sculpture Of Abraham Lincoln.

36. **Bryce Banatyne Gallery**:
Pack and move 48' Ramos Martinez Fresco from Los Angelesto to town of Fillmore Ca.

37. **Gateway To Silverlake**:
Consolidate and apply anti graffiti sacrificial wax to eight Murals under Sunset Blvd.

38. **Jewish Center Of San Francisco**:
Conservation of Bernard Zakheim fresco. Remove mural by Stacco method, **re-mount on steel and fiberglass support,** and re-locate in stairwell of new Building for Jewish center

39. **La Cultural Affairs Department**: Conservation of Kent Twitchell's Strother Martin mural. Repair damaged stucco wall, remove graffiti, consolidate.

40. **City Of Coronado Installation of 7'x7' Ramos Martinez Fresco** for Coronado Library.

41. **Northrop Grumman**:
Conservation of 51 mural segments, mold abatement of mural segments, consolidation of mural segments and re-assembly and re-installation of 51 panel segment mural.

NZA was awarded thirteen Mural Artist' Multiple Paneled Murals located on Freeway Walls as well as Freeway Underpasses. NZA won the bids for thirteen projects, with the remaining three Mural Panels awarded to other Conservation Teams. These murals were contracted by Cal Trans and subcontracted by the Cultural Affairs Department of Los Angeles. **NZA was in a fortunate position to clearly demonstrate the new standards established by NZA for Continuously Renewable Mural Conservation with spectacular success.**

1. **Conservation of "Eye on LA**": 1984 Olympic Mural - By Alonzo Davis (Remove many layers of graffiti and "Cal Trans Grey" overpaint. Consolidate with B-72, re-touch under Alonzo Davis participation and direction. **NZA Proprietary Graffiti** Coating applied)

2. **Special Olympics Mural** LA FWY Kids" by Glenna Boltuch Avila (5,500 sq ft) **Remove all figures by "Strappo"** prepare wall, consolidate, re-apply conserved figures, paint background colors as per original intent of artist.

3. **Two Panels** by Rubin Brucelyn on 2 FWY (LA) (1,200 sq. ft. each)

4. **"Hitting the Wall"** (Two Panels by Judith Baca on 110 FW)(**3,000 sq ft total)**

5. **Two Acrylic murals painted by Kent Twitchell** with Nova Color Acrylics Artist paints directly on the concrete support for the 7th Street overpass on 110 FWY (1,200 sq ft each) using NZA Proprietary Strappo technique. Once fully conserved **(20'x50' each,** the murals were re-adhered to the Grand Avenue overpass over the 5/101 Freeway in downtown LA. Conservation consisted of cleaning the mural in situ, application of facing material, **removal of the paint layer directly painted on the concrete surface of the freeway underpass, transportation of murals to the NZA Playa Vista studio, Conservation of the murals, preparation of a new site for the murals on the 101 FWY, and reinstallation of the two murals on the 101 FWY.**

6. **26 Marathon Mural Runners** by Kent Twitchell near LAX on 405 FWY **(4,000 sq. ft.)** (Figures removed, **brought to NZA Howard Hughes Airport Studio**, conserved and re-mounted on 5 Freeway N near Stadium Way)(Conservation consisted in **Strappo removal of all 26 8'x16' mural figures,** and conservation in NZA Playa Vista studios. A new location for the mural was prepared by NZA, and the murals installed at that site. There was heavy damage by graffiti, and two years was spent in the conservation of the 26 figures).

7. **4 "Underwater Fantasy"** murals by Michelle Obregon (**Each 5,000.00 sq ft)** Remove extensive graffiti, consolidate, inpaint losses, apply NZA Anti Graffiti coating.

8. **"Struggles of the World"** by Willie Herron III (**2,500 sq ft)** Remove Graffiti, remove Cal Trans grey overpaint, consolidate, Inpaint, apply anti graffiti Sacrificial wax

9. **"Reach Out" Mural**; by Alonzo Davis (**3,000.00** sq ft. Remove graffiti, consolidate, in-paint damages and losses.

ART OF PROMINENT ARTISTS CONSERVED BY NZA:

Helen Lundeberg	Lorser Feitelson
Hans Burkhardt	Andy Warhol
Jean Charlot	Ramos Martinez
Jose Clemente Orozco	Oscar Fischinger
Edward Biberman	Lucien Labaudt
Diego Rivera	Rico Lebrun
McLaughlin	Kent Twitchell
Judith Baca	Eloy Torres
Victor Arnouto	Bernard Zakheim
Hugo Ballin	Charles M. Russell
Frederick Remington	Collin Campbell Cooper
Alexander Harmer	Albert Herter
Millard Sheets	Ralph Stackpole

CATEGORIES OF ARTWORKS CONSERVED:

Fresco Buono and Fresco Secco	Egg Tempera
Marouflage Murals	Oil Murals
Oil Easel Paintings	Limestone Sculpture
California Plein Air	Cowboy Art
WPA Art	Pre-Raphaelite

Spanish Colonial
Acrylic Murals and Paintings
Petrachrome Murals
Indian and Persian Miniatures
(in Ivory and Marble).
Paintings
Marble Sculpture
Greek and Russian Icons
Impressionist Paintings
Intaglio
Soapstone and Alabaster
Bronze Sculpture
Mosaic Murals
West African Sculpture
Patachitra(Palm Leaf) Painting Australian Bark
Cast Bronze Sculpture
Carved Wood Polychrome
Terra Cotta and Ceramic Sculpture
Craftsman/Art Nouveau
Japanese screens

EXPERT WITNESS TESTIMONY BY NZA IN ART RELATED LAWSUITS:

1. Los Streetscrapers vs. Shell Oil (Destroyed) ($450,000.00 settlement)

2. Chicano Park (Michael Schnor) (defective Coating) ($350,000.00 settlement)

3. Lilly Anne Mural (Chuy Campesano) (painted out) ($375,000.00 settlement)

4. Ed Ruscha Mural (Kent Twitchell)(painted out) ($1,100,000.00 settlement).

Appendix O-SM

Tom Brohard, PE

Licenses: 1975 / Professional Engineer / California – Civil, No. 24577
1977 / Professional Engineer / California – Traffic, No. 724
2006 / Professional Engineer / Hawaii – Civil, No. 12321

Education: 1969 / BSE / Civil Engineering / Duke University

Experience: 50 Years

Memberships: 1977 / Institute of Transportation Engineers – Fellow, Life
1978 / Orange County Traffic Engineers Council - Chair 1982-1983
1981 / American Public Works Association – Life Member

Tom is a recognized expert in the field of traffic engineering and transportation planning. His background also includes responsibility for leading and managing the delivery of various contract services to numerous cities in Southern California.

Tom has extensive experience in providing transportation planning and traffic engineering services to public agencies. In addition to conducting traffic engineering investigations for Los Angeles County from 1972 to 1978, he has previously served as City Traffic Engineer in the following communities:

- Bellflower ..... 1997 - 1998
- Bell Gardens ..... 1982 - 1995
- Big Bear Lake..... 2006 - 2015
- Indio..... 2005 - 2019
- Huntington Beach ..... 1998 - 2004
- Lawndale..... 1973 - 1978
- Los Alamitos ..... 1981 - 1982
- Oceanside..... 1981 - 1982
- Paramount ..... 1982 - 1988
- Rancho Palos Verdes ..... 1973 - 1978
- Rolling Hills ..... 1973 - 1978, 1985 - 1993
- Rolling Hills Estates ..... 1973 - 1978, 1984 - 1991
- San Fernando..... 2004 - 2019
- San Marcos..... 1981
- Santa Ana ..... 1978 - 1981
- Westlake Village ..... 1983 - 1994

During these assignments, Tom has supervised City staff and directed other consultants including traffic engineers and transportation planners, traffic signal and street lighting personnel, and signing, striping, and marking crews. He has secured over $10 million in grant funding for various improvements. He has managed and directed many traffic and transportation studies and projects. While serving these communities, he has personally conducted investigations of hundreds of citizen requests for various traffic control devices. Tom has also successfully presented numerous engineering reports at City Council, Planning Commission, and Traffic Commission meetings in these and other municipalities.

In his 14 years of service to the City of Indio, Tom accomplished the following:

- Oversaw preparation and adoption of the 2008 Circulation Element Update of the General Plan including development of Year 2035 buildout traffic volumes, revised and simplified arterial roadway cross sections, and reduction in acceptable Level of Service criteria under certain conditions.

- Oversaw preparation of fact sheets/design exceptions to reduce shoulder widths on Jackson Street and on Monroe Street over I-10 as well as justifications for protected-permissive left turn phasing at I-10 on-ramps, the first such installations in Caltrans District 8 in Riverside County; reviewed plans and provided assistance during construction of both $2 million projects to install traffic signals and widen three of four ramps at these two interchanges under Caltrans encroachment permits.

- Reviewed traffic signal, signing, striping, and work area traffic control plans for the County's $45 million I-10 Interchange Improvement Project at Jefferson Street.

- Reviewed traffic impact analyses for Project Study Reports evaluating different alternatives for buildout improvements of the I-10 Interchanges at Jefferson Street, Monroe Street, Jackson Street and Golf Center Parkway.

- Oversaw preparation of plans, specifications, and contract documents and provided construction assistance for over 70 traffic signal installations and modifications.

- Reviewed and approved over 2,000 work area traffic control plans as well as signing and striping plans for all City and developer funded roadway improvement projects.

- Oversaw preparation of a City-wide traffic safety study of conditions at all schools.

- Obtained $47,000 grant from the California Office of Traffic Safety and implemented the City's Traffic Collision Database System. Annually reviews "Top 25" collision locations and provides traffic engineering recommendations to reduce collisions.

- Prepared over 1,500 work orders directing City forces to install, modify, and/or remove traffic signs, pavement and curb markings, and roadway striping.

- Oversaw preparation of engineering and traffic surveys to establish enforceable speed limits on over 500 street segments.

- Reviewed and approved traffic impact studies for more than 35 major projects and special events including the annual Coachella and Stagecoach Music Festivals.

- Developed and implemented the City's Golf Cart Transportation Program.

Since forming Tom Brohard and Associates in 2000, Tom has reviewed many traffic impact reports and environmental documents for various development projects. He has provided expert witness services and also prepared traffic studies for public agencies and private sector clients.

JOHN J. HENKELMAN, EIT

Education

BS – Chemical Engineering, University of Nevada, 2002

Professional Licenses

Engineer-in-Training (EIT)

Specialty Certifications

OSHA 40-Hour Hazardous Waste Operator
State of California Accredited Lead Verifier for GSC, Oil and Gas, Process, and Transactions
State of California Accredited Offset Verifier for Livestock, Ozone Depilating Substances (ODS), Mine Methane Capture (MMC), and Rice Cultivation

Professional Affiliations

Air Waste and Management Association

Professional Experience

Mr. Henkelman has 16 years of experience as a chemist and engineer. His duties have included air dispersion modeling using several regulatory models, including AMS/EPA Regulatory Model (AERMOD), Industrial Source Complex Short Term 3 (ISCST3), Screen 3, AERSCREEN, and Areal Locations of Hazardous Atmospheres (ALOHA). He uses modeling results in risk assessments, accidental release planning, permit applications, and environmental impact assessments. He writes work plans and samples soil vapor, landfill gas, soil, and water. He assists with compliance and permitting under the Clean Air Act, including greenhouse gas (GHG) reporting and verification under the California Climate Action Registry (CCAR), The Climate Registry (TCR), and California's mandatory GHG reporting regulation. He also has experience in manufacturing that includes production scheduling, quality assurance and quality control, product development, and health and safety.

Select project experience includes the following:

GHG Emissions Reporting, Multiple Sites, CA. Mr. Henkelman performed federal and state GHG reporting for local government facilities throughout California, including the City of Sunnyvale, City of Sacramento, County of Sacramento, City of Palo Alto, Salinas County, San Joaquin County, and Sonoma County.

Title V Permit Applications, Five Kern County Landfills, Kern County, CA. Mr. Henkelman prepared a permit renewal application package which was a review of landfill compliance and potential new compliance requirements.

Title V Permit Applications, 28th Street Landfill, Sacramento County, CA. Mr. Henkelman prepared a permit renewal application package which was a review of landfill compliance and updating permit requirements based on recent and planned changes to the facility.

Modeling for Permitting, Kirby Canyon Landfill, Morgan Hill, CA. Mr. Henkelman performed dispersion modeling using screening and complex models (ISCST3, AERMOD, and SCREEN3) for permitting of flares and potential engines. The modeling results were used to determine the human health risk.

Modeling for Permitting, Tri-Cities Landfill, Fremont, CA. Mr. Henkelman performed dispersion modeling using screening and complex models (ISCST3, AERMOD, and SCREEN3) for permitting of flares and potential engines. The modeling results were used to determine the human health risk.

Modeling for Permitting, McCommas Landfill, Dallas, TX. Mr. Henkelman performed dispersion modeling using a screening model (SCREEN3) in support of a permit application for flares. The modeling results were used to determine NAAQS compliance.

Modeling for Permitting, Frank R. Bowerman Landfill, Irvine, CA. Mr. Henkelman performed dispersion modeling using screening model (SCREEN3) for permitting of flares. The modeling results were used to determine human health risk.

Modeling for Permitting, Simi Valley Landfill and Recycling Center, Simi Valley, CA. Mr. Henkelman performed dispersion modeling using screening model (SCREEN3) for permitting of a flare condensate injection system. The modeling results were used to determine human health risk.

Quality Assurance for Landfill Gas Sampling, Honolulu, HI. Mr. Henkelman reviewed third-party reports to determine compliance with Quality Assurance Project Plan (QAPP) requirements.

New Source Performance Compliance Standards (NSPS) Tier 1, South Hilo Landfill, HI. Mr. Henkelman collected samples at the landfill and created a work plan calculating emissions which were submitted to regulators. He reviewed the NSPS applicability and worked with the EPA and the County of Hawaii to evaluate future compliance options.

New Source Performance Compliance Standards (NSPS) Tier 2, 15 Landfills, CA. Mr. Henkelman collected samples at the landfills and created work plans calculating emissions which were submitted to regulators.

Air Quality Impact Assessment (AQIA) for Landfill Gas Engines, San Jose, CA. The project included an AQIA used in support of an Environmental Impact Report (EIR) and California Environmental Quality Act (CEQA) report. Mr. Henkelman evaluated all major emission sources at the site. The AQIA included modeling for a health risk assessment (HHRA) to demonstrate National Ambient Air Quality Standards (NAAQS) compliance.

AQIA, Newby Island Sanitary Landfill, Milpitas, CA. The project included AQIA used in support of an EIR and CEQA report. Mr. Henkelman evaluated all major emission sources at the site. He used model results to evaluate the HHRA and NAAQS compliance.

AQIA, Forward Landfill, Manteca, CA. The project included AQIA used in support of an EIR and CEQA report. Mr. Henkelman evaluated all major emission sources at the site. He used model results to evaluate the HHRA and NAAQS compliance.

AQIA, Fairmead Landfill, Madera, CA. The project included AQIA used in support of an EIR and CEQA report. Mr. Henkelman evaluated all major emission sources at the site. He used model results to evaluate the HHRA and NAAQS compliance.

HHRA and Nuisance Evaluation of Landfill, Otay, CA. Mr. Henkelman prepared an HHRA and odor dispersion modeling, and evaluated potential nuisance impacts from a landfill on proposed residential development. The reports were used to seek CEQA approval.

Modeling Evaluation, Avenal Landfill, Avenal, CA. Mr. Henkelman evaluated dispersion modeling used in an EIR and CEQA evaluation. The modeling was completed using an ISCST3. The results were used to evaluate the HHRA.

Modeling Evaluation, Central County Landfill, Petaluma, CA. Mr. Henkelman evaluated dispersion modeling used in an EIR and CEQA evaluation. The modeling was completed using CAL3QHCR, and the results were used to evaluate the HHRA.

Modeling for Permitting, Hay Road Landfill, Vacaville, CA. Mr. Henkelman evaluated dispersion modeling using a complex model (AERMOD) in support of an EIR and CEQA report. He evaluated all major emission sources at the site, and the used model results to evaluate the HHRA and NAAQS compliance.

Modeling Evaluation, East Los Angeles Transfer Station, East Los Angeles, CA. Mr. Henkelman's evaluation included dispersion modeling used in an EIR and CEQA evaluation. The modeling was completed using SCREEN3, and the results were used to evaluate the HHRA and NAAQS compliance.

Modeling Evaluation, West Artesia Material Recovery Facility, Compton, CA. Mr. Henkelman evaluated dispersion modeling used in an EIR and CEQA evaluation. The modeling was completed using SCREEN3, and the results were used to evaluate the HRRA and NAAQS compliance.

Litigation Support for Landfill, Oklahoma City, OK. Mr. Henkelman evaluated odor emission rates and calculations to prepare rebuttal arguments for expert witness reports.

Litigation Support, Newby Island Landfill, Milpitas, CA. Mr. Henkelman evaluated the odor emission rates and calculations to prepare rebuttal arguments for expert witness reports.

Litigation Support for Landfill, Sylmar, CA. Mr. Henkelman evaluated the odor emission rates and calculations to prepare rebuttal arguments for expert witness reports.

Litigation Support for Landfill, Tullytown, PA. Mr. Henkelman evaluated the odor emission rates and odor dispersion modeling for expert witness reports.

HHRA, Former Plastic Bottle Manufacturing Facility, Toluca, Mexico. Mr. Henkelman's assessment included developing a soil vapor sampling plan, collecting soil vapor samples, developing exposure scenarios for soils and soil vapor, developing toxicity criteria, and developing exposure parameters.

Focused HHRA, Former Aerospace Research Facility, Los Angeles, CA. Mr. Henkelman developed exposure scenarios for groundwater and indoor air, as well as toxicity criteria and exposure parameters.

HHRA, Former Industrial Sites, Southern CA. In order for the sites to be developed for residential use, the assessment included developing exposure scenarios for soil vapor and modeling risk using the Johnson Ettinger model.

HHRA to Assess Effectiveness of Synthetic Vapor Barrier. The focused HRA evaluated the potential effectiveness of a synthetic vapor barrier to mitigate health risk from soil vapor contamination.

Development of Copper and Cyanide Cleanup Levels for Surface and Air, San Marcos, CA. Mr. Henkelman's duties focused on exposure scenarios, toxicity criteria, and exposure parameters. Chronic health hazard-based cleanup levels for both contaminants were developed for future residential and commercial use of the facility.

Development of Health Based Beryllium Cleanup Levels for Surfaces, Kansas City, MO. Mr. Henkelman duties included defining exposure scenarios, toxicity criteria, and exposure parameters. Cleanup levels were based on increased cancer risk for commercial workers.

Development of Contaminant Cleanup Levels for Soil Gas, California. Mr. Henkelman duties included defining exposure scenarios, toxicity criteria, and exposure parameters. Cleanup levels were based on both increased cancer risk and chronic health effects.

HHRA for Asbestos Landfill, Copperopolis, CA. Mr. Henkelman's duties included calculating emission rates of asbestos, modeling dispersion of asbestos emissions using the ISCST3 model to determine downwind concentrations, and developing exposure scenarios for outdoor air, toxicity criteria, meteorological data, and exposure parameters.

Soil Vapor Surveys, Sample Location Selection, Sample Collection, and Sample Analysis, California and Oregon. Mr. Henkelman performed surveys in support of vapor intrusion risk assessments.

Review of Modeling, Redwood Landfill, Novato, CA. Mr. Henkelman's review included dispersion modeling completed for Prevention of Serious Deterioration (PSD) evaluation of flares and engines for a landfill gas-to-energy (LFGTE) project using AERMOD. The model results were used to determine human health risk.

Air Toxics HHRA, Los Angeles Unified School District (LAUSD), Los Angeles, CA. Mr. Henkelman's review included emission calculations, air dispersion modeling using ISCST3, risk and exposure criteria selection, and risk calculation. He reviewed hazardous material accidental release scenarios.

Air Toxics Risk Assessment, Quarry, Novato, CA. Mr. Henkelman reviewed the assessment performed by another firm, which included emissions calculations, modeling, and risk evaluation. The review concluded that emission calculations were fundamentally flawed, and that the quarry may pose a significant health risk to nearby residential areas.

California GHG Emission Reports for Stationary Combustion and Transaction Reporters, CA. As Lead Verifier and Internal Reviewer, Mr. Henkelman reviewed emission reporters that included Pacific Gas and Electric, SMUD, Plumas-Sierra Rural Electric Cooperative, Truckee-Donner Public Utilities District, Pacific Ethanol, Kinergy, UC Davis, City of Roseville, Collins Pine, and the City of Santa Clara.

Evaluated Emissions from Vehicles using Emfac2007 for Various Sites in California. Mr. Henkelman evaluated emission calculations used in fleet emission calculations and HHRA.

Permitting of Industrial Facilities, California. Mr. Henkelman assisted in the permitting process, including development of appropriate emission factors, calculations of emissions, and preparation of permit application materials. The permitted facilities included several landfills, transfer stations, and a lumber factory.

GHG Regulations for Landfills and Steel Industry, Pittsburg, CA. Mr. Henkelman investigated current and future legislation and regulations regarding GHGs.

Analysis for Best Attainable Control Technology (BACT) for Composting Operations, Novato, CA. Mr. Henkelman performed an analysis that included evaluating the effectiveness and cost of several control technologies.

Specialized Training

Completed 2-Day Training Course for ISCST3 and AERMOD. The course included model selection, meteorological data processing, source and receptor parameters selection, and terrain processing.

Publications and Presentations

Henkelman, John, Is Your Indoor Air Safe?, Detecting Vapor Intrusion, San Diego Transcript, March 2018.

Henkelman, John, and Sullivan, Patrick S., Causes of Increasing Sulfur Content in California Landfill Gas, Global Waste Management Symposium, February 2018.

Henkelman, John, Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., An Update and Comparison on State Level Greenhouse Gas Reporting and Cap and Trade Regulations, A&WMA's Finding Common Ground on Climate Change Mitigation and Adaptation, Arlington, VA, October 2017.

Henkelman, John, Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., A Review of Regulatory and Industry Greenhouse Gas Reporting Cooperation, A&WMA's Finding Common Ground on Climate Change Mitigation and Adaptation, Arlington, VA, October 2017.

Henkelman, John, Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., Potential Use of NSPS and GHG Reporting Program Data to Calculate GHG Reductions, Proceedings for the A&WMA's 110th Annual Conference & Exhibition, Pittsburgh, PA, June 2017.

Henkelman, John, Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., Best Practices Learned from Greenhouse Gas Reporting, Publication in the Proceedings for the A&WMA's 110th Annual Conference & Exhibition, Pittsburgh, PA, June 2017.

Henkelman, John, Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., A look at Fugitive GHG Emissions Reporting and the Effects on Regulated Facilities, Proceedings for the A&WMA's 109th Annual Conference & Exhibition, New Orleans, LA, June 2016.

Henkelman, John, Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., Emissions Trending and Sensitive Variable Analysis from Five Years of Mandatory Landfill Reporting under the Federal Greenhouse Gas Mandatory Reporting Regulation, Proceedings for the A&WMA 108th Annual Conference and Exhibition, Addressing Climate Change: Emerging Policies, Strategies, and Technological Solutions, October 14, 2015.

Henkelman, John, Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., Lessons Learned from Federal Mandatory GHG Reporting Data from Landfills, Proceedings for the A&WMA Annual Conference and Exhibition, Navigating Environmental Crossroads, Long Beach, CA, June 14, 2014.

Redundancy and Inconsistency in Voluntary, State, and Federal Greenhouse Gas Reporting for Landfills, Proceedings for the A&WMA Annual Conference and Exhibition, Navigating Environmental Crossroads, Long Beach, CA, June 14, 2014.

Henkelman, John, Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., Comparison of GHG Emissions Methodologies for Landfills, Proceedings for the A&WMA Annual Conference and Exhibition, Orlando, FL, June 2011.

Henkelman, John, Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., Comparison of Landfilling to Organic Waste Diversion in Terms of Air Quality and Greenhouse Gas Impacts, Proceedings for the A&WMA Technical Conference, Bakersfield, CA, May 2011.

Henkelman, John, Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., The Confusing Maze of State and Federal Mandatory Greenhouse Gas Reporting Programs, SWANA Wastecon, Boston, MA, August 2010.

RAYMOND H. HUFF, REPA

Education

BA – Philosophy (Minor in Geology), Whittier College, 1991
MBA – Information Systems Emphasis, Keller Graduate School of Management, 1999

Professional Licenses

Accredited Lead Verifier under California Air Resources Board (CARB) with Transactions, Oil and Gas Systems, and Process Emissions Specializations
Registered Environmental Property Assessor (REPA) (No. 106984), National Registry of Environmental Professionals

Specialty Certifications

40-Hour OSHA Hazardous Waste Site Operations (HAZWOPER) Health and Safety Certification
8-Hour OSHA HAZWOPER Supervisor Certification

Professional Affiliations

Board of Directors, Southern California Waste Management Forum
Landfill Gas Technical Advisory Group; California Department of Recycling and Recovery (CalRecycle)
Solid Waste Association of North America (SWANA)
Air & Waste Management Association (AWMA)

Professional Experience

Mr. Huff, a Vice President with SCS Engineers, has over 27 years of experience in environmental consulting, specializing in landfill regulatory compliance, assessment, remediation, post-closure care, and air quality/compliance issues, including greenhouse gas (GHG) emissions quantification. He is the closed landfill regulatory compliance and GHG emissions quantification Project Lead within SCS's offices throughout the western U.S., responsible for technical expertise on landfill post-closure care and redevelopment, landfill reactions (chemical and oxidation-based), GHG emissions quantification and verification, landfill regulatory compliance, and emissions quantification procedures.

Mr. Huff is also the National Lead for compliance with the federal Greenhouse Gas Reporting Program (GHGRP) within SCS, responsible for quantifying and reporting for more than 600 of the 900 landfills subject to the GHGRP. Because of this expertise, Mr. Huff has assisted the U.S. Environmental Protection Agency (EPA) with investigation and solution of errors identified in the electronic Greenhouse Gas Reporting Tool (e-GGRT).

Through his expertise, Mr. Huff has been the Project and Task Manager on a variety of projects related to landfill investigations, risk assessments, solid waste management, GHG/air regulatory compliance, hazardous waste management, hazardous substance site investigation and remediation, as well as other environmental issues.

Landfill

Environmental Monitoring and Post-Closure Care for Cal-Compact Landfill, Carson, CA (SWIS # 19-AQ-0012). This 157-acre site was a former hazardous waste landfill, currently being considered for redevelopment, and currently is under the oversight of the Department of Toxic Substances Control (DTSC). Project tasks included overall site management, including regulatory liaison on behalf of site owners, landfill gas (LFG) monitoring and assessment, LFG system operation and maintenance (O&M), groundwater sampling and analysis, cover maintenance and repair, site security, storm water sampling/analysis and inspections, LFG engineering, design of methane protection systems, and site development assistance.

CalRecycle, LFG Monitoring Well Functionality for 20 Landfills, CA. Under contract with CalRecycle (formerly CIWMB), Mr. Huff developed the approach and implemented a functionality assessment of 200 LFG monitoring probes at 20 landfills located throughout California. The functionality assessment entailed an initial condition assessment, gas monitoring, vacuum testing, video borescope inspection, and lithologic evaluation of each probe included in the study. The results of this study were presented to the CIWMB and utilized to develop the CIWMB's probe construction best management practices (BMPs).

LFG Engineering and O&M for Confidential Landfill, MO. The site was a former rock quarry located in Eastern Missouri, which at the time was undergoing an elevated temperature reaction within the waste mass. The scope of work included ongoing O&M of the existing gas collection and control system (GCCS), as well as data analysis and reporting to state and federal regulatory agencies. Mr. Huff was the SCS Team Lead for the project, coordinating activities between state, federal, and local regulatory agencies and public interest groups, and preparing high-level reports for site owners to better understand the extent and financial impact of the reaction.

LFG Assessment, Cover Maintenance, and Monitoring for Cogen Kramer Landfill, Los Angeles, CA (SWIS # 19-AA-0581). The site is located adjacent to residential development and two Los Angeles County correctional facilities. Project tasks included an assessment and emergency cover repair associated with a subsurface combustion event, LFG migration assessment, and preparation of an LFG and cover assessment work plan for installation of LFG migration probes and ongoing cover maintenance. The project included regulatory liaison with the Los Angeles County Law Enforcement Agency (LEA), CalRecycle, EPA, and South Coast Air Quality Management District (SCAQMD). In addition, methane monitoring was conducted associated with the use of one of the closed jail facilities for TV and movie productions.

Investigation and Remediation for Former Landfill, Long Beach, CA (SWIS # 19-AK-5018). Mr. Huff was Project Manager for the investigation of potential contamination derived from the landfill site adjacent to the Long Beach Memorial Medical Center. The area was the site of an expansion of the hospital and included oil field wastes and municipal waste disposal. Investigations included soil and soil vapor analyses in addition to an evaluation of the lateral and vertical extent of waste disposal. Project activities also included the excavation and removal of contaminated material and California Environmental Quality Act (CEQA) support during development of the hospital expansion.

Landfill Investigation, LFG Engineering, Human Health Risk Evaluation and Impact Assessment, Proposed Residential Developments for Site Adjacent to the Otay Landfill, Chula Vista, CA (SWIS # 37-AA-0010). Project activities at the site included an evaluation of LFG migration, LFG engineering and testing, air quality permitting and compliance, soil and LFG sampling and analysis, human health risk assessment (HHRA) and nuisance/odor evaluation, CEQA assistance, O&M of the LFG collection and control system, and other landfill engineering and construction services. The risk

assessment and odor/nuisance analysis was completed to support residential development adjacent to the landfill.

HHRA Evaluation and Impact Assessment for Proposed Commercial Developments for Site Adjacent to BKK Landfill, West Covina, California (SWIS # 19-AF-0001). The BKK site included two landfills: one municipal solid waste landfill and one hazardous waste site, which were under the oversight of the DTSC. Mr. Huff completed various investigations and data reviews/analyses of soil, surface water, groundwater, LFG, and air quality. The data were used for the completion of an HHRA in support of the CEQA process for a proposed golf course and business park development on the Class III landfill.

Investigation, Risk Assessment, and Remediation Feasibility Study for Mission Bay Landfill, San Diego, CA (SWIS # 37-AA-0026). Mr. Huff developed the LFG sampling portion of the site assessment work plan for the former landfill site, which is located next to a river, bay, and amusement park and is used heavily for recreational purposes. The field investigations were followed by a risk assessment, and, given the highly visible and public nature of the landfill project, focus on risk communication was the primary importance. Ultimately, several candidate risk-based remediation methods applicable to the site were identified with typical costs associated with each method. The project included interface with the San Diego County Air Pollution Control District (SDAPCD), Regional Water Quality Control Board (RWQCB), Solid Waste Local Enforcement Agency (LEA), and DTSC.

County of Monterey, Salinas Valley Solid Waste Authority (SVSWA) Air Quality Impact Assessment (AQIA), HHRA, and CEQA Assistance for Regional Landfill Project, CA. Regional air quality impacts, including an HHRA, were evaluated as part of an EIR for 4 different combinations of the expansion of 3 regional landfills and the placement of 10 regional transfer stations throughout the Salinas Valley. One of the landfills contained hazardous waste, including burn ash, which had to be evaluated for potential health risks. The risk assessments included an evaluation of risks from diesel exhaust from mobile equipment and vehicles.

Landfill Investigation, Regulatory Compliance, and LFG Engineering Activities for Upland Sanitary Landfill, Upland, CA (SWIS # 36-AA-0005). Project activities at the site included design and installation of a perimeter probe migration monitoring system, LFG collection and control system evaluation and engineering, air emissions sampling and analysis, and development of alternative regulatory compliance plans under SCAQMD Rule 1150.1, including regulatory liaison with California Integrated Waste Management Board (CIWMB) closed, illegal, and abandoned (CIA) staff.

Landfill Gas Assessment, Cover Maintenance, and Monitoring for Lane Road Disposal, Irvine, CA (SWIS # 30-CR-0063). The site is located adjacent to residential development and had been redeveloped into a golf course. Project tasks included LFG assessment, methane testing in nearby homes, installation of LFG migration probes, cover repair and ongoing cover maintenance, preparation of LFG assessment and cover maintenance plan, design and installation of LFG collection and control system to prevent migration onto residential properties, and regulatory liaison with the Orange County LEA, Santa Ana Regional Water Quality Control Board (SARWQCB), Orange County Integrated Waste Management Department (OCIWMD), CIWMB, and SCAQMD.

Environmental Investigations and Risk Assessment for Former BKK Main Street Landfill, West Covina, CA (SWIS # 19-AQ-0014). The landfill was a closed site that received both hazardous and nonhazardous wastes; at the time, it was occupied by two golf courses and additional commercial and residential developments and was considered for redevelopment. The project work at the facility had included completion of soil vapor extraction (SVE) surveys, installation and monitoring of LFG migration probes, LFG sampling/analysis, oversight of cover and subsurface soil and groundwater

sampling, completion of an HHRA, CEQA assistance, and negotiations with regulatory agencies. The site was considered for listing on the National Priorities List (NPL) as a potential Superfund site. Oversight of the landfill was provided by EPA Region IX, DTSC, and the Los Angeles County landfill LEA.

Landfill Investigation and Human Health Risk Evaluation/Impact Assessment for Proposed Residential Development Adjacent to a Landfill, Union City, CA. The project included completion of various soil, LFG, and groundwater investigations, and development of two risk assessments to support the development of residences adjacent to the landfill, as well as clean closure of a portion of the site for additional residential development on site. SCS also provided CEQA assistance for the proposed developments.

New Source Performance Standard (NSPS) LFG Sampling and Analysis for Multiple Landfills, Kern County, CA. For this project, Mr. Huff conducted NSPS Tier 2 LFG sampling and analysis in accordance with federal NSPS regulations at four landfills in Kern County. He performed field investigations in 1998 and resampled three of the four landfills in 2003 in accordance with federal resampling procedures set forth in NSPS regulations. In addition to conducting the field investigations, Mr. Huff completed statistical analyses of raw analytical data, and authored the final data reports submitted to the EPA.

HHRA

HHRA for Proposed Residential Development at Former Crude Oil Tank Farm, Norwalk, CA. For this project, Mr. Huff performed an assessment that included an HHRA and an evaluation of the potential human health impacts associated with a neighboring crude oil storage facility to support residential redevelopment of the site. The risk assessment included evaluation of a disposal area for oil field wastes, and was performed as part of the CEQA process for site redevelopment.

Environmental Investigations and Risk Assessment for Former Landfill, Los Angeles County, CA. This landfill was a closed site that received both hazardous and nonhazardous wastes; at the time, it was occupied by two golf courses and additional commercial and residential developments and was considered for redevelopment. Project work included completion of SVE surveys, installation and monitoring of LFG migration probes, LFG sampling/analysis, oversight of cover and subsurface soil and groundwater sampling, completion of an HHRA, CEQA assistance, and negotiations with regulatory agencies. The site was considered for listing on the NPL as a potential Superfund site. Oversight of the landfill was provided by EPA Region IX, DTSC, and the Los Angeles County landfill LEA.

Creation of Baseline HHRA and Ecological Risk Assessment for Former Rocket Manufacturing Facility, Van Nuys, CA. The facility was undergoing site mitigation under RCRA. Contaminants at the site included heavy metals, pesticides, PCBs, hydrazine, and VOCs. The ecological risk assessment included terrestrial ecosystems.

Investigation of Former Oil Refinery, Central CA. As Key Field Geologist, Mr. Huff conducted remedial excavations of lead-impacted soils, in addition to planning, scheduling, and coordinating quarterly sampling of 73 multi-aquifer groundwater monitoring wells located in and around the site. He also designed and installed 16 groundwater monitoring wells located in 3 different aquifers for contaminant plume tracking and remediation, and compiled data and prepared reports for submittal to the regulatory agency.

Creation of Baseline HHRA and Ecological Risk Assessment for Former Electronics Manufacturing Facility, Los Angeles, CA. Contaminants at the site included chlorinated solvents. The ecological risk assessment included terrestrial ecosystems.

HHRA and Impact Assessment for Proposed Commercial Developments Adjacent to Former Hazardous Waste Landfill, Southern CA. The site contained two landfills, one municipal solid waste landfill and one hazardous waste site, which were under the oversight of the DTSC. Mr. Huff completed various investigations and data reviews/analyses of soil, surface water, groundwater, LFG, and air quality. The data were used for the completion of an HHRA in support of the CEQA process for a proposed golf course and business park development on the Class III landfill.

Remedial Oversight for Cleanup of Former Petroleum Refinery and State Superfund Site, Southern CA. As Key Field Geologist, Mr. Huff provided remedial oversight for cleanup of more than 1,000,000 cubic yards of contaminated soils excavated for on-site treatment using bioremediation and vapor extraction.

Investigation, Risk Assessment, and Remediation Feasibility Study for Former Landfill, San Diego County, CA. Mr. Huff developed the LFG sampling portion of the site assessment work plan for the former landfill site, which was located next to a river, bay, and amusement park and was used heavily for recreational purposes. The field investigations were followed by a risk assessment, and, given the highly visible and public nature of the landfill project, focus on risk communication was the primary importance. Ultimately, several candidate risk-based remediation methods applicable to the site were identified with typical costs associated with each method. The project included interface with multiple regulatory agencies. Site investigative activities included preparation of work plans, conducting soil gas surveys, installation of soil borings and subsequent sampling, evaluation of applicable remedial alternatives, and assessment of hydrocarbon contaminant plumes from a variety of sources, including leaking underground storage tanks (USTs), aerospace facilities, and former petroleum refineries.

Greenhouse Gas

- CARB – Mandatory Reporting Verification Projects
- Agrium US Inc.[2]
- Alameda Municipal Power[1]
- Biggs Municipal Utility[1]
- Bonneville Power Administration[1]
- Burney Forest Products
- Cal Portland Company – Mojave Plant[2]
- Cal Portland Company – Colton Plant[2]
- California Institute of Technology
- California Steel Industries
- Carlton Forge Works
- City of Corona[1]
- City of Lompoc[1]
- City of Roseville, CA[1]
- City of Ukiah, Electric Utilities Division[1]
- City of Victorville[1]
- Collins Pine Company
- Corn Products
- Exide Technologies[2]
- Flint Hills Resources[1]
- Gridley Electric Utility[1]
- Georgia Pacific
- Healdsburg Electric Department[1]
- Hilmar Cheese Company
- IHI Power Services Corp[1]
- Imperial Irrigation District[1]
- Imperial Irrigation District – Coachella Gas Turbines
- Imperial Irrigation District – El Centro Generating Station
- Imperial Irrigation District – Niland Gas Turbines Plant
- Imperial Irrigation District – Rockwood Gas Turbines
- JP Morgan Chase Bank[1]
- Kinergy[1]
- Lodi Electric Utility[1]
- Loma Linda University[1]
- Lehigh Hanson[2]
- Metropolitan Water District[1]
- Midway Sunset Cogeneration Company
- MillerCoors
- National Cement Company[2]
- New-Indy
- Noble Petro Inc.[1]
- Orange County Sanitation District
- Olam West Coast, Inc.
- Pacific Ethanol[1]
- Pacific Gas and Electric Company[1,3]
- Port of Oakland[1]
- Pearson Fuels[1]
- Port of Stockton, CA[1]
- Qualcomm
- Renewable Energy Group[1]
- Riverside Wastewater Treatment Plant
- River City Petroleum[3]
- San Francisco Hetch Hetchy Water & Power[1]
- Shell Energy North America[1]

- Shell U.S. Trading Company[1]
- Signal Hill Petroleum[3]
- Silicon Valley Power[1]
- Southwest Gas Corporation[3]
- Truckee Donner Public Utility District[1]
- Temple Inland
- Tesoro Refining & Marketing Company[2]
- Timco Standard Tandem Alapse, Inc.
- United Pacific Energy[1]
- University of California at Davis
- University of California at Irvine
- University of California at Santa Cruz
- University of California at San Diego
- Western Area Power Authority[1]
- Wonderful Pistachios & Almonds

[1] Verification includes electrical/fuel transactions.
[2] Verification included process emissions (landfill, wastewater treatment, geothermal, or other process emissions).
[3] Verification includes oil and gas emissions.

CARB – GHG Offset Verification Projects. Includes offset verification for livestock, ozone depleting substances (ODS), and mine methane capture (MMC) projects:

- A-Gas O'Hare Project CAOD5340
- A-Gas 2017-1 Project CAOD5298
- A-Gas Americas 2017-2 Project CAOD5318
- A-Gas Americas 2017-3 Project CAOD5320
- A-Gas Americas 2015-1 Project CAOD5185
- DPC ODS Destruction Project #4 CAOD0067
- DPC ODS Destruction Project #5 RP1 CAOD0068
- DPC ODS Destruction Project #5 RP4 CAOD0068
- DPC ODS Destruction Project #6 CAOD0084
- DPC ODS Destruction Project #12 CAOD0061
- DPC ODS Destruction Project #13 CAOD0062
- DPC ODS Destruction Project #20 CAOD5066
- DPC ODS Destruction Project #21 CAOD5078
- DPC ODS Destruction Project #22 CAOD5190
- Elk Creek Coal Mine Methane Destruction and Utilization Project CAMM5173
- A-Gas RemTec 2014-3 Project CAOD5092
- ClimeCo ODS Destruction 16 and 17 CAOD5222
- Diversified Pure Chem (DPC) Domestic ODS Destruction Project #11 CAOD0019
- Environmental Credit Corp. (ECC) American Carbon Registry (ACR) ODS 2012 Project ECC ODS ACR 2013 Project CAOD5013
- ECC ODS PA-003 RP1-3 CAR CAOD0006
- ECC ODS Destruction 2-2014 CAR CAOD5059
- ECC ODS Destruction 11-2013 CAOD5033
- ECC Sunnyside Farm Project CALS0119
- Solvay Chemicals, Inc. Waste Mine Methane Project
- Sunny Knoll Farm Desktop Review
- Vamox® Demonstration Project at JWR Shaft No. 4-9

TCR – Voluntary Entity Reporting Verification Projects

- City of Davis
- Hershey Chocolate and Confectionary Corp.
- Hilmar Cheese Company
- U.S.ANA Health Sciences
- Sierra Nevada Conservancy
- University of California at Davis
- Anadarko Petroleum
- Levi Strauss & Company
- Colorado Springs Utilities
- Denver Water
- Sierra Nevada Conservancy
- The Timberland Company
- City of Chula Vista
- Metropolitan Water District
- Collins Pine Company
- North Carolina Department of Environment and Natural Resources
- Washington State Department of Ecology
- San Benito County
- City of Hollister
- City of San Juan Bautista
- University of California at Merced
- Massachusetts Department of Environmental Protection
- Hilmar Cheese Company
- University of California at Davis
- University of California at San Diego
- Anaheim Public Utilities
- City of Salt Lake City
- Irvine Ranch Water District
- University of California, Office of the President
- Virgin America
- South Carolina Department of Health and Environmental Conservation
- Clark Public Utilities
- Imperial Irrigation District

CCAR – Voluntary Entity Reporting Verification Projects

- Orange County Sanitation District
- Morningstar Packing Company
- City of West Hollywood
- El Paso Corporation
- University of California at Santa Cruz
- University of California at Merced
- University of California at Irvine
- University of California at Berkeley
- University of California at Santa Barbara
- SW Gas Corporation
- San Benito County
- City of Los Angeles
- Aquarium of the Pacific
- Anaheim Public Utilities
- Stanford University
- Collins Pine Company
- Hershey Chocolate and Confectionary Corporation
- Natomas Unified School District
- Johns Mansville
- Pacific States Environmental Contractors
- State of CA Department of General Services
- State of CA Department of Finance
- State of CA Department of Military
- State of CA Office of the Governor

CAR – Carbon Credit Verification Projects

Landfill Protocol

- Oneida-Herkimer Landfill, Ava, NY
- Davis Landfill Gas Offset Project
- Butler County Landfill Pipeline Project
- Hernando County Landfill Electric Generation
- Clinton County Landfill Methane Destruction Project
- Pine Tree Landfill Methane Destruction Project
- Finney County Landfill Gas Destruction
- Granger South Jordan Landfill Gas Destruction Project
- Steuben County Landfill Flaring Project

Livestock Protocol

- Green Meadow Farm
- George DeRuyter & Sons Dairy
- Green Valley Dairy
- Willow Point Dairy, LLC
- Central Sands Dairy, LLC
- Bridgewater Dairy, LLC
- West River Farm Anaerobic Digester Project
- Riverview Farm Anaerobic Digester Project
- Pagel's Ponderosa Dairy

CAR GHG Reduction Services, Project Manager

Landfill Protocol

- Dalton-Whitfield Regional Solid Waste Management Authority
- L & D Landfill
- Larimer County Landfill Electric Generation Project
- Hay Road Landfill Feasibility Study
- YSDI Landfill Feasibility Study
- Central Landfill, Citrus County, Florida
- Raleigh County Solid Waste Authority
- Pendleton County Landfill
- Eagle Point, Wolf Creek, and Stones Throw Landfills

Kern County Waste Management Department, GHG Emissions Inventory of Creditable GHG Reductions. Mr. Huff performed GHG emission inventory services of creditable GHG reductions.

City of Fresno Wastewater Treatment Plant (WWTP), AB32 Mandatory Reporting, Fresno, CA. Mr. Huff assisted in the completion of AB32 Mandatory reporting for the WWTP, and six active landfills for Waste Management, Inc.

GHG Inventory and CAR Reporting, CA. Mr. Huff completed GHG inventory for Los Angeles County, City of Carlsbad, CA, and Republic Services, Inc.

Specialized GHG Inventory Calculations. Mr. Huff assisted in the completion of multi-year specialized GHG inventory calculations for landfill emissions (carbon dioxide and methane) for Waste Management.

GHG Inventory Consulting. Mr. Huff provided GHG inventory consulting for the Los Angeles County and City of Carlsbad GHG Inventory Consulting.

S**oftware Testing and Evaluation.** Mr. Huff provided software testing and evaluation of the Climate Action Reserve emissions tracking and trading software.

Expert Testimony

2013 – Mr. Huff was an expert witness in regard to GHG credit dispute for confidential client. His work included rebuttal of plaintiff expert opinions, including deposition, arbitration testimony, and open-court testimony.

2015 – Mr. Huff was an expert witness in regard to LFG monitoring data interpretation for confidential client within state court. His work included preparation of exhibits and affidavits used for rebuttal of plaintiff expert witnesses.

Storm Water

Mr. Huff has been involved in numerous projects related to compliance with water and wastewater discharge limitations, including storm water and wastewater compliance sampling and discharge monitoring. His expertise allowed him to be the Lead Staff personnel on a variety of projects related to water quality, storm water, and wastewater, as well as additional environmental issues. He has participated in the following projects and studies:

- Engineering design, design review, and construction management for industrial wastewater pretreatment systems at industrial and commercial facilities.
- Pollutant loading and flow rate assessments for wastewater conveyance systems at industrial facilities.
- Development of wastewater sampling manuals and training of industrial facility personnel in proper sampling techniques.
- Installation, monitoring, and sampling of well systems to determine surface infiltration rates and the presence and nature of subsurface contaminants in groundwater.
- Performance of regulatory compliance audits, facility permitting, and interface with local, state, and federal agencies to ensure compliance with all applicable rules and environmental regulations.

Groundwater

Mr. Huff has a background in geology and paleontology. Since joining SCS, he has been involved in numerous projects related to investigation of sites with contaminated soil and groundwater.

His participation includes:

- Key Field Geologist in remedial oversight for cleanup of a state Superfund site located in Southern California. More than 1,000,000 cubic yards of contaminated soils were excavated for on-site treatment using bioremediation and vapor extraction.

- Planning and direction of field investigations of hazardous waste sites to identify and characterize contaminants in soil and groundwater.

- Assessment of hydrocarbon contaminant plumes from a variety of sources, including leaking underground storage tanks (LUSTs) and former petroleum refineries.

- Site investigative activities, including preparation of work plans, conducting soil gas surveys, installation of soil borings and subsequent sampling, and evaluation of applicable remedial alternatives.

- Installation, monitoring, and sampling of well systems to determine the presence and nature of subsurface contaminants in groundwater.

- In-field design and installation of vapor extraction systems for the remediation of volatile contaminants in subsurface soils.

- Preparation of health and safety (H&S) plans submitted for regulatory approval. This includes hazardous waste characterizations, emergency response planning, establishing site operating procedures, and field implementation of H&S plans.

- Preconveyance environmental assessments of properties prior to real estate transfer. The projects consist of evaluating past on-site operations, identifying potentially contaminated sites, record searches of files maintained by regulatory agencies, and collection and analysis of groundwater quality information, where applicable.

Additional Project Experience

- In-field design and installation of SVE systems for the remediation of volatile contaminants in subsurface soils.

- Planning and direction of field investigations of numerous hazardous waste sites to identify and characterize contaminants in soil and groundwater.

- Preparation of H&S plans submitted for regulatory approval. This includes hazardous waste characterizations, emergency response planning, establishing site operating procedures, and field implementation of health and safety plans.

- Preconveyance environmental assessments of properties prior to real estate transfer. The projects consist of evaluating past on-site operations, identifying potentially contaminated sites, record searches of files maintained by regulatory agencies, and collection and analysis of groundwater quality information, where applicable.

Mr. Huff is skilled in management information systems (MIS), database design, programming, and computer modeling. He is responsible for the collection, conversion, manipulation, and management of data used in risk assessments, groundwater and vadose zone migration, and water fate and transport modeling, and for designing and developing maps, cross-sections, and 3-D visualizations of surface and subsurface environments.

He also has performed project and financial management for internal and external projects using business practices and project management skills acquired during completion of his Master's degree in Business Administration.

Prior to joining SCS, Mr. Huff was affiliated with Green & Associates, an environmental consulting firm that provided services such as Phase I environmental site assessments (ESAs), asbestos assessments, and evaluation of core samples for paleontological purposes for major oil companies.

Publications and Presentations

Huff, Raymond, Leonard, Michelle, and Sullivan, Patrick, Composting Emissions Update and New Southern California Regulations, Presentation at the Annual Solid Waste Association of North America (SWANA) WASTECON Conference, St. Louis, Missouri, October 2003.

Huff, Raymond, and Sullivan, Patrick, Unique Landfill Gas Issues on Urban Inactive Landfills, Conference Proceedings, 27th Annual SWANA, Landfill Gas Symposium in San Antonio, Texas, March 2004.

Huff, Raymond, and Sullivan, Patrick, Air Quality and Odor Impacts from Landfill-Related Emissions, Conference Proceedings, Water Environment Federation (WEF) and Air and Waste Management Association (AWMA) Odor and Air Emissions 2004, Bellevue, Washington, April 2004.

Huff, Raymond, and Sullivan, Patrick, Unique Case Studies of Landfill Redevelopment in California, Conference Proceedings, 44th Annual SWANA WASTECON Conference, Charlotte, North Carolina, September 2006.

Huff, Raymond, Carbon Footprint and Impact of Biosolids, Presentation at California Water Environment Association (CWEA) Global Climate Issues Specialty Conference, Whittier, California, June 2008.

Huff, Raymond, Greenhouse Gas Credit Trading, Presentation at CWEA Global Climate Issues Specialty Conference, Whittier, California, June 2008.

Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick, New LFG Monitoring Requirements in California: More Stringent and Expensive, Conference Proceedings, 32nd Annual SWANA Landfill Gas Symposium in Atlanta, Georgia, March 2009.

Huff, Raymond, Landfill Gas to Energy Case Study, Presentation at Working Session on Methane Capture and Use, Navigating the American Carbon World Conference, San Diego, California, April 2009.

Huff, Raymond, The Business of Greenhouse Gas Emissions, Presentation at Sigma Xi Speaker Series, Loyola Marymount University, April, 2009.

Huff, Raymond, Third Party Greenhouse Gas Verification Explained, Presentation at GHG for Industry Workshop, Houston, Texas, May 2009.

Huff, Raymond, Subsurface Fire Identification, Assessment and Mitigation; A Presentation of Selected Case Studies, Presentation at the Annual SWANA WASTECON Conference, Long Beach, California, September 2009.

Huff, Raymond, and Sullivan, Patrick, Impact of Mandatory GHG Reporting on California Industry, Presentation at Industrial Environmental Association 2009 Annual Statewide Environmental Summit, San Diego, California, October 2009.

Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick, The Impact of Federal Climate Change Legislation and Regulation on the Solid Waste Industry, Conference Proceedings, 33rd Annual SWANA Landfill Gas Symposium in San Diego, California, March 2010.

Huff, Raymond, and Sullivan, Patrick, Comparison of GHG Emissions Methodologies for Landfills, Presentation for AWMA Annual Conference, Orlando, Florida, June 2011.

Huff, Raymond, Henkelman, John, and Sullivan, Patrick, Comparison of GHG Emissions Methodologies for Landfills, Presentation for AWMA GHG Strategies Conference, San Francisco, California, November 2011.

Huff, Raymond, Sullivan, Patrick, and Drotman, Cassandra, Lessons Learned from the First Two Years of Compliance with the Federal GHG Mandatory Reporting Rule, 36th Annual SWANA Landfill Gas Symposium, Las Vegas, Nevada, March 2013.

Huff, Raymond, Banister, Amy, Smith, Phillip, Wuestenberg, Niki, Sullivan, Patrick, and Henkelman, John, Lessons Learned from Federal Mandatory GHG Reporting Data Analysis for Landfills, Presentation for AWMA Climate Change Conference, Washington, DC, September 2013.

Huff, Raymond, Summary and Impacts of Upcoming Changes in Federal GHG Reporting for Landfills, Presentation at AWMA Golden Empire Chapter 2013 Technical Conference, Bakersfield, California, September 2013.

Huff, Raymond, and Sullivan, Patrick, Lessons Learned from California Methane Rule Reporting, Presentation at SWANA Landfill Gas Symposium, March 2014.

Huff, Raymond, and Wuestenberg, Nicole, Clean Air Act Compliance Issues with Subsurface Reactions, Extended Abstract and Presentation at Global Waste Management Symposium, June 2014.

Huff, Raymond, and Penoyer, David, Landfill Gas Freakometrics: Metrics-Based Management of Landfill Gas Systems across the U.S., Extended Abstract and Presentation at Global Waste Management Symposium, June 2014.

Huff, Raymond, McGarry, Josh, and Walsh, James, Overview of Operating MSW Landfills with Ongoing Subsurface Reactions, Extended Abstract and Presentation at Global Waste Management Symposium, June 2014.

Huff, Raymond, Henkelman, John, and Sullivan, Patrick, Redundancy and Inconsistency in Voluntary, State, and Federal Greenhouse Gas Reporting for Landfills, Extended Abstract and Presentation at AWMA Annual Conference, Long Beach, California, June 2014.

Huff, Raymond, Subsurface Fire Identification, Assessment and Mitigation, Presentation at SWANA Northwest Regional Landfill Gas Symposium, May 2015.

Huff, Raymond, Subsurface Fire Identification, Assessment and Mitigation, Presentation at NDSWRA Conference, September 2015.

Huff, Raymond, and Penoyer, David, Power and Pitfalls of Landfill gas Monitoring Data Analysis and Visualization Techniques – A Selection of Data Visualization Cast Studies, Extended Abstract and Presentation at Global Waste Management Symposium, February 2016.

Henkelman, John, Huff, Raymond, and Sullivan, Patrick, A Look at Fugitive GHG Emissions Reporting and the Effects on Regulated Facilities, Extended Abstract and Presentation for AWMA Annual Conference, New Orleans, Louisiana, June 2016.

Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick, Impact on the Waste Industry from Proposed EG and Supplemental NSPS Rules for Landfills, Extended Abstract and Presentation for AWMA Annual Conference, New Orleans, Louisiana, June 2016.

Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., Best Practices Learned from Greenhouse Gas Reporting, Presentation for Air & Waste Management Association (A&WMA), A&WMA's 110th Annual Conference & Exhibition, Pittsburg, Pennsylvania, June 2017.

Drotman, Cassandra, Henkelman, John, Huff, Raymond, and Sullivan, Patrick S., An Update and Comparison on State Level Greenhouse Gas Reporting and Cap and Trade Regulations, A&WMA's Finding Common Ground on Climate Change Mitigation and Adaptation, Arlington, Virginia, October 2017.

Drotman, Cassandra, Henkelman, John, Huff, Raymond, and Sullivan, Patrick S., A Review of Regulatory and Industry Greenhouse Gas Reporting Cooperation, A&WMA's Finding Common Ground on Climate Change Mitigation and Adaptation, Arlington, Virginia, October 2017.

Drotman, Cassandra, Huff, Raymond, and Sullivan, Patrick S., Tier 4 Surface Emissions Monitoring Process and Issues, Air & Waste Management Association's (A&WMA's) 111th Annual Conference & Exhibition, Hartford, Connecticut, June 2018.

PATRICK S. SULLIVAN, BCES, CPP, REPA

Education

BA – Harvard University, Biology/Ecology, 1989

Professional License/Certifications

Board Certified Environmental Scientist, No. 15-ES009, American Academy of Environmental Engineers & Scientists (AAEES)
South Coast Air Quality Management District (SCAQMD), Certified Permitting Professional (No. A-1716)
Registered Environmental Property Assessor, No. 519692, National Registry of Environmental Professionals (NREP)
Approved Lead Verifier under California Air Resources Board (CARB) AB 32 Greenhouse Gas (GHG) Program, Executive Order H-18-152

Professional Affiliations

Solid Waste Association of North America (SWANA); Past Director, Landfill Gas (LFG)/Biogas Division
Air and Waste Management Association (AWMA); Chairman, Mother Lode Chapter
U.S. Composting Council
Waste Industry Air Coalition (WIAC); Co-Chairman
California Biomass Collaborative; Executive Board
Solid Waste Industry for Climate Solutions (SWICS), Co-Chairman
Research Associate, Columbia University, Earth Engineering Center for Sustainable Waste Management
Solid Waste Industry Group in California
Technical Advisory Group; Cal Recycle, LFG
Technical Advisory Group, CARB, AB 32 Landfill Methane Rule
Society for Risk Analysis

Professional Awards

Certificate of Excellence, Publication of over 100 Articles and Presentation, SCS Engineers (SCS), 2015
Distinguished Service Award, National Solid Waste Management Association (NSWMA, now National Waste and Recycling Association, NWRA), 2009
Hall of Flame, SWANA, LFG/Biogas Division, 2007
Certificate of Achievement, Inspiring Leadership, SCS, 2007
Certificate of Appreciation, Speaker, Post-Closure Land Use Symposium, California Integrated Waste Management Board (CIWMB, now Cal Recycle), 2006

Professional Experience

Mr. Sullivan has over 29 years of experience in the area of environmental engineering, specializing in solid waste management and other environmental issues. He is the Managing Director of SCS's consulting and engineering operations within the Southwestern United States, the largest of SCS's engineering business units. He also serves as the Practice Leader for SCS's Solid Waste Practice in the same region. Mr. Sullivan is the National Expert for SCS's companywide Clean Air Act program. He also oversees SCS's company-wide GHG and Risk Assessment programs and is one of the national experts on air, GHG, risk assessment and toxic exposure issues for solid waste and industrial facilities. Mr. Sullivan is a company Senior Vice President and Member of the Company's Management Advisory Committee.

Mr. Sullivan is also Principal-in-Charge for projects related to air quality permitting and compliance, GHG emissions and climate change, California Environmental Quality Act (CEQA) technical evaluations, and facility investigation and risk assessment at solid waste and other industrial facilities, as well as related engineering services. Mr. Sullivan has been involved with the following practices and projects:

CEQA/NEPA Analyses

Examples of Mr. Sullivan's project work on CEQA and EIR projects are detailed below.

CEQA Air Quality Analysis and Toxics Risk Assessment, Proposed Expansion to Fink Road Landfill, Stanislaus County, CA. As part of an environmental impact report (EIR) for a proposed expansion to the Fink Road Landfill in Stanislaus County, CA, SCS completed an air toxics risk assessment, which evaluated the potential human health impacts due to current and future exposures from the project. The risk assessment was part of a larger air quality analysis completed for the expansion EIR. The analysis included an evaluation of health risk due to diesel exhaust from heavy equipment and refuse hauling vehicles at the landfill. As part of this project, SCS also researched the conversion of refuse hauling fleets to alternative fuels in order to generate ERCs for CEQA mitigation measures.

CEQA Air Quality Analysis and Toxics Risk Assessment, Salinas Valley Solid Waste Authority Landfill Project, Monterey County, CA. SCS completed air quality and risk assessment sections of a large EIR being prepared for long-term refuse collection and disposal options for the Salinas Valley Solid Waste Authority's Regional Landfill Project. The project included three landfills and 10 transfer stations, which were combined into four different project scenarios. The project included emissions estimates, air dispersion modeling, and risk calculations. The analysis included an evaluation of health risk due to diesel exhaust from heavy equipment and refuse hauling vehicles at the landfills and transfer stations, which were part of the project.

CEQA Mitigation Measures Development and Implementation for El Sobrante Landfill, Corona, CA. SCS was enlisted to develop a series of mitigation measures for fugitive dust emissions from landfill construction and operations at the El Sobrante Landfill in Corona, CA. SCS also developed an implementation plan for the CEQA Mitigation Monitoring and Reporting Program (MMRP), which was required as part of the approval of the EIR. SCS is currently doing ambient monitoring for particulate matter less than 10 microns (PM10) levels and working with the SCAQMD to develop a long-term strategy to reduce dust emissions.

CEQA Air Quality Analysis and Toxics Risk Assessment Proposed Expansion to Newby Island Sanitary Landfill, Santa Clara County, CA. As part of an EIR for a proposed expansion to the Newby

Island Sanitary Landfill in Santa Clara County, CA, SCS completed an air quality impact analysis that included a risk assessment evaluating the potential human health impacts due to current and future exposures to contaminants from the project. The risk assessment was part of a larger air quality analysis completed for the expansion EIR. The project included emissions estimates, air dispersion modeling, GHG evaluation, and risk calculations.

Air Quality Impact Assessment (AQIA) for Landfill Gas Engines, San Jose, CA. The project included an AQIA used in support of an Environmental Impact Report (EIR) and California Environmental Quality Act (CEQA) report. Mr. Sullivan evaluated all major emission sources at the site. The AQIA included modeling for a health risk assessment (HRA) to demonstrate National Ambient Air Quality Standards (NAAQS) compliance.

AQIA, Forward Landfill, Manteca, CA. The project included AQIA used in support of an EIR and CEQA report for a landfill expansion and various other landfill improvement projects. Mr. Sullivan evaluated all major emission sources at the site. He used model results to evaluate the HRA and NAAQS compliance.

AQIA, Fairmead Landfill, Madera, CA. The project included AQIA used in support of an EIR and CEQA report for a landfill expansion and composting facility. Mr. Sullivan evaluated all major emission sources at the site. He used model results to evaluate the HHRA and NAAQS compliance.

HRA and Nuisance Evaluation of Landfill, Otay, CA. Mr. Sullivan prepared an HRA and odor dispersion modeling, and evaluated potential nuisance impacts from a landfill on proposed residential development. The reports were used to seek CEQA approval.

HRA for Fitness Center, Sacramento, CA. Mr. Sullivan prepared an HHRA to quantify human health impacts from sources near a proposed fitness center in Sacramento, California. The sources evaluated included a major freeway and stationary sources.

Air Quality

Air Permitting and Compliance at Hazardous and Industrial Waste Landfills. This has included air permitting, compliance, and testing at BKK, BKK Main Street, Cal Compact, OII, Kettleman Hills, CSI, and Chemical Waste Management of the Northwest facilities.

Title V Permit Applications and Documentation for Industrial Facilities and Landfill Sites. Mr. Sullivan has been involved with over 200 Title V permitting projects, including Title V compliance reporting for over 100 facilities.

New Source Review (NSR)/Prevention of Significant Deterioration (PSD) Permit Applications and Documentation for Industrial Facilities and Landfill Sites. Mr. Sullivan has been involved with over 100 NSR/PSD projects for various types of industrial facilities. This includes permitting for over 30 landfill expansions, 15 composting projects, and various industrial and solid waste projects and facilities.

New Source Performance Standard (NSPS) Compliance Activities. Mr. Sullivan has overseen the completion of NSPS Tier 1 and 2 emission rate studies and reports, LFG collection and control system (GCCS) design plans, surface emission monitoring plans, and other documentation for over 200 landfills under the NSPS program, including compliance reporting for over 85 landfill sites. In addition, Mr. Sullivan has worked on NSPS compliance activities for various other sources, including boilers, incinerators, engines, turbines, etc.

National Emission Standards for Hazardous Air Pollutants (NESHAPs)/Maximum Achievable Control Technology (MACT) Compliance Activities. Mr. Sullivan has been involved with over 100 NESHAPs/MACT projects for various regulated sources, including development of Startup, Shutdown, and Malfunction (SSM) plans and various other compliance documents.

Development and Teaching of Training Courses for Air Quality Compliance at over 50 Seminars. Compliance and regulatory issues that have been taught included Title V, NSPS, NESHAPs/MACT, NSR/PSD, GHG reporting and permitting, and related state and local requirements.

Regulatory Advocacy for the Solid Waste Industry on the NSPS Rule, Title V Operating Permit Programs, NESHAPs rule, and other regulations, where landfills or other solid waste facilities are included as a regulated source. Mr. Sullivan has developed industry comments and negotiated with the agencies on behalf of the industry.

Air Sampling and Source Testing for Various Emitting Devices, including sampling for volatile organic compounds (VOCs), criteria pollutants, particulate heavy metals, and asbestos fibers. Completion of all air sampling associated with asbestos abatement. Oversight of source testing at over 100 landfill sites and development of a database of landfill source tests for use in the work of the WIAC.

Air Permitting. Mr. Sullivan has completed air permitting and compliance activities for the following types of industrial facilities:

- Solid waste incinerators.
- Hazardous waste treatment, storage, and disposal facilities (TSDFs)
- Biomass energy plants.
- MSW and industrial landfills.
- Recycling facilities and transfer stations.
- Composting facilities.
- LFG recovery plants.
- Chemical manufacturing facilities.
- Sand and gravel facilities.
- Site remediation projects.

Completed Landfill Air Quality Services in the Following States and Air Districts: Kern County APCD, SCAQMD, San Joaquin Valley Air Pollution Control District (APCD), Bay Area AQMD (BAAQMD), Sacramento Metropolitan AQMD, San Diego County APCD, Yolo-Solano AQMD, Feather River AQMD, Ventura County APCD, Santa Barbara County APCD, Shasta County APCD, Antelope Valley APCD, Mojave Desert AQMD, Placer County APCD, North Coast Unified AQMD, Butte County APCD, Monterey Bay Unified APCD, Lake County AQMD, and El Dorado County APCD. States of Nevada, Oregon, Washington, Hawaii, Arizona, Idaho, Montana, New Mexico, Colorado, Utah, Texas, Ohio, Pennsylvania, Florida, Arkansas, Illinois, Kansas, Virginia, Oklahoma, and several others.

Landfill Investigation and Risk Assessment

The following are examples of projects where Mr. Sullivan has worked on landfill investigation and/risk assessment projects.

Environmental Investigations and Risk Assessment at the Former BKK Main Street Landfill in Los Angeles County. This landfill is a closed site that may have received both hazardous and non-

hazardous wastes; it is currently occupied by two golf courses and other commercial and residential developments and is being considered for additional redevelopment. Project work at this facility has included completion of soil vapor surveys, installation and monitoring of LFG migration probes, LFG sampling/analysis, oversight of cover and subsurface soil and groundwater sampling, completion of a human health risk assessment, CEQA assistance, and negotiations with regulatory agencies. The site is currently being considered for listing on the National Priorities List (NPL) as a potential Superfund site. Oversight of the landfill is provided by EPA Region IX, Department of Toxic Substance Control (DTSC), and the Los Angeles County landfill local enforcement agency (LEA).

Environmental Monitoring and Post-closure Care, Cal-Compact Landfill, Carson, CA. The site is a former hazardous waste landfill that is being considered for redevelopment. The site is currently under the oversight of the DTSC. Project tasks have included LFG assessment, LFG engineering, design of methane protection systems, and development of an LFG monitoring program. In addition, Mr. Sullivan currently oversees the completion of post-closure care services at the site, including LFG monitoring, LFG system operations and maintenance (O&M), groundwater sampling and analysis, cover maintenance and repair, site security, storm water sampling/analysis and inspections, and regulatory liaison.

Human Health Risk Evaluation and Impact Assessment, Proposed Commercial Developments, On and Adjacent to the BKK Landfill Site, West Covina, CA. The BKK site includes two landfills: one municipal solid waste landfill and one hazardous waste site, which are under the oversight of DTSC. Mr. Sullivan provided oversight for the completion of various investigations and data reviews/analyses of soil, surface water, groundwater, LFG, and air quality. The data were used for the completion of a human health risk assessment in support of the CEQA process for a proposed golf course and business park development on the Class III landfill.

Burn Dump Investigation in San Joaquin County, CA. As part of this project, Mr. Sullivan provided technical oversight for investigations of a burn dump site, which included soil investigations, trenching investigations to determine extent of refuse, LFG migration assessment, waste sampling/analysis, hazardous waste determination, and other project tasks. The project site was slated for residential development; therefore, all project elements were completed in consideration for this type of development.

Investigation, Risk Assessment, and Remediation Kaiser Ventures, Inc., Facilities, Fontana, CA. For the former Kaiser Steel plant in Fontana, Remedial Investigation (RIs)/Feasibility Studies (FSs), Remedial Action Plans (RAPs), and Remedial Designs were prepared for three on-site operable units under DTSC's oversight. Mr. Sullivan was responsible for a number of individual soil, groundwater, surface water, and waste investigations at the Kaiser site, including treatability studies, risk assessments, RAPs, and hydrogeological studies, storm water pollution prevention plans, and spill prevention, control, and countermeasure (SPCC) plans. These projects included investigations of two landfill sites, with both hazardous and non-hazardous wastes, including soil, waste materials, hazardous waste, groundwater, and surface water issues. The site has been redeveloped into the California Speedway, a NASCAR race track.

Investigation, Risk Assessment, and Remediation Feasibility Study, Mission Bay Landfill, San Diego, CA. For this site, Mr. Sullivan managed a significant forensic investigation and site assessment of the former landfill site, which is located next to a river, bay, and amusement park and is used heavily for recreational purposes. This work has included investigations of extent of refuse, cover thickness, LFG composition and migration, soil, surface water, groundwater, and other environmental media associated with Mission Bay. The field investigations will be followed by a risk

assessment, and, given the highly visible and public nature of the landfill project, focus on risk communication will be of primary importance. Ultimately, several candidate risk-based remediation methods applicable to the site will be identified with typical costs associated with each method. This project included interface with the San Diego County APCD, RWQCB, LEA, and DTSC.

Landfill Engineering, LFG Migration Assistance, and Human Health Risk Assessment, Geer Road Landfill, Modesto, CA. Mr. Sullivan has managed and been involved with a variety of projects at the Geer Road site, including closure design and CQA services, cover repair, LFG engineering, air quality compliance, human health risk assessment, LFG system O&M, LFG and groundwater monitoring, as well as acted as an expert witness in defending the landfill against a citizen lawsuit. Project work was under the jurisdiction of the landfill LEA and RWQCB.

Greenhouse Gas

Mr. Sullivan has participated in the following landfill-related GHG verification projects while at SCS.

CAR GHG Project Reduction Services

Landfill Protocol

- Dalton-Whitfield Regional Solid Waste Management Authority
- L & D Landfill
- Larimer County Landfill Electric Generation Project
- Hay Road Landfill Feasibility Study
- Montana-Dakota Utilities Billings Landfill
- YSDI Landfill Feasibility Study Central Landfill, Citrus County, Florida
- Raleigh County Solid Waste Authority
- Pendleton County Landfill
- Eagle Point, Wolf Creek, and Stones Throw Landfills Project
- Organic Waste Composting Protocol
- American Organics OWC
- Grover Environmental Products
- Jepson Prairie Organics
- South Valley Organics

AB32 Mandatory Reporting. Completed State of California Mandatory GHG reporting under AB32 for the following general stationary combustion facilities:

- Altamont Landfill
- Bradley Landfill
- CalEnergy Geothermal Plants
- City of Fresno Wastewater Treatment Plant
- El Sobrante Landfill
- G2 Ostrom Road
- Kirby Canyon Landfill
- Mid-Valley Landfill
- Penrose Landfill Gas Conversion, LLC
- Redwood Landfill
- San Bernardino County Solid Waste Mgmt. - MVSL
- Simi Valley Landfill
- Sunnyvale WWTP
- Toyon Landfill Gas Conversion, LLC

Other GHG experience for Mr. Sullivan is detailed below:

GHG Emissions Inventory and Verification of Creditable GHG Reductions. Performed GHG emissions inventory services, verification of creditable GHG reductions, and development of GHG management plan under CEQA for Kern County Waste Management Department, California. Mr. Sullivan has additionally conducted air emissions estimates, air permitting, risk assessment, and CEQA air impact analyses for Kern County landfills and other solid waste facilities.

GHG Compliance for Landfills. Completed GHG compliance services for over 100 landfills related to the AB32 mandatory reporting rule, AB32 landfill methane rule, and federal “Tailoring” rule for GHG.

U.S. EPA GHG Reporting Rule. Management and oversight for over 500 U.S. EPA GHG mandatory reporting rule projects for landfills and industrial facilities.

SWICS Group. Involvement with the leadership of the SWICS group. As part of this effort, Mr. Sullivan has developed protocols for landfill GHG emission estimates and led SWICS advocacy efforts on the proposed AB32 early action rule for landfills, cap and trade, as well as the AB32 and federal GHG mandatory reporting rules.

Private Waste Company GHG Consulting. Provided GHG consulting for all of the major private waste management companies, including Waste Management, Republic Services, Waste Connections, and others.

Development of GHG Guidance Document. Developed the guidance document titled, "Technologies and Management Options for Reducing Greenhouse Gas Emissions from Landfills," under contract to the California Integrated Waste Management Board (CIWMB).

Publications and Presentations

Mr. Sullivan has published 144 articles. Below are his recent published pieces in the last 5 years:

Sullivan, Patrick S., and Drotman, Cassandra, Tier 4 Surface Emissions Monitoring Process and Issues, Publication in the Proceedings for the A&WMA's 111th Annual Conference & Exhibition, Hartford, Connecticut, June 2018.

Sullivan, Patrick S., Regulatory Update: Alternatives to Daily Soil Cover from an Emissions Standpoint, Presentation at SWANA Western Regional Symposium, Palm Springs, California, May 2018.

Sullivan, Patrick S., Odor Management at Solid Waste Facilities: Proactive not Reactive, SWANA eLearning Webinar, May 2018.

Sullivan, Patrick S., Cleaner Air Oregon Program, Panel Discussion, SWANA Northwest Regional Symposium, Troutdale, Oregon, April 2018.

Sullivan, Patrick S., Managing Odors at Composting and Other Organics Facilities, Presentation at Waste Expo 2018, Las Vegas, Nevada, April 2018.

Sullivan, Patrick S., et. al., Evolving Landfill Air Regulations, Presentation and Panel Discussion, SWANAPalooza, Denver, Colorado, March 2018.

Sullivan, Patrick S., et. al., Evolving Landfill Air Regulations, Presentation and Panel Discussion, Global Waste Management Symposium, Indian Wells, California, February 2018.

Sullivan, Patrick S., Huff, Raymond H., and Henkelman, John, Causes of Increasing Sulfur Content in California Landfill Gas, Proceedings of the Global Waste Management Symposium, Indian Wells, California, February 2018.

Sullivan, Patrick S., The Challenge in Redeveloping Landfills, Published in the San Diego Daily Transcript, December 2017.

Sullivan, Patrick S., Sniffing for Answers, Odor Management Series, Waste Today magazine, November/December 2017 Issue.

Sullivan, Patrick S., and Henkelman, John, A Review of Regulatory and Industry GHG Reporting Cooperation, Publication in the Proceedings for the A&WMA's 110th Finding Common Ground on Climate Change Mitigation and Adaptation, Arlington, Virginia, October 2017.

Sullivan, Patrick S., Battle of the Stink, Odor Management Series, Waste Today magazine, September/October 2017 Issue.

Sullivan, Patrick S., et al., Air Quality and GHG Regulatory Update for U.S. Landfills, Panel Presentation at SWANA WASTECON Conference, Baltimore, Maryland, September 2017.

Sullivan, Patrick S., Huff, Ray, Drotman, Cassandra, and Henkelman, John, Best Practices Learned from Greenhouse Gas Reporting, Publication in the Proceedings for the A&WMA's 110th Annual Conference & Exhibition, Pittsburg, Pennsylvania, June 2017.

Sullivan, Patrick S., Huff, Ray, Drotman, Cassandra, and Henkelman, John, Potential Use of NSPS and GHG Reporting Program Data to Calculate GHG Reductions, Publication in the Proceedings for the A&WMA's 110th Annual Conference & Exhibition, Pittsburg, Pennsylvania, June 2017.

Sullivan, Patrick S., Odor Management Strategies for Organics Processing, Presentation at SWANA Gold Rush Chapter, It's All About Organics Workshop, San Jose, California, June 2017.

Sullivan, Patrick S., et. al., Regulatory Update: What About XXX and Cf Landfills? Panel Discussion at Waste Expo 2017, New Orleans, Louisiana, May 2017.

Sullivan, Patrick S., Navigating Air Requirements for Compost Facility, Presentation at Waste Expo 2017, New Orleans, Louisiana, May 2017.

Sullivan, Patrick S., Part 2. Key Issues with New NSPS and EG rules for Landfills, Presentation at SWANA Northwest Regional Symposium, Tulalip, Washington, April 2017.

Sullivan, Patrick S., How to Deal with Odor Issues that Rear Their Ugly Heads at Solid Waste Facilities, Presentation at SWANAPalooza 2017, Reno, Nevada, March 2017.

Sullivan, Patrick S., et al., How Sweeping Changes to the NSPS Impact Your Facility, Panel Discussion at SWANAPalooza 2017, Reno, Nevada, March 2017.

Sullivan, Patrick S., New Rules for Landfills, Published in MSW Management magazine, November/ December 2016.

Sullivan, Patrick S., Federal and California Landfill Emissions Regulatory Updates, Presentation at Rural Counties ESJPA Technical Advisory Meeting, October 2016.

Sullivan, Patrick S., Summary of New NSPS and EG Rules for Landfills, SCS Webinar, September 2016.

Sullivan, Patrick S., et al., The Final Outcome: Summary of NSPS and EG Rules for Landfills, Panel Presentation at SWANA WASTECON Conference, Indianapolis, Indiana, August 2016.

Sullivan, Patrick S., The Impact of the NSPS Rule for Landfills, Panel Discussion at Waste Expo 2016, Las Vegas, Nevada, June 2016.

Sullivan, Patrick S., Best Available Control Technology (BACT) and Composting, Presentation at Waste Expo 2016, Las Vegas, Nevada, June 2016.

Sullivan, Patrick S. and Drotman, Cassandra, Impact on the Waste Industry from Proposed EG and Supplemental NSPS Rules for Landfills, A&WMA's 109th Annual Conference & Exhibition New Orleans, Louisiana, June 2016.

Sullivan, Patrick S., Rules and Regulations Update – Industry Impacts from the New NSPS Rule for MSW Landfills, Panel Discussion at SWANAPalooza 2016, Charleston, South Carolina, April 2016.

Sullivan, Patrick S., Regulatory Update: Air/GHG Regulations, Presentation at SWANA Western Regional Symposium, San Luis Obispo, California, April 2016.

Sullivan, Patrick S., Odor Management at Solid Waste Facilities, Presentation at Dinner Meeting, Mother Lode Chapter, A&WMA, March 1, 2016.

Sullivan, Patrick S., and Huff, Raymond H., Evaluating Impacts from Landfill Gas in a Litigation Setting, Proceedings of the Global Waste Management Symposium, Indian Wells, California, February 2016.

Sullivan, Patrick S., Evaluating Impacts from LFG in a Litigation Setting, Presentation at SWANA Webinar, December 16, 2015.

Sullivan, Patrick S., et al., Changes Proposed to NSPS and EG Rules for Landfills, Published in Waste Advantage magazine, Volume 6, Number 11, November 2015.

Henkelman, John J., Huff, Raymond H., and Sullivan, Patrick S., Emissions Trending and Sensitive Variable Analysis from Five Years of Mandatory Landfill Reporting under the Federal Greenhouse Gas Mandatory Reporting Regulation, Extended Abstract, A&WMA Conference, Addressing Climate Change: Emerging Policies, Strategies, and Technological Solutions, Oak Brook, Illinois, September 2015.A) Webinar, October 14, 2015.

Drotman, Cassandra B., Huff, Raymond H., and Sullivan, Patrick S., Greenhouse Gas Permitting Issues and Approaches for Addressing Greenhouse Gas Emissions, Extended Abstract, A&WMA Conference, Addressing Climate Change: Emerging Policies, Strategies, and Technological Solutions, Oak Brook, Illinois, September 2015.

Sullivan, Patrick S., et al., LFG Rules and Regulations Committee Update, Panel Presentation at SWANA WASTECON Conference, Orlando, Florida, August 2015.

Sullivan, Patrick S., Comparison of Air Quality and GHG Benefits/Impacts for Organic Waste Diversion Options, Presentation at Waste Expo, Las Vegas, Nevada, June 2015.

Sullivan, Patrick S., et al., A Landfill Game Changer, Published in MSW Management Magazine, March/April 2015.

Sullivan, Patrick S., Air and GHG Regulatory Update, Presentation at the 38th Annual SWANA Landfill Gas Symposium, New Orleans, Louisiana, March 2015.

Sullivan, Patrick S., Regulatory Aspects Affecting LFG Management, Presentation at Environmental Research and Education Foundation (EREF) Regional Summit, Austin, Texas, November 2014.

Huff, Ray, H., and Sullivan, Patrick S., Air Compliance Hurdles and Necessary Regulatory Flexibility for Landfill Gas System Compliance When Managing Subsurface Reactions, Published in the Proceedings of the Global Waste Symposium, Orlando, Florida, June 2014.

Huff, Ray H., and Sullivan, Patrick S., Redundancy and Inconsistency in Voluntary, State, and Federal Greenhouse Gas Reporting for Landfills, Published in the Proceedings of the AWMA National Conference, Long Beach, June 2014.

Walker, Scott, and Sullivan, Patrick S., California Landfill Methane Control Efficiency Based on Recent Direct Measurement Studies, Published in the Proceedings of the Global Waste Symposium, Orlando, Florida, June 2014.

Sullivan, Patrick S., et al., Update on Federal Air and GHG Regulations Affecting Landfills, Published in Waste Advantage magazine, Volume 5, Number 3, March 2014.

Sullivan, Patrick S., et al., Lessons Learned from California Landfill Methane Rule Reporting, Presentation at the 37th Annual SWANA Landfill Gas Symposium, Monterey, California, March 2014.

Sullivan, Patrick S., The Implications of California Air Regulations on Composting Facilities, Presentation at the U.S. Composting Council Annual Conference, Oakland, California, January 2014.

RESUME

FRANK J. HUBACH

Frank J. Hubach, President of FHA, has over twenty years experience in noise and vibration control for advanced technology, industrial and commercial projects. Design and testing of facilities where micro-vibration is of great concern for metrology and lithography has been his focus. Projects range from comprehensive campus master planning to remodeling in the private, public and institutional sectors. Structural dynamics and mechanical systems for cleanrooms and laboratories have been the specialty. His musical and audio engineering background also makes him well suited for acoustic design of critical listening rooms for recording, broadcast and performance.

Mr. Hubach has over thirty years experience in construction, electronics and audio engineering. He is considered a leading authority on noise and vibration control for microelectronics manufacturing. Mr. Hubach has published several papers and been a speaker at numerous conferences and seminars. He has given expert witness testimony in state and federal courts for acoustic forensics, noise control and construction.

EDUCATION

1971 Bachelor of Engineering Electrical Engineering	New York University Bronx, NY
1970 to 1972 Coursework Graduate Studies in Acoustics and Electronics	New York University Bronx, NY

PROFESSIONAL HISTORY

1984 to Present President	Frank Hubach Associates, Inc. Richmond, CA
1978 to 1984 Associate/V.P./Treas./President	Acoustical Consultants, Inc. San Francisco, CA
1975 to 1978 President/Owner/Audio Engineer	Pacific Application Systems Mill Valley, CA
1974 to 1975 V.P./Commercial Contractors	American Wall Systems, Inc. Middletown, NY
1971 to 1974 Recording Engineer	Record Plant Recording/Freelance New York, NY

SEMINARS/PAPERS

S E M I N A R S

(contributing speaker)

UNIVERSITY OF WISCONSIN

"Controlling Vibration in Microelectronic Manufacturing Facilities" - 1989 and 1990

UNIVERSITY OF GLASGOW

"Design of Vibration Free Environments for Precision Manufacturing" - 1986

P A P E R S

Advanced Techniques for Controlling Building Vibration. 1993 CleanRooms West Convention Conference in Santa Clara, CA, September 1993.

Hubach, Frank J. and Edwards, Bob, Empirical Determination of Sound Isolation Requirements for Recording Studio Isolation Booths. 93rd Audio Engineering Society (AES) Convention in San Francisco, CA, October 1992.

Controlling Horizontal Microscale Vibration in Building Floor Entablatures. 1991 Symposium on Optical Science and Engineering (for SPIE) in San Jose, CA, October 1991.

Vibration Attenuation in Soil. National Conference on Noise Control Engineering (for INCE) in Tarrytown, NY, July 1991.

Neal, Stephen R.W. and Hubach, Frank J., Historic Artwork Preservation and Vibration Mitigation During Building Renovation. National Conference on Noise Control Engineering (for INCE) in Tarrytown, NY, July 1991.

Frank J. Hubach - Expert Witness Experience

2009 Thornton v. Haugh, Superior Court, San Francisco County. Residential acoustical privacy case. Conducted acoustical tests of sound transmission loss at residence as related to noise code and advised counsel. (case settled)

2007 Bendahan v. Dovichi, Superior Court, Sacramento County. Residential noise nuisance case. Conducted acoustical tests of air-conditioning equipment at residence as related to noise code and advised counsel. (case settled)

2007 500 Bryant Street HOA v. 500 Bryant Street Partners, Superior Court, San Francisco County. Conducted acoustical tests in condominiums and analyzed data related to traffic noise control and California Building Code. Made recommendations to counsel and participated in Joint Expert Meeting. (case settled)

2007 Paseo Plaza Homeowners' Assoc. v. SFC Block 4 Residential Associates, et al, Superior Court, Santa Clara County. Reviewed acoustical tests, construction documents and depositions of other experts. Gave deposition related to urban noise control for condominiums and California Building Code. (case settled)

2006 Smolich v. Meritage Homes and Sierra Pacific Industries v. Meritage Homes, Superior Court, Placer County. Reviewed test reports and conducted acoustical test related to City of Lincoln Conditions of Use for industrial noise and residential subdivision adjacency. Conducted noise mitigation analyses and offered design solutions. Provided extensive consultation to counsel and participated in acousticians meeting. (case pending)

2006 Lyle v. Bogavich, Superior Court, Sacramento County. Residential noise nuisance case. Conducted acoustical tests of wood working tools at residence as related to noise code.

2003 Seagate Technology LLC and CH2M Hill Industrial Design Corporation and Tasso Katselas Associates, Pittsburgh, PA. Reviewed construction documents, test reports and design reports relative to excessive vibration, structural dynamics and mechanical equipment vibration control for sensitive electronics cleanroom. Supervised independent design analyses using Finite Element Analyses. Provided consultation to counsel regarding industry standards, design criteria and procedures, and potential for mitigation.

2001 Retained by counsel for pre-filing investigation. Conducted acoustical tests of interior noise at residence in San Jose, California. Civil case regarding construction deficiency and noise code.

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Expert Witness Experience

2001 Retained by counsel for pre-filing investigation. Conducted acoustical tests of interior noise at residence in Oakland, California. Civil case regarding mechanical equipment noise control and industry standards.

2000 OC America Construction, Inc. v. KCH Services, Inc., Superior Court, State of Washington. Reviewed acoustical tests, construction documents and depositions. Gave deposition in arbitration proceedings for construction litigation regarding specifications for noise control of large industrial exhaust systems.

1999 Kidd v. City of Fairfield, et al, United States District Court, Eastern District of California. Reviewed depositions and investigated crime site regarding speech intelligibility during incident. Provided consultation to counsel.

1997 Orlando v. Robbins, Superior Court, San Francisco County. Conducted acoustical tests in apartment and analyzed data related to noise ordinance. Consulted with counsel before and during deposition of acoustical expert.

1993 Lakeside v. State of California, Superior Court, Alameda County. Conducted acoustical tests regarding noise impact to residences from proposed CalTrans freeway construction. Gave deposition.

1991 Retained as expert in Municipal Court, San Francisco. Conducted acoustical tests and testified in Civil case regarding nightclub noise and noise ordinance.

1989 Retained as expert in Municipal Court, Berkeley, CA. Conducted acoustical tests. Civil case regarding acoustical privacy, neighbor's noise and noise ordinance.

1983, 1987 Retained as expert by Alameda County Public Defender. Conducted acoustical tests at crime scene. Criminal case regarding speech intelligibility at crime scene.

1986 Retained as expert in Superior Court, Marin County. Criminal case regarding acoustical privacy and intelligibility in courtroom between counsel and handcuffed client in murder case (shackles motion). Advised counsel regarding acoustical standards and test methodologies.

Frank J. Hubach
Expert Witness Experience

1984 Stephens v. Stephens, Superior Court, Marin County. Conducted acoustical tests at crime scene. Criminal case regarding speech intelligibility at crime scene.

1982 "Wrongful Death Case" v. Richmond Police ("Richmond Cowboys"), Federal Court, San Francisco. Retained as expert in high profile case. Conducted objective and subjective acoustical tests and recreated crime scene. Provided extensive court room testimony regarding speech intelligibility at crime scene.

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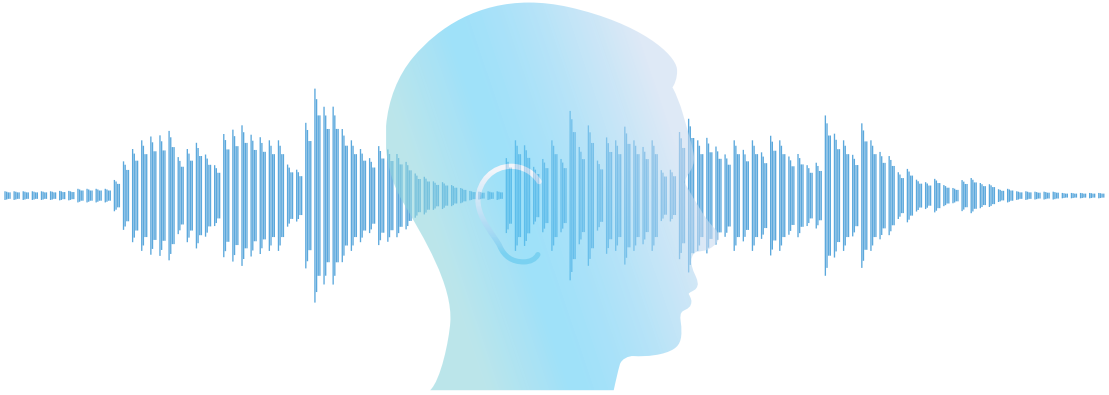
EXHIBIT D

World Health Organization
REGIONAL OFFICE FOR Europe

ENVIRONMENTAL NOISE GUIDELINES

for the European Region



Abstract

Noise is an important public health issue. It has negative impacts on human health and well-being and is a growing concern. The WHO Regional Office for Europe has developed these guidelines, based on the growing understanding of these health impacts of exposure to environmental noise. The main purpose of these guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. They provide robust public health advice underpinned by evidence, which is essential to drive policy action that will protect communities from the adverse effects of noise. The guidelines are published by the WHO Regional Office for Europe. In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience.

Keyword

NOISE – ADVERSE EFFECTS, PREVENTION AND CONTROL

ENVIRONMENTAL EXPOSURE – ADVERSE EFFECTS, PREVENTION AND CONTROL

GUIDELINES

EUROPE

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Environmental Noise Guidelines for the European Region

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Foreword

Noise is one of the most important environmental risks to health and continues to be a growing concern among policy-makers and the public alike. Based on the assessment threshold specified in the Environmental Noise Directive of the European Union (EU), at least 100 million people in the EU are affected by road traffic noise, and in western Europe alone at least 1.6 million healthy years of life are lost as a result of road traffic noise.

At the request of Member States at the Fifth Ministerial Conference on Environment and Health in Parma, Italy, in March 2010, the WHO Regional Office for Europe has developed these guidelines, based on the growing understanding of the health impacts of exposure to environmental noise. They provide robust public health advice, which is essential to drive policy action that will protect communities from the adverse effects of noise.

These WHO guidelines – the first of their kind globally – provide recommendations for protecting human health from exposure to environmental noise originating from various sources. They not only offer robust public health advice but also serve as a solid basis for future updates, given the growing recognition of the problem and the rapid advances in research on the health impacts of noise. The comprehensive process of developing the guidelines has followed a rigorous methodology; their recommendations are based on systematic reviews of evidence that consider more health outcomes of noise exposure than ever before. Through their potential to influence urban, transport and energy policies, these guidelines contribute to the 2030 Agenda for Sustainable Development and support WHO's vision of creating resilient communities and supportive environments in the European Region.

Following the publication of WHO's community noise guidelines in 1999 and night noise guidelines for Europe in 2009, these latest guidelines represent the next evolutionary step, taking advantage of the growing diversity and quality standards in this research domain. Comprehensive and robust, and underpinned by evidence, they will serve as a sound basis for action. While these guidelines focus on the WHO European Region and provide policy guidance to Member States that is compatible with the noise indicators used in the EU's Environmental Noise Directive, they still have global relevance. Indeed, a large body of the evidence underpinning the recommendations was derived not only from noise effect studies in Europe but also from research in other parts of the world – mainly in Asia, Australia and the United States of America.

I am proud to present these guidelines as another leading example of the normative work undertaken in our Region in the area of environment and health. On behalf of the WHO Regional Office for Europe and our European Centre for Environment and Health in Bonn, Germany, which coordinated the development of the guidelines, I would like to express my gratitude to the large network of experts, partners, colleagues and consultants who have contributed to this excellent publication. I would also like to thank Switzerland and Germany for providing financial support to this complex project, and look forward to following the influence of the guidelines on policy and research in the years to come.

Dr Zsuzsanna Jakab

WHO Regional Director for Europe

Acknowledgements

The WHO Regional Office for Europe thanks all members of the Steering Group, Guideline Development Group, Systematic Review Team and External Review Group for their invaluable contributions in the guidelines development process.

The WHO Regional Office for Europe, through its European Centre for Environment and Health, coordinated the development of these guidelines. The project was coordinated by Marie-Eve Héroux and Dorota Jarosinska, under the overall supervision of Elizabet Paunovic, Head of the European Centre for Environment and Health.

The members of the Steering Group were: Shelly Chadha, Carlos Dora, Rokho Kim, Jurgita Lekaviciute, Srdan Matic, Julia Nowacki, Poonum Wilkhu and Joerdis Wothge (see Annex 1 Table A1.1 for affiliations).

The members of the Guideline Development Group were: Stephen Stansfeld (Chair), Wolfgang Babisch, Goran Belojevic, Mark Brink, Sabine Janssen, Peter Lercher (2013–2014), Marco Paviotti, Göran Pershagen, Kerstin Persson Waye, Anna Preis, Martin van den Berg and Jos Verbeek (methodologist) (see Annex 1 Table A1.2 for affiliations).

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Abbreviations

%HA	percentage of the population “highly annoyed”
%HSD	percentage of the population “highly sleep-disturbed”
BMI	body mass index
CI	confidence interval
CNG	WHO guidelines for community noise
DALY	disability-adjusted life-year
dB	decibel
DW	disability weight
EC	European Commission
EEA	European Environment Agency
END	European Union Directive 2002/49/EC relating to the assessment and management of environmental noise (Environmental Noise Directive)
ERF	exposure–response function
EU	European Union
GDG	Guideline Development Group
GRADE	Grading of Recommendations Assessment Development and Evaluation
ICBEN	International Commission on Biological Effects of Noise
IHD	ischaemic heart disease
JRC	Joint Research Centre [of the European Commission]
mmHg	milimeters of mercury
NNG	WHO night noise guidelines for Europe
OR	odds ratio
PECCOS	population, exposure, comparator, confounder, outcome and study [framework]
PICOS	population, intervention, comparator, outcome and study [framework]
PLD	personal listening device
RANCH	Road traffic and aircraft noise exposure and children’s cognition and health [study]
RCT	randomized control trial
RR	relative risk
SCENIHR	Scientific Committee on Emerging and Newly Identified Hazards and Risk

Glossary of acoustic terms

A-weighting	A frequency-dependent correction that is applied to a measured or calculated sound of moderate intensity to mimic the varying sensitivity of the ear to sound for different frequencies
C-weighting	A frequency-dependent correction that is applied to a measured or calculated sound of moderate intensity to mimic the varying sensitivity of the ear to sound for different frequencies – C-weighting is usually used for peak measurements
FAST	Fast response has a time constant of 125 milliseconds on a sound level meter
$L_{Aeq,T}$	A-weighted, equivalent continuous sound pressure level during a stated time interval starting at t_1 and ending at t_2, expressed in decibels (dB), at a given point in space[1]
$L_{A,max}$	Maximum time-weighted and A-weighted sound pressure level within a stated time interval starting at t_1 and ending at t_2, expressed in dB[1]
L_{AF}	A-weighted sound pressure level with FAST time constant as specified in IEC 61672-1[1]
$L_{AF,max}$	Maximum time-weighted and A-weighted sound pressure level with FAST time constant within a stated time interval starting at t_1 and ending at t_2, expressed in dB
$L_{AS,max}$	Maximum time-weighted and A-weighted sound pressure level with SLOW time constant within a stated time interval starting at t_1 and ending at t_2, expressed in dB
L_E	Sound energy density level is the logarithmic ratio of the time-averaged sound energy per unit volume to the reference sound energy density Eo = 10-12 J/m^3.
$L_{ex,8h}$	L_{eq} (equivalent continuous sound level) corrected for the length of the working shift, in this case 8 hours
L_{day}	Equivalent continuous sound pressure level when the reference time interval is the day[1]
L_{den}	Day-evening-night-weighted sound pressure level as defined in section 3.6.4 of ISO 1996-1:2016[1]
L_{dn}	Day-night-weighted sound pressure level as defined in section 3.6.4 of ISO 1996-1:2016[1]
$L_{evening}$	Equivalent continuous sound pressure level when the reference time interval is the evening[1]

[1] *Source*: ISO (2016).

L_{night}	Equivalent continuous sound pressure level when the reference time interval is the night[1]
$L_{peak,C}$	Level of peak sound pressure with C-weighting, within a specified time interval
$L_{peak,lin}$	Level of peak sound pressure with linear frequency weighting, within a specified time interval
Sound pressure level	the logarithm of the ratio of a given sound pressure to the reference sound pressure in dB is 20 times the logarithm to the base ten of the ratio.
SLOW	Slow response has a time constant of 10 000 milliseconds on a sound level meter

Executive summary

Environmental noise is an important public health issue, featuring among the top environmental risks to health. It has negative impacts on human health and well-being and is a growing concern among both the general public and policy-makers in Europe.

At the Fifth Ministerial Conference on Environment and Health in Parma, Italy, in 2010, WHO was requested by the Member States in the European Region to produce noise guidelines that included not only transportation noise sources but also personal electronic devices, toys and wind turbines, which had not yet been considered in existing guidelines. Furthermore, European Union Directive 2002/49/EC relating to the assessment and management of environmental noise (END) and related technical guidance from the European Environment Agency both elaborated on the issue of environmental noise and the importance of up-to-date noise guidelines.

The WHO Regional Office for Europe has therefore developed environmental noise guidelines for the European Region, proposing an updated set of public health recommendations on exposure to environmental noise.

Objectives

The main purpose of these guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. Leisure noise in this context refers to all noise sources that people are exposed to due to leisure activities, such as attending nightclubs, pubs, fitness classes, live sporting events, concerts or live music venues and listening to loud music through personal listening devices. The guidelines focus on the WHO European Region and provide policy guidance to Member States that is compatible with the noise indicators used in the European Union's END.

The following two key questions identify the issues addressed by the guidelines.

- In the general population exposed to environmental noise, what is the exposure–response relationship between exposure to environmental noise (reported as various indicators) and the proportion of people with a validated measure of health outcome, when adjusted for confounders?
- In the general population exposed to environmental noise, are interventions effective in reducing exposure to and/or health outcomes from environmental noise?

In light of these questions, the guidelines set out to define recommended exposure levels for environmental noise in order to protect population health.

Methods used to develop the guidelines

The process of developing the WHO guidelines followed a rigorous methodology involving several groups with separate roles and responsibilities. Throughout the process, the Grading of

Recommendations Assessment, Development and Evaluation (GRADE) approach was followed. In particular, the different steps in the development of the guidelines included:

- formulation of the scope and key questions of the guidelines;
- review of the pertinent literature;
- selection of priority health outcome measures;
- a systematic review of the evidence;
- assessment of certainty of the bodies of evidence resulting from systematic reviews;
- identification of guideline exposure levels; and
- setting of the strength of recommendations.

Based on the defined scope and key questions, these guidelines reviewed the pertinent literature in order to incorporate significant research undertaken in the area of environmental noise and health since the community noise guidelines and night noise guidelines for Europe were issued (WHO, 1999; WHO Regional Office for Europe, 2009). In total, eight systematic reviews of evidence were conducted to assess the relationship between environmental noise and the following health outcomes: cardiovascular and metabolic effects; annoyance; effects on sleep; cognitive impairment; hearing impairment and tinnitus; adverse birth outcomes; and quality of life, mental health and well-being. A separate systematic review of evidence was conducted to assess the effectiveness of environmental noise interventions in reducing exposure and associated impacts on health.[2] Once identified and synthesized, the quality of the evidence of the systematic reviews was assessed by the Systematic Review Team. Subsequently, the Guideline Development Group (GDG) formulated recommendations, guided by the Systematic Review Team's assessment and informed by of a number of additional contextual parameters. To facilitate the formulation of recommendations, the GDG first defined priority health outcomes and then selected the most relevant health outcome measures for the outcomes. Consecutively, a process was developed to identify the guideline exposure levels with the help of the exposure–response functions provided by the systematic reviews. To reflect the nature of the research (observational studies) underpinning the relationship between environmental noise and health, the GRADE procedures were adapted to the requirements of environmental exposure studies where needed.

Noise indicators

From a scientific point of view, the best noise indicator is the one that performs best in predicting the effect of interest. There are, however, a number of additional criteria that may influence the choice of indicator. For example, various indicators might be suitable for different health end-points. Some considerations of a more political nature can be found in the European Commision's Position paper on EU noise indicators (EC, 2000).

[2] All systematic reviews are publicly available online in the *International Journal of Environmental Research and Public Health*. A detailed list of links to the individual reviews is provided in section 2.3.2 and in Annex 2 of these guidelines.

The current guidelines are intended to be suitable for policy-making in the WHO European Region. They therefore focus on the most used noise indicators L_{den} and/or L_{night} (see the glossary of acoustic terms for further details). They can be constructed using their components (L_{day}, $L_{evening}$, L_{night} and the duration in hours of L_{night}), and are provided for exposure at the most exposed façade, outdoors. The L_{den} and L_{night} indicators are those generally reported by authorities and are widely used for exposure assessment in health effect studies.

Recommendations

Specific recommendations have been formulated for road traffic noise, railway noise, aircraft noise, wind turbine noise and leisure noise. Recommendations are rated as either strong or conditional.

Strength of recommendation

- A **strong** recommendation can be adopted as policy in most situations. The guideline is based on the confidence that the desirable effects of adherence to the recommendation outweigh the undesirable consequences. The quality of evidence for a net benefit – combined with information about the values, preferences and resources – inform this recommendation, which should be implemented in most circumstances.
- A **conditional** recommendation requires a policy-making process with substantial debate and involvement of various stakeholders. There is less certainty of its efficacy owing to lower quality of evidence of a net benefit, opposing values and preferences of individuals and populations affected or the high resource implications of the recommendation, meaning there may be circumstances or settings in which it will not apply.

Alongside specific recommendations, several guiding principles were developed to provide generic advice and support for the incorporation of recommendations into a policy framework. They apply to the implementation of all of the specific recommendations.

Guiding principles: reduce, promote, coordinate and involve

- Reduce exposure to noise, while conserving quiet areas.
- Promote interventions to reduce exposure to noise and improve health.
- Coordinate approaches to control noise sources and other environmental health risks.
- Inform and involve communities potentially affected by a change in noise exposure.

The recommendations, source by source, are as follows.

Road traffic noise

Recommendation	Strength
For average noise exposure, the GDG strongly recommends reducing noise levels produced by road traffic below **53 decibels (dB)** L_{den}, as road traffic noise above this level is associated with adverse health effects.	Strong
For night noise exposure, the GDG strongly recommends reducing noise levels produced by road traffic during night time below **45 dB** L_{night}, as night-time road traffic noise above this level is associated with adverse effects on sleep.	Strong
To reduce health effects, the GDG strongly recommends that policy-makers implement suitable measures to reduce noise exposure from road traffic in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions, the GDG recommends reducing noise both at the source and on the route between the source and the affected population by changes in infrastructure.	Strong

Railway noise

Recommendation	Strength
For average noise exposure, the GDG strongly recommends reducing noise levels produced by railway traffic below **54 dB** L_{den}, as railway noise above this level is associated with adverse health effects.	Strong
For night noise exposure, the GDG strongly recommends reducing noise levels produced by railway traffic during night time below **44 dB** L_{night}, as night-time railway noise above this level is associated with adverse effects on sleep.	Strong
To reduce health effects, the GDG strongly recommends that policy-makers implement suitable measures to reduce noise exposure from railways in the population exposed to levels above the guideline values for average and night noise exposure. There is, however, insufficient evidence to recommend one type of intervention over another.	Strong

Aircraft noise

Recommendation	Strength
For average noise exposure, the GDG strongly recommends reducing noise levels produced by aircraft below **45 dB** L_{den}, as aircraft noise above this level is associated with adverse health effects.	Strong
For night noise exposure, the GDG strongly recommends reducing noise levels produced by aircraft during night time below **40 dB** L_{night}, as night-time aircraft noise above this level is associated with adverse effects on sleep.	Strong
To reduce health effects, the GDG strongly recommends that policy-makers implement suitable measures to reduce noise exposure from aircraft in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions the GDG recommends implementing suitable changes in infrastructure.	Strong

Wind turbine noise

Recommendation	Strength
For average noise exposure, the GDG conditionally recommends reducing noise levels produced by wind turbines below **45 dB** L_{den}, as wind turbine noise above this level is associated with adverse health effects.	Conditional
No recommendation is made for average night noise exposure L_{night} of wind turbines. The quality of evidence of night-time exposure to wind turbine noise is too low to allow a recommendation.	
To reduce health effects, the GDG conditionally recommends that policy-makers implement suitable measures to reduce noise exposure from wind turbines in the population exposed to levels above the guideline values for average noise exposure. No evidence is available, however, to facilitate the recommendation of one particular type of intervention over another.	Conditional

Leisure noise

Recommendation	Strength
For average noise exposure, the GDG conditionally recommends reducing the yearly average from all leisure noise sources combined to **70 dB** $L_{Aeq,24h}$ as leisure noise above this level is associated with adverse health effects. The equal energy principle[3] can be used to derive exposure limits for other time averages, which might be more practical in regulatory processes.	Conditional
For single-event and impulse noise exposures, the GDG conditionally recommends following existing guidelines and legal regulations to limit the risk of increases in hearing impairment from leisure noise in both children and adults.	Conditional
Following a precautionary approach, to reduce possible health effects, the GDG strongly recommends that policy-makers take action to prevent exposure above the guideline values for average noise and single-event and impulse noise exposures. This is particularly relevant as a large number of people may be exposed to and at risk of hearing impairment through the use of personal listening devices. There is insufficient evidence, however, to recommend one type of intervention over another.	Strong

Target audience

The guidelines are published by the WHO Regional Office for Europe. In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience, as a large body of the evidence underpinning the recommendations was derived not only from European noise effect studies but also from research in other parts of the world – mainly in America, Asia and Australia.

[3] The equal energy principle states that the total effect of sound is proportional to the total amount of sound energy received by the ear, irrespective of the distribution of that energy in time (WHO, 1999).

1. Introduction

Environmental noise features among the top environmental risks to physical and mental health and well-being, with a substantial associated burden of disease in Europe (WHO Regional Office for Europe & JRC, 2011; Hänninen et al., 2014). It has negative impacts on human health and well-being and is a growing concern among both the general public and policy-makers in Europe.

WHO published community noise guidelines (CNG) and night noise guidelines (NNG) for Europe in 1999 and 2009, respectively (WHO, 1999; WHO Regional Office for Europe, 2009). Since then, significant new evidence has accumulated on the health effects of environmental noise.

The need for updated health-based guidelines originates in part from commitments made at the Fifth Ministerial Conference on Environment and Health in Parma, Italy, in 2010, where Member States asked WHO to produce appropriate noise guidelines that would include additional noise sources such as personal electronic devices, toys and wind turbines (WHO Regional Office for Europe, 2010). Furthermore, European Union (EU) Directive 2002/49/EC relating to the assessment and management of environmental noise (the END – EC, 2002a) and related technical guidance from the European Environment Agency (EEA) both elaborated on the issue of environmental noise and the importance of up-to-date noise guidelines (EEA, 2010).

The WHO Regional Office for Europe has therefore developed environmental noise guidelines for the European Region, proposing an updated set of public health recommendations on exposure to environmental noise. The main purpose of these guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. The guidelines focus on the WHO European Region and provide policy guidance to Member States that is compatible with the noise indicators used in the EU's END.

The following two key questions identify the issues addressed by the guidelines.

- In the general population exposed to environmental noise, what is the exposure–response relationship between exposure to environmental noise (reported as various indicators) and the proportion of people with a validated measure of health outcome, when adjusted for confounders?
- In the general population exposed to environmental noise, are interventions effective in reducing exposure to and/or health outcomes from environmental noise?

1.1 The public health burden from environmental noise

Exposure to noise can lead to auditory and nonauditory effects on health. Through direct injury to the auditory system, noise leads to auditory effects such as hearing loss and tinnitus. Noise is also a nonspecific stressor that has been shown to have an adverse effect on human health, especially following long-term exposure. These effects are the result of psychological and physiological distress, as well as a disturbance of the organism's homeostasis and increasing allostatic load (Basner et al., 2014). This is further outlined in the WHO narrative review of the biological mechanisms of nonauditory effects (Eriksson et al., 2018).

The evidence of the association between noise exposure and health effects is based on experimental work regarding biological plausibility and, in observational studies, consistency among study results, presence of an exposure–response relationship and the magnitude of the effect. Environmental noise risk assessment and risk management relies on established exposure–response relationships (Babisch, 2014).

In 2011 the WHO Regional Office for Europe and the European Commission (EC) Joint Research Centre (JRC) published a report on the burden of disease from environmental noise that quantified the healthy years of life lost in western Europeam countries as a result of environmental noise (WHO Regional Office for Europe & JRC, 2011). The burden of disease is calculated, in a single measure of disability-adjusted life-years (DALYs), as the sum of the years of life lost from premature mortality and the years lived with disability for people living with the disease or health condition or its consequences in the general population (WHO, 2014a).

Sufficient information was deemed available to quantify the burden of disease from environmental noise for cardiovascular disease, cognitive impairment in children, sleep disturbance, tinnitus and annoyance. The report, based on a limited set of data, estimated that DALYs lost from environmental noise in western European countries are equivalent to 61 000 years for ischaemic heart disease (IHD), 45 000 years for cognitive impairment in children, 903 000 years for sleep disturbance, 22 000 years for tinnitus and 654 000 years for annoyance (WHO Regional Office for Europe & JRC, 2011). These results indicate that at least one million healthy years of life are lost every year from traffic-related environmental noise in western Europe. Sleep disturbance and annoyance, mostly related to road traffic noise, constitute the bulk of this burden. Available assessments place the burden of disease from environmental noise as the second highest after air pollution (WHO Regional Office for Europe & JRC, 2011; Hänninen et al., 2014; WHO 2014b). However, a lack of noise exposure data in the central and eastern parts of the WHO European Region means that it is not possible to assess the burden of disease from environmental noise for the whole Region.

1.2 The environmental noise policy context in the EU

The EU has been working to develop a harmonized noise policy for more than two decades. 1993 saw the start of the EC's Fifth Environment Action Programme, which stated that "no person should be exposed to noise levels which endanger health and quality of life" (EC, 1993). This was followed by a Green Paper on future noise policy (EC, 1996), which reinforced the importance of noise as one of the main environmental problems in Europe and proposed a new framework for noise policy development.

The Sixth Environment Action Programme had as one of its objectives: "to achieve a quality of environment where the levels of man-made contaminants do not give rise to significant impacts on, or risks to, human health" (EC, 2002b). This paved the way for the Commission to adopt and implement the END in 2002 (EC, 2002a). The main aim of the Directive is "to define a common approach intended to avoid, prevent or reduce on a prioritized basis the harmful effects, including annoyance, due to exposure to environmental noise".

The END obliges the EC to adapt its Annexes I–III (I on noise indicators in addition to L_{den}[4] and L_{night}[5], II on noise assessment methods and III on methods for assessing harmful effects of noise) to technical and scientific progress. While work on revising Annex II was finalized in 2015 and common noise assessment methods were introduced (EC, 2015), revisions of Annex III to establish methods to assess the harmful effects of noise only started in 2015. Annex III would primarily define what exposure–response relationships should be used to assess the effect of noise on populations. EU Member States have already expressed the view that the recommendations from these environmental noise guidelines for the WHO European Region will guide the revision of Annex III. Beside this main directive, few other legislative documents cover different noise sources and other related issues in the EU (EEA, 2014: Annex I).

The Seventh Environment Action Programme, which guides European environment policy until 2020 (EC, 2014a), is committed to safeguarding the EU's citizens from environment-related risks to health by ensuring that by 2020 "noise pollution in the Union has significantly decreased, moving closer to WHO-recommended levels". A particular requirement for achieving this is "implementing an updated EU noise policy aligned with the latest scientific knowledge, and measures to reduce noise at source, and including improvements in city design".

In addition to the EU's END, several national governments also have legislation and/or limit values that apply at national and/or regional levels (WHO Regional Office for Europe, 2012). The EEA, through its European Topic Centre on Land Use and Spatial Information, gathers noise exposure data and maintains the Noise Observation and Information Service for Europe, based on strategic noise maps provided by Member States (EEA, 2018). A total of 33 EEA countries, in addition to six cooperating countries in south-eastern Europe, report information on noise exposure to the EEA, following the requirements of the END. The quality and availability of noise exposure assessment differs between EU and non-EU Member States where, even if noise legislation has been harmonized with the Directive, noise mapping and action plans are still at the planning stage (EEA, 2014; 2017a; WHO Regional Office for Europe, 2012).

1.2.1 Definition of indicators in the END

The END specifies a number of noise indicators to be applied by Member States in noise mapping and action planning. The most important are L_{den} and L_{night}.

The L_{den} indicator is an average sound pressure level over all days, evenings and nights in a year (EEA, 2010). This compound indicator was adopted by the EU in the END (EC, 2002a). The L_{den} in decibels (dB) is defined by a specific formula, where:

- L_{day} is the A-weighted long-term average sound level as defined in ISO 1996-1: 2016, determined over all the day periods of a year;
- $L_{evening}$ is the A-weighted long-term average sound level as defined in ISO 1996-1: 2016, determined over all the evening periods of a year; and
- L_{night} is the A-weighted long-term average sound level as defined in ISO 1996-1: 2016, determined over all the night periods of a year (ISO, 2016).

[4] Day-evening-night-weighted sound pressure level as defined in section 3.6.4 of ISO 1996-1:20161 (ISO, 2016).
[5] Equivalent continuous sound pressure level when the reference time interval is the night.

The L_{night}, according to the definition in the END, is an equivalent outdoor sound pressure level, measured at the most exposed façade, associated with a particular type of noise source during night time (at least eight hours), calculated over a period of a year (WHO Regional Office for Europe, 2009).

Annex I of the END gives technical definitions for L_{den} and L_{night}, as well as supplementary noise indicators, which might be useful for monitoring special noise situations. For example, in the case of noisy but short-lived noise like shooting noise or noise emitted by trains, $L_{A,max}$ is often used. This is a measure of the maximum sound pressure reached during a defined measurement period. It is used to set noise limits and is sometimes considered in studies to determine certain health effects (such as awakening reactions).

1.3 Perceptions of environmental noise in the WHO European Region

1.3.1 Trends at the regional level

The general population greatly values the benefits of clean and quiet environments. In Europe, people perceive noise as an important issue that affects human health and well-being (EC, 2008; 2014b). In recent years, several Europe-wide surveys have examined the perception of noise as an issue among the population. Overall, these surveys ask about generic noise, referring to "neighbourhood noise" or "noise from the street". This type of noise differs significantly in its definition from what is considered "environmental noise" in these guidelines. Nevertheless, in the absence of specific large surveys on perceptions of environmental noise as defined in these guidelines, the results provide insight into the public perception of this issue.

The European quality-of-life surveys, carried out every four years, are unique, pan-European surveys examining both the objective circumstances of lives of European citizens and how they feel about those circumstances and their lives in general. The last (fourth) survey was conducted in 2016–2017, involving nearly 37 000 citizens from all EU Member States and the five candidate countries (Albania, Montenegro, Serbia, the former Yugoslav Republic of Macedonia and Turkey). Respondents were asked whether they had major, moderate or no problems with noise in the immediate neighbourhood of their home. Almost one third (32%) reported problems with noise (ranging from 14% to 51% in individual countries), mainly in cities or city suburbs (49%) (Eurofound, 2017).

A 2010 survey of the then 27 countries in the EU, requested by the EC, showed that 80% of respondents (n = 26 602) believed that noise affects their health, either to some or to a great extent (EC, 2010).

A Eurobarometer report on attitudes of European citizens towards the environment (EC, 2014b) compiled opinions on various environmental risks from almost 28 000 respondents in 28 EU countries. Results showed that for 15% of respondents, noise pollution is one of the top five environmental issues they are worried about. Furthermore, 17% of respondents said that they lack information about noise pollution.

1.3.2 Trends at the national level

Data on perception of specific sources of environmental noise as a problem are not available for the entire WHO European Region. Nevertheless, some countries – including France, Germany, the Netherlands, Slovakia and the United Kingdom – conduct national surveys on noise annoyance, either regularly or on demand (Sobotova et al., 2006; Lambert & Philipps-Bertin, 2008; van Poll et al., 2011; Centraal Bureau voor de Statistiek, 2012; Notley et al., 2014; Umweltbundesamt, 2017).

According to these large-scale surveys, road traffic noise is the most important source of annoyance, generally followed closely by neighbour noise. Aircraft noise can also be a substantial source of annoyance. Railway noise and industrial noise are enumerated less frequently. Only limited data are available on the population's perception of newer sources of noise, such as wind turbines.

While perception surveys do not provide information on actual quantitative relationships between noise exposure and health outcomes, it is important to note that the results of such surveys represent people's preferences and values regarding environmental noise. Despite limitations and an incomplete picture, the available data on perception of environmental noise as a public health problem show concern in Europe. People are not always aware of the health impacts of noise, especially of those related to long-term noise exposure at lower levels. Greater awareness of the issue may further increase positive values and preferences.

1.4 Target audience

The environmental noise guidelines for the European Region serve as a reference for an audience made up of different groups, with varied areas of expertise including decision-making, research and advocacy. More specifically, this covers:

- various technical experts and decision-makers at the local, national or international levels, with responsibility for developing and implementing regulations and standards for noise control, urban planning and housing, and other relevant environment and health domains;
- health impact assessment and environmental impact assessment practitioners and researchers;
- national and local authorities responsible for developing and implementing relevant measures and for risk communication;
- nongovernmental organizations and other advocacy groups involved in risk communication and general awareness-raising.

These guidelines are published by the WHO Regional Office for Europe. In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience, as a large body of the evidence underpinning the recommendations was derived not only from European noise effect studies but also from research in other parts of the world – mainly in America, Asia and Australia.

2. Development of the guidelines

2.1 Overview

The process of developing WHO guidelines follows a rigorous methodology and involves several groups with well defined roles and responsibilities (WHO, 2014c). These include: formulation of the scope and key questions of the guidelines; review of the pertinent literature; selection of priority health outcome measures; a systematic review of the evidence; an assessment of certainty of the bodies of evidence resulting from systematic reviews; identification of guideline exposure levels; and setting of the strength of recommendations. Throughout the process, the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach was followed (Morgan et al., 2016).

The development of environmental noise guidelines started in 2013. Following WHO's procedures, the WHO Regional Office for Europe, through its European Centre for Environment and Health in Bonn, Germany, obtained planning approval and established a Steering Group and a Guideline Development Group (GDG). The former was primarily involved in initiating, structuring and executing the guideline development process; the latter was composed of leading experts and end-users, responsible for the process of scoping the guidelines and developing the evidence-based recommendations. During the initiation meeting in October 2013 in Bonn, the GDG members defined the scope of the guidelines, decided on the key questions to be addressed, prioritized health outcomes and set a timeline for completion of the work. Furthermore, authors were appointed for background papers, systematic reviews and different guideline background chapters.

In October 2014 a main evidence review meeting was held between the GDG and the Systematic Review Team in Bern, Switzerland, to discuss the evidence review drafts. In October 2014 and May 2015 the GDG met in Bern and Bonn, respectively, to refine the scope and draft recommendations. The revision and finalization of the systematic reviews of evidence was completed in early 2017. Through a series of remote meetings and teleconferences, the GDG discussed and addressed the remaining outstanding issues and feedback from the peer review of the draft guidelines, and decided on the final formulation of the recommendations. The following sections describe the steps of the guideline development process in detail.

2.2 Scope of the guidelines

Defining the scope of the guidelines included the selection of noise sources to be considered, as well as situations in which people are exposed, and noise indicators used for the formulation of recommendations. These guidelines separately consider outdoor exposure to environmental noise from road traffic, railway traffic, aircraft, wind turbines as well as outdoor and indoor exposure during leisure activities (such as attending nightclubs, pubs, fitness classes, live sporting events, concerts or live music venues and listening to loud music through personal listening devices). The guidelines are source specific and not environment specific. They therefore cover all settings where people spend a significant portion of their time, such as residences, educational institutions, workplaces and public venues, although hospital noise is exempted from the list of public institutions owing to the unique characteristics of the population involved.

The GDG agreed not to develop specific recommendations for occupational and industrial noise. Industrial noise can affect both people working at an industrial site and those living in its vicinity. The guidelines do not consider workers' exposure to noise in industrial environments, as these are regulated by workplace standards and may, in some cases, require the wearing of protective equipment or application of other preventive and protective measures. Further, the guidelines do not explicitly consider industrial noise as an environmental noise source, affecting people living in the vicinities of industrial sites. This is mainly due to the large heterogeneity and specific features of industrial noise, and the fact that exposure to industrial noise has a very localized character in the urban population.

Likewise, the current guidelines do not provide specific recommendations for the prevention of health effects linked to neighbourhood noise. Neighbourhood noise may stem from various potential sources of noise (such as ventilation systems; church bells; animals; neighbours; commercial, recreational and occupational activities; or shooting/military). As the sources may be located in close proximity to where people live, they can cause considerable concern even at low levels (Omlin et al., 2011). Several of these sources can also produce low-frequency noise, and as such, require indoor measurements for proper exposure assessment. In general, little scientific research is available on exposure and health outcomes related to neighbourhood noise.

Moreover, the guidelines do not include recommendations about any kind of multiple exposures. In everyday life people are often exposed to noise from several sources at the same time. In Germany, for example, 44% of the population are annoyed by at least two and up to five sources of noise (Umweltbundesamt, 2015). For some health outcomes, such as obesity, new evidence indicates that combined exposure to noise from several means of transportation is particularly harmful (Pyko et al., 2015; 2017).

Research indicates that, alongside exposure to more than one source of noise, combined exposure to different factors – for example, noise and vibration or noise and air pollution – has gained increasing relevance in recent years (Sörensen et al., 2017). The EC estimates that the social cost of noise and air pollution is up to €1 trillion every year (EC, 2016a). WHO acknowledges the need to develop comprehensive models to quantify the effects of multiple exposures on human health. As the main body of evidence on environmental noise still focuses on source-specific impacts of noise on health outcomes and does not incorporate combined exposure effects of multiple noise sources or other pollutants, however, the current guidelines provide recommendations for each source of noise specifically. No attempt has been made to combine noise from multiple sources for any particular health outcome.

2.2.1 Key questions

The environmental noise guidelines for the WHO European Region seek to address two main questions, which define the issues addressed by the guideline recommendations.

- In the general population exposed to environmental noise, what is the exposure–response relationship between exposure to environmental noise (reported as various indicators) and the proportion of people with a validated measure of health outcome, when adjusted for confounders?
- In the general population exposed to environmental noise, are interventions effective in reducing exposure to and/or health outcomes from environmental noise?

2.2.2 Environmental noise indicators used in the guidelines

From a scientific point of view, the best noise indicator is the one that performs best in predicting the effect of interest. There are, however, a number of additional criteria that may influence the choice of indicator because, for example, various indicators might be suitable for different health end-points and some indicators are more practical to use or easier to calculate than others. Some of these considerations are of a more political nature, as mentioned in the EC's Position paper on EU noise indicators (EC, 2000).

The current guidelines are intended to be suitable for policy-making primarily in the WHO European Region. They are therefore based on the most frequently used average noise indicators in Europe: L_{den} and L_{night}. These are often reported by authorities and are used widely for exposure assessment in health effect studies and noise impact assessments in the Region. The L_{den} (also referred to as "DENL") indicator can be calculated as the A-weighted average sound pressure level, measured over a 24-hour period, with a 10 dB penalty added to the average level in the night (23:00–07:00 or 22:00–06:00), a 5 dB penalty added to the evening (19:00–23:00 or 18:00–22:00) and no penalty added to the daytime period (07:00–19:00 or 06:00–18:00). The penalties are introduced to indicate people's extra sensitivity to noise during the evening and night. The L_{night} indicator is the A-weighted average sound pressure level, measured over an eight-hour period during night time, usually between 23:00 and 07:00 (EC, 2002a).

In these guidelines, L_{den} and L_{night} refer to a measurement or calculation of noise exposure at the most exposed façade, outdoors, reflecting the long-term average exposure. Thus, L_{den} and L_{night} represent all the single noise events due to a specific noise source that occur over a longer period of time, such as during a year. Moreover, most health outcomes considered in these guidelines are expected to occur as a result of long-term exposure. It is generally accepted that the most relevant parts of the whole day or night, which especially account for the time when a person is at home, are correctly attributed when using average indicators like L_{den} or L_{night}.

The majority of studies that form the body of evidence for the recommendations in these guidelines – among them large-scale epidemiological studies and socioacoustic surveys on annoyance and self-reported sleep disturbance – refer to noise exposure measured outdoors, usually at the most exposed façade of dwellings. Virtually all noise exposure prediction models in use today estimate free-field exposure levels outdoors, and most noise abatement regulations refer to outdoor levels as well. These are the practical reasons why the GDG decided not to recommend any guideline values for noise indoors. Nevertheless, in certain cases it could be helpful to estimate indoor levels based on outdoor values. The differences between indoor and outdoor levels are usually estimated at around 10 dB for open, 15 dB for tilted or half-open and about 25 dB for closed windows. When considering more accurate estimation of indoor levels, using a range of different predictors, the relevant scientific literature can be consulted (Locher et al., 2018).

The GDG was aware of the fact that many countries outside the EU are not bound by the terms of the END (EC, 2002a) and/or use noise indicators other than L_{den} or L_{night} in their noise regulations. They still can make use of these guidelines, however, because energy-based average noise indicators are usually highly correlated and "rule of thumb" transformations from one indicator to another are possible with acceptable uncertainty, as long as the conversion accounts for the long-term average

of populations, rather than individual exposure situations. Empirically derived generic conversion terms between a wide range of different noise indicators (including L_{den}, L_{dn}, L_{day}, L_{night} and $L_{Aeq,24h}$; see the glossary of acoustic terms for further details), with their uncertainty estimates, were published recently (Brink et al., 2018). The GDG encourages the use of these conversions, should the need arise.

In many situations, average noise levels like the L_{den} or L_{night} indicators may not be the best to explain a particular noise effect. Single-event noise indicators – such as the maximum sound pressure level ($L_{A,max}$)[6] and its frequency distribution – are warranted in specific situations, such as in the context of night-time railway or aircraft noise events that can clearly elicit awakenings and other physiological reactions that are mostly determined by $L_{A,max}$. Nevertheless, the assessment of the relationship between different types of single-event noise indicators and long-term health outcomes at the population level remains tentative. The guidelines therefore make no recommendations for single-event noise indicators.

Different noise sources – for example, road traffic noise and railway noise – can be characterized by different spectra, different noise level rise times of noise events, different temporal distributions of noise events and different frequency distributions of maximum levels. Because of the extensive differences in the characteristics of individual noise sources, these guidelines only consider source-specific exposure–response functions (ERFs) and, therefore, formulate only source-specific recommendations.

2.3 Evidence base

Based on the overall scope and key questions the current guidelines review the relevant literature in the area of environmental noise and health in order to incorporate significant research undertaken since the publication of previous guidelines. The process of evidence search and retrieval involved several steps. These include the identification, retrieval and synthesis of the evidence, followed by a systematic review and assessment (described in section 2.4).

2.3.1 Identification, retrieval and synthesis of evidence

As a first step, the GDG identified key health outcomes associated with environmental noise. Next, it rated the relevance of these health outcomes according to the following three categories:

- critical for assessing environmental noise issues
- important, but not critical for assessing environmental noise issues
- unimportant.

The GDG rated the relevance based on the seriousness and prevalence of the outcomes and the anticipated availability of evidence for an association with noise exposure. The following health outcomes were selected as either critical or important for developing recommendations on the health impacts of environmental noise.

[6] $L_{A,max}$ is the maximum time-weighted and A-weighted sound pressure level within a stated time interval starting at t1 and ending at t2, expressed in dB.

Critical health outcome	Important health outcome
Cardiovascular disease	Adverse birth outcomes
Annoyance[7]	Quality of life, well-being and mental health
Effects on sleep	Metabolic outcomes
Cognitive impairment	
Hearing impairment and tinnitus	

The GDG noted that research into the relationship between noise exposure and its effects on humans brings into focus several questions concerning the definition of health and the boundary between normal social reaction to noise and noise-induced ill health. As stated in WHO's Constitution: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1946). Accordingly, documenting physical health does not present a complete picture of general health; and being undisturbed by noise in all activities, including sleep, constitutes an asset worthy of protection. Therefore, in accordance with the above definition, the GDG regarded (long-term) annoyance and impaired well-being, as well as self-reported sleep disturbance due to noise, as health outcomes.

Regarding sleep disturbance, the health outcome measures considered in these guidelines largely disregard "objective" indicators of sleep disturbance, such as the probability of awakening reactions or other polysomnography parameters. The main reason for this is the nature of the body of evidence on acute, objectively measured effects of noise during sleep. Studies of physiological effects of sleep and especially polysomnographic investigations are complex and resource-demanding; they therefore include only a small number of participants, who are often healthy young volunteers not representative of the general population. For these reasons, the majority of such studies do not meet the requirements for inclusion in the GRADE framework and full-scale meta-analysis, including adjustment for confounders. Furthermore, it is currently unclear how acute physiological reactions that affect the microstructure of sleep but are less well correlated with global sleep parameters, such as total sleep time, are related to long-term health impediments, especially considering the large interindividual differences in susceptibility to noise (Basner et al., 2011).

As sleeping satisfies a basic need and the absence of undisturbed sleep can have serious effects on human health (WHO Regional Office for Europe, 2009), the GDG set self-reported sleep disturbance, in line with the WHO definition of health, as a primary health outcome. Even though self-reported sleep disturbance might differ considerably from objectively measured parameters of sleep physiology, it constitutes a valid indicator in its own right, as it reflects the effects on sleep perceived by an individual over a longer period of time (WHO Regional Office for Europe & JRC, 2011). The importance of considering both annoyance and self-reported sleep disturbance as health outcomes is further supported by evidence indicating that they may be part of the causal pathway of noise-induced cardiovascular and metabolic diseases. This is further elaborated in the narrative review on biological mechanisms (Eriksson et al., 2018).

[7] Noise annoyance is defined as a feeling of displeasure, nuisance, disturbance or irritation caused by a specific sound (Ouis, 2001). In the current guidelines, "annoyance" refers to long-term noise annoyance.

The second step in the evidence retrieval process constituted formulation of the key questions for the critical and important health outcomes and identification of the areas of evidence to be reviewed, following the PICOS/PECCOS approach defined in the WHO handbook for guideline development (WHO, 2014c). PICOS/PECCOS is an evidence-based technique that frames health care-related questions to facilitate the search for suitable studies that can provide answers to the questions at hand (Huang et al., 2006). The PICOS approach divides intervention questions into five elements: population, intervention, comparator, outcome and study design. In exposure studies, PICOS becomes PECCOS, which stands for population, exposure, comparator, confounder, outcome and study design. The specification of the elements of PICOS/PECCOS serves to construct the body of evidence that underpins each recommendation. Due to the complex nature of environmental noise, several distinct areas of evidence were defined to address each of the scoping questions comprehensively.

For each of the critical and important health outcomes a systematic review was conducted (see also section 2.3.2). Health outcomes regarded as important were given less weight in the decision-making process than critical ones. Inclusion and exclusion criteria to be regarded in the systematic evidence reviews were defined in accordance with the PICOS/PECCOS framework for the evaluation of evidence (see Table 1). All evidence that met the inclusion criteria was included in the systematic reviewing process. A detailed description of the types of measure for each of the health outcomes under consideration is provided in the protocol for conducting the systematic reviews (Héroux & Verbeek, 2018a). See Annex 2 for details of all background documents and systematic reviews used in preparation of these guidelines.

Table 1. Inclusion and exclusion criteria for evidence reviews of health effects of environmental noise

Category	Inclusion criteria	Exclusion criteria
Populations	• Members of the general population • Specific segments of the population particularly at risk (children or vulnerable groups) • People exposed to noise in occupational settings (if relevant with combined exposure to environmental noise)	• Does not meet inclusion criteria
Exposure	• Noise exposure levels, either measured or calculated and expressed in dB values • Representative of the individual exposure of study participants (for most observational studies the dwelling location or home) • Calculated levels for transportation noise (road, rail, air) based on traffic data reflecting the use of roads, railway lines and in- and outbound flight routes at airports	• Does not meet inclusion criteria; in particular: - studies using hearing loss or hearing impairment as a proxy for (previous) noise exposure - surveys assessing noise exposure or number of listening hours based on subjective ratings given by subjects in a questionnaire
Confounders	• No inclusion criteria applied since the relationship between exposure to noise and a health outcome can be confounded by other risk factors; however, possible confounders taken into account were assessed for every study	• No exclusion criteria applied; however, possible confounders taken into account were assessed for every study

Table 1. contd.

Category	Inclusion criteria	Exclusion criteria
Outcomes	• Adverse birth outcomes • Annoyance • Cardiovascular disease • Cognitive impairment • Effects on sleep • Hearing impairment and tinnitus • Metabolic outcomes • Quality of life, mental health and well-being	• Does not meet inclusion criteria
Study types	• Cohort studies • Case-control studies • Cross-sectional studies • Ecological studies (only for cardiovascular disease)	• Does not meet inclusion criteria

Alongside the systematic reviews of the critical and important health outcomes, the GDG decided to review the evidence on health effects from noise mitigation measures and interventions to reduce noise levels in order to inform and complement the recommendations.

Interventions on environmental noise were defined according to five broad categories based on the available intervention literature and the experience of decades of environmental noise management (see Table 2 and Brown & van Kamp, 2017).

Table 2. Types of noise intervention

Intervention type	Intervention category	Intervention subcategory
A	Source intervention	• change in emission levels of sources • time restrictions on source operations
B	Path intervention	• change in the path between source and receiver • path control through insulation of receiver/receiver's dwelling
C	New/closed infrastructure	• opening of a new infrastructure noise source • closure of an existing one • planning controls between (new) receivers and sources
D	Other physical intervention	• change in other physical dimensions of dwelling/neighbourhood
E	Behaviour change intervention	• change in individual behaviour to reduce exposure • avoidance or duration of exposure • community education, communication

The GDG recognized that nonacoustic factors are an important possible confounder in both ERFs between noise levels and critical health effects and the effects of acoustic interventions on health outcomes. Whereas the inclusion criteria for confounders were not specified in PECCOS for the systematic reviews of evidence, they were considered at the stage of assessing the quality of

evidence, using the GRADE approach. Depending on the health effect under investigation, possible nonacoustic factors may include:

- gender
- age
- education
- subjective noise sensitivity
- extroversion/introversion
- general stress score
- co-morbidity
- length of residence
- duration of stay at dwelling in the day
- window orientation of a bedroom or living room towards the street
- personal evaluation of the source
- attitudes towards the noise source
- coping capacity with respect to noise
- perception of malfeasance by the authorities responsible
- body mass index
- smoking habits.

In noise annoyance studies nonacoustic factors may explain up to 33% of the variance (Guski, 1999). The higher the quality of evidence, the lower confounding effects of nonacoustic factors may be expected. Nevertheless, as with measurement errors, confounding cannot be avoided.

Based on the retrieval and evaluation of the pertinent literature, the GDG decided to address the association of environmental noise from different sources and health outcomes separately and individually for each source of noise, and for critical and important health outcomes.

In addition to the systematic reviews of the health effects of environmental noise, a narrative review of biological mechanisms of nonauditory effects was conducted (Eriksson et al., 2018). This covers literature related to pathways for nonauditory effects and provides supporting evidence on the association between environmental noise and health outcomes in humans, especially related to cardiovascular and metabolic diseases.

2.3.2 Systematic reviewing process

After the retrieval of the evidence based on the PICOS/PECCOS approach, systematic reviews were conducted for all critical and important health outcomes. To meet the demands of the diverse and broad nature of the evidence, it was agreed that systematic reviews could vary in type. For some areas of evidence, a novel and fully fledged systematic reviewing process was needed to summarize the existing evidence; for others, the reviewing process could build upon existing (and mostly published) systematic reviews and summaries of evidence. Thus, the process consisted of two phases.

First, a comprehensive search was conducted for available systematic reviews and meta-analyses on environmental noise effects published after 2000. Each of the reviews was assessed for both relevance and quality. To be included in the evidence review process, studies from these reviews were required to meet a high quality standard, judged according to high scores of the AMSTAR checklist.[8] In cases where quality criteria were met but the review was older than two years (published before 2012), the search of the systematic review was updated to include new papers. If no good quality systematic reviews were available, a new search for original papers was conducted. The Systematic Review Team decided how the results would affect the search strategy for individual studies as part of the second phase. This was based on the assessment of the quality of the systematic reviews and on the coherence between the main research questions of the systematic reviews and the scope of the work of the guidelines.

In the second phase a search for individual papers was conducted, with the search strategy adapted according to the outcome of the first phase. As availability of systematic reviews and meta-analyses differed for the various health outcomes considered in the guidelines, this process varied for each evidence review. The search included cohort studies, case-control studies and cross-sectional studies of people exposed to environmental noise. Where relevant – for example, for the health outcome cardiovascular disease – the search also included ecological studies.

Due to the individualized retrieval of evidence for each of the systematic reviews, the time frames of the literature included varied. An indication of the temporal coverage of the studies included in different systematic review is provided in the relevant tables in Chapter 4.

A detailed description of the methodology used to conduct the systematic evidence reviews, including individual protocols for the reviews of health effects resulting from environmental noise and from noise interventions, is available (Héroux & Verbeek, 2018b). Furthermore, all systematic reviews conducted in the guideline development process are publicly available in the open-access journal *International Journal of Environmental Research and Public Health*:

- systematic review of transport noise interventions and their impacts on health (Brown & van Kamp, 2017);
- systematic review on environmental noise and adverse birth outcomes (Nieuwenhuijsen et al, 2017);
- systematic review on environmental noise and annoyance (Guski et al., 2017);
- systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018);
- systematic review on environmental noise and cognition (Clark & Paunovic, 2018);
- systematic review on environmental noise and effects on sleep (Basner & McGuire, 2018);
- systematic review on environmental noise and permanent hearing loss and tinnitus (Śliwińska-Kowalska & Zaborowski, 2017);
- systematic review on mental health and well-being (Clark & Paunovic, in press).

[8] AMSTAR is an instrument used to assess quality of evidence; it stands for “A MeaSurement Tool to Assess systematic Reviews” (Shea et al., 2007).

2.4 From evidence to recommendations

Once the evidence had been identified and synthesized, the Systematic Review Team assessed its quality. Subsequently, the GDG formulated recommendations, guided by this assessment and consideration of a number of other factors recognized as important. To facilitate the formulation of recommendations, it first prioritized the health outcome measures of the critical and important outcomes. A process was developed to identify the guideline exposure levels from each of the ERFs provided by the systematic reviews of evidence.

The following sections describe the assessment of the overall quality of the evidence based on the GRADE approach, selection of priority health outcome measurements, identification of guideline exposure levels and setting the strength of recommendations.

2.4.1 Assessment of overall quality of a body of evidence: the GRADE approach

As set out in the WHO handbook for guideline development (WHO, 2014c), the main framework for producing evidence-informed recommendations is the GRADE approach (Guyatt et al., 2008). This is used to assess the quality of a body of evidence synthesized in a systematic review. The assessment facilitates judgements about the certainty of effect estimates, which increases with the quality of the body of evidence. The quality can be rated high, moderate, low or very low (see Box 1).

Box 1 GRADE interpretations of quality of evidence

- **High quality:** further research is very unlikely to change the certainty of the effect estimate
- **Moderate quality:** further research is likely to have an important impact on the certainty of the effect estimate and may change the estimate
- **Low quality:** further research is very likely to have an important impact on the certainty of the effect estimate and is likely to change the estimate
- **Very low quality:** any effect estimate is uncertain

The original GRADE approach was developed specifically to rate the body of evidence resulting from a review of intervention studies. The initial quality level is set by study design: randomized control trials (RCTs) are considered high quality, whereas observational (nonrandomized) study designs are low quality. Then five factors are considered for downgrading the quality of the body of evidence resulting from RCTs or observational studies, and three factors are considered for upgrading the body of evidence resulting from observational studies alone.

The following five factors are used for downgrading the quality of evidence by one or two levels:

- study limitations or risk of bias in all studies that make up the body of evidence
- inconsistency of results between studies
- indirectness of evidence in the studies
- imprecision of the pooled effect estimate
- publication bias detected in a body of evidence.

The following three factors are used for upgrading the quality of evidence:

- high magnitude of the pooled effect
- direction of residual confounding and biases opposes an effect (i.e. when all plausible confounders are anticipated to reduce the estimated effect and there is still a significant effect)
- exposure–response gradient.

The GRADE approach was originally developed for application in the field of clinical medicine, where the majority of studies are randomized trials. However, to assess health effects resulting from an exposure such as environmental noise, randomized controlled trials are not applicable, as it would be unethical to expose participants deliberately to possibly harmful risk factors. The limitations of the application of GRADE to environmental health have been recognized and discussed in the literature (Morgan et al., 2016). Other types of study design dominate the evidence base in the domain of environmental noise research, so it was necessary to adapt the original GRADE approach to the subject of the current guidelines, as follows.

Instead of using the RCT study design as the starting-point for the quality rating, the study design most applicable and available for the field of research at hand was used. Thus, for evidence on the association between noise exposure and clinical health outcome measures, the rating of an evidence base consisting of cohort and case-control studies[9] was initially rated high quality. Cross-sectional studies and ecological studies were rated low quality and very low quality, respectively. This initial point of departure was only adapted for the evidence of the association between noise exposure and annoyance and sleep disturbance. Here, cross-sectional studies were rated high quality because annoyance and sleep disturbance are regarded as an immediate effect of exposure to environmental noise. Finally, in accordance with the original GRADE approach, the starting-point for evidence on the effect of interventions was rated low quality for observational studies. After determining the point of departure, the evidence base was rated down or up whenever one or more of the criteria for downgrading or upgrading (described above) were met. Each of the systematic reviews commissioned for these guidelines includes a detailed report on the assessment of the quality of the evidence.

A detailed discussion of the adaptations of GRADE is provided in the separate methodology publication (Héroux & Verbeek, 2018b).

2.4.2 Selection of priority health outcomes

In line with the WHO handbook for guideline development (WHO, 2014c), the GDG selected the key health outcomes associated with environmental noise at the beginning of the evidence retrieval process, and the systematic reviews were commissioned accordingly. The selection of health outcomes was based on the available evidence for the association between environmental noise and the specific outcome, as well as public concern about the health outcome resulting from noise exposure. The following health outcomes were rated critical: cardiovascular disease, annoyance,

[9] In the context of the current guidelines, “cohort studies” refer to longitudinal studies in which the occurrence of the outcome of interest in an exposed group is compared to the occurrence of that outcome in a reference group with no or lower exposure over time.

effects on sleep, cognitive impairment and hearing impairment and tinnitus. Adverse birth outcomes, quality of life, well-being and mental health, and metabolic outcomes were rated important (see also section 2.3.1).

Since all these health outcomes can be measured in various ways, the GDG evaluated each individually and prioritized different outcome measures for each in terms of their representativeness and validity. These measures were used to derive the guideline exposure levels; their prioritization was based on the impact of the disease and the disability weights (DWs) associated with the health outcome measure.[10]

The critical health outcomes, priority outcome measures identified and justifications for their selection are listed in Table 3.

Table 3. Critical health outcomes, outcome measures identified and justifications for selection

Critical health outcome	Critical health outcome measures (priority measures marked in bold)	Justification for selection
Cardiovascular disease (L_{den})	Self-reported or measured prevalence, **incidence**, hospital admission or mortality due to: • **ischaemic heart disease (IHD) (including angina pectoris and/or myocardial infarction)** • **hypertension** • stroke	Except for self-reports, these are objective measures of the outcome, affect a large proportion of the population, have important health consequences and can lead to more severe diseases and/or mortality. DW for IHD: 0.405. DW for hypertension: 0.117.
Effects on sleep (L_{night})	• **percentage of the population highly sleep-disturbed (%HSD)**, self-reported, assessed with a standardized scale • polysomnography measured outcomes (probability of additional awakenings) • cardiac and blood pressure outcome measures during sleep • motility measured sleep outcomes in adults • sleep disturbance in children	This is the most meaningful, policy-relevant measure of this health outcome. Self-reported sleep disturbances are a very common problem in the general population: they affect quality of life directly and may also lead to subsequent health impediments. Effects on sleep may be in the causal pathway to cardiovascular disease. This measure is not a proxy for physiological sleep quality parameters but is an important outcome in its own right. DW for %HSD: 0.07.
Annoyance (L_{den})	• **percentage of the population highly annoyed (%HA), assessed with standardized scale** • percentage annoyed, preferably assessed with standardized scale	This is the most objective measure of this health outcome. Large proportions of the population are affected by noise annoyance, even at relatively low exposure levels. Annoyance may be in the causal pathway to cardiovascular disease. DW for %HA: 0.02.

[10] DWs are ratings that vary between 0 and 1, in which 0 indicates no disability and 1 indicates the maximum amount of disability. The rates are derived from large population surveys in which people are asked to rank a specific disease for its impact on several abilities. The DWs have been proven useful in calculating the burden of disease.

Table 3. contd.

Critical health outcome	Critical health outcome measures (priority measures marked in bold)	Justification for selection
Cognitive impairment (L_{den})	• **reading and oral comprehension, assessed with tests** • impairment assessed with standardized tests • short and long-term memory deficit • attention deficit • executive function deficit (working memory capacity)	This outcome measure is the most meaningful: it can affect vulnerable individuals (children) and have a significant impact later in life. DW for impaired reading and oral comprehension: 0.006.
Hearing impairment and tinnitus (L_{Aeq}[11] and $L_{AF,max}$[12])	• **permanent hearing impairment, measured by audiometry** • permanent tinnitus	This outcome measure can affect vulnerable individuals (children) and have a significant impact later in life. It is the most objective measure for which there is an ISO standard (ISO, 2013), specifying how to estimate noise-induced hearing loss. DW for mild severity level (threshold at 25 dB) for childhood onset: 0.0150.

Table 4 provides a list of the important health outcomes along with the corresponding health outcome measures included in the systematic reviews. There was no prioritization of health outcome measures leading to justification of selection, since important health outcomes had less impact on the development of recommendations.

Table 4. Important health outcomes and health outcome measures reviewed

Important health outcome	Health outcome measures reviewed
Adverse birth outcomes (L_{den})	• pre-term delivery • low birth weight • congenital anomalies
Quality of life, well-being and mental health (L_{den})	• self-reported health and quality of life • medication intake for depression and anxiety • self-reported depression, anxiety and psychological distress • interviewer-assessed depressive and anxiety disorders • emotional and conduct disorders in children • children's hyperactivity • other mental health outcomes
Metabolic outcomes (L_{den})	prevalence, incidence, hospital admission or mortality due to: • type 2 diabetes • obesity

[11] L_{Aeq} is an A-weighted, equivalent continuous sound pressure level during a stated time interval starting at t1 and ending at t2, expressed in dB, of a noise at a given point in space.

[12] $L_{AF,max}$ is the maximum time-weighted and A-weighted sound pressure level with FAST time constant within a stated time interval starting at t1 and ending at t2, expressed in dB.

2.4.3 Identification of guideline exposure levels for each noise source

The GDG agreed to set guideline exposure levels based on the definition: "noise exposure levels above which the GDG is confident that there is an increased risk of adverse health effects". The identification of guideline values for each of the specific noise sources involved five distinct steps:

1. assessment of the validity of ERFs resulting from the systematic reviews of the effects of noise on each of the critical and important health outcomes;
2. assessment of the lowest noise level measured in the studies included in each of the corresponding systematic reviews;
3. assessment of the smallest risk or relative risk (RR) increase for each of the adverse health outcomes considered relevant;
4. determination of the guideline exposure level based on the ERF, starting from the lowest level measured (see step 2) and associated with the smallest relevant risk increase for adverse health outcomes (see step 3);
5. comparison of the guideline exposure levels calculated for each of the critical health outcomes of one source (for example, incidence of IHD, incidence of hypertension, %HA, permanent hearing impairment and reading and oral comprehension for road traffic noise): selection of the guideline exposure level for each noise source was based on the priority health outcome measure with the lowest exposure level for that source.

To define an "increased risk" to set the guideline exposure level, the GDG made a judgement about the smallest risk or RR of the adverse health effect it considered relevant for each of the priority health outcome measures. It is important to note that the relevant risk increases are benchmark values. The GDG agreed to set them in accordance with the guiding principles it had developed, to provide guideline values that illustrate an increased risk of adverse health effects. It used expert judgements for the determination of the benchmark values; these are elaborated further in section 2.4.3.2.

The guideline exposure levels presented are therefore not meant to identify effect thresholds (the lowest observed adverse effect levels for different health outcomes). This is a difference in approach from prior WHO guidelines, like the night noise guidelines for Europe (WHO Regional Office for Europe, 2009), which explicitly aimed to define levels indicating no adverse health effects. The approach to making choices about relevant risk increases is outlined below and summarized in Table 5.

For IHD and hypertension, RR increases were considered; for annoyance and sleep disturbance, absolute risks of %HA and %HSD were considered; and for reading and oral comprehension an average delay of reading age was defined. For the cardiovascular outcomes, incidence measures were prioritized, although much of the epidemiological evidence was based on prevalence data – particularly for hypertension – where almost no longitudinal studies were available. Prevalence data are generally derived from cross-sectional studies, where the temporal aspects are difficult to determine.

Table 5. Priority health outcomes and relevant risk increases for setting guideline levels

Priority health outcome measure (associated DW)	Relevant risk increase considered for setting of guideline level
Incidence of IHD (DW: 0.405)	5% RR increase
Incidence of hypertension (DW: 0.117)	10% RR increase
%HA (DW: 0.02)	10% absolute risk
%HSD (DW: 0.07)	3% absolute risk
Permanent hearing impairment (DW: 0.0150)	No risk increase due to environmental noise
Reading and oral comprehension (DW: 0.006)	One-month delay in terms of reading age

The DWs used to rank the priority critical health outcomes measures were retrieved from the relevant literature. For cardiovascular disease as a group and for hypertension, the burden of disease from environmental noise values (WHO Regional Office for Europe & JRC, 2011) were not considered applicable by the GDG for these guidelines. Thus, for cardiovascular disease, the DW value (DW: 0.405) specifically applied to acute myocardial infarction in the publication outlining the data sources, methods and results of the global burden of disease in 2002 (Mathers et al., 2003) was retained. Since hypertension is mainly viewed as an important risk factor and not as a health outcome, no general DW has been developed. The only other available DW value available is the DW of 0.117 for hypertensive episodes in pregnancy (Mathers et al., 1999). In the absence of any general DW, the GDG agreed on a conservative approach and decided to use this value.

The DWs for high sleep disturbance (DW: 0.07), high annoyance (DW: 0.02) and impaired reading and oral comprehension (DW: 0.006) were developed in the context of calculating the burden of disease from environmental noise (WHO Regional Office for Europe & JRC, 2011). The DW for hearing impairment was not included in that publication, but it was available from the technical paper on the burden of disease from environmental noise (WHO, 2013); the DW for permanent hearing impairment ranged from 0.0031 to 0.3342, depending on severity level. Environmental noise (leisure noise) contributes to the cumulative total noise exposure throughout the life-course, which may lead to permanent hearing impairment and cause more severe disability in the later years of life. As a result, the GDG selected a DW of 0.0150 for moderate severity level ("has difficulty following a conversation in a noisy environment, but no other hearing problems"). For cognitive impairment, the DW was derived from the estimates of the burden of disease from environmental noise (WHO Regional Office for Europe & JRC, 2011). This was at a very conservative value (DW: 0.006) for noise-related impairment of children's cognition, equivalent to a DW for contemporaneous cognitive deficit in the context of a range of cognitive impairments in children ranging from 0.468 for Japanese encephalitis to 0.024 for iron deficiency anaemia (Lopez et al., 2006).

2.4.3.1 Development of ERFs

The systematic reviews of evidence provided either an ERF or other noise exposure value/metric that could be related to a risk increase of the health outcome measure. These ERFs were used to develop guideline exposure levels; however, only those functions where noise exposure demonstrated a statistically significant effect were used.

To obtain the starting level of the ERFs derived in the systematic reviews, a weighted average of the lowest exposure values measured in the individual studies included in the meta-analyses was

calculated. The weighting used the inverse of the variance of the effect estimate of the study. Thus, the lowest exposure value of studies with a small variance (usually with the largest sample size) contributed the most to the assumed onset of the ERF.

2.4.3.2 Relevant risk increase of adverse health effects

The following sections describe in detail the rationale for the selection of the relevant relative risk (RR) increase percentage for each of the priority health outcome measures considered.

Cardiovascular disease: IHD and hypertension

High-quality epidemiological evidence described in the systematic review on cardiovascular and metabolic effects of environmental noise indicates that exposure to road traffic noise increases the risk of IHD (van Kempen et al., 2018). The GDG was confident that health risks result from exposure at an RR increase in the order of 5–10% in the incidence of IHD. This is similar to the reasoning in the WHO air quality guidelines for fine particulate matter ($PM_{2.5}$) (WHO, 2006). To determine a relevant risk increase for IHD, the GDG took as a starting-point the RR increase of 5% measured in epidemiological studies of environmental noise or air pollution. Taking into account the incidence of IHD and the seriousness of the disease, it considered lowering the RR increase for IHD to 1%, as a 5% RR increase might imply a comparatively high absolute risk from a population perspective. To decide on the final benchmark value for IHD, several aspects were considered: the number of people in a population affected by IHD; whether health risks caused by noise would make up a large part of the incidence of the disease; other examples of health risks of similar magnitude leading to preventive action. For IHD, in an average EU country with 20 million inhabitants, an RR increase of 5% for IHD would lead to several thousand extra cases attributable to noise yearly. This corresponds to a proportion of cases of IHD attributable to noise exposure of less than 10%, which is still relatively small. After extensive discussion at the very end of the guideline development process, the GDG decided to adhere to 5% as the relevant risk increase.

Hypertension is a common condition and is an important risk indicator for IHD and other cardiovascular diseases. Thus, the hypertension risk increase can be transformed into a risk increase for cardiovascular disease. To derive a relevant risk increase, the GDG focused on the incidence of hypertension, owing to the nature and quality of epidemiological evidence. Since hypertension is less serious than IHD, and not all people with hypertension will progress to cardiovascular disease, the relevant risk increase in the incidence of hypertension needed to be higher than that for IHD. Therefore, the GDG agreed on an RR increase of 10% for hypertension.

Self-reported sleep disturbance and annoyance

The GDG initially considered 5%HSD and 10%HA due to noise as relevant absolute risks, not be exceeded at the guideline level. After discussion, however, members agreed that these absolute risks were too large, since a considerable proportion of the population would still be affected; they decided to lower the relevant risk from 5% being highly sleep-disturbed to 3%. In doing so, the GDG referred to the WHO night noise guidelines (WHO, 2009), which concluded that while there was insufficient evidence that physiological effects at noise levels below 40 dB L_{night} are harmful to health, there were observed adverse health effects at levels starting from 40 dB L_{night}. At 40 dB, about 3–4%

(depending on the noise source) of the population still reported being highly sleep-disturbed due to noise, which was considered relevant to health. The GDG considered it important that this level is consistent with the previous health-based approach adopted by the WHO night noise guidelines, and agreed that the absolute risk associated with the guideline value selected should not exceed 3%HSD to be health protective.

For annoyance, which is considered a less serious health effect than self-reported sleep disturbance (as indicated by the respective DWs), the relevant risk remained at 10%HA. This means the absolute risk associated with the guideline value selected should be closest to, but not above 10%HA, to be health protective.

Cognitive impairment: reading and oral comprehension

Acquiring skills in reading and oral comprehension at a young age is important for further development: a delay in acquiring these skills can have an impact later in life (Wilson & Lonigan, 2010). This impact cannot be predicted very accurately, but the GDG considered a delay of one month a relevant absolute risk.

Permanent hearing impairment

The literature on hearing impairment as a result of occupational noise exposure is extensive. A noise exposure level beyond 80 dB during 40 years of working a 40 hour work week can give rise to permanent hearing impairment. Given that environmental exposure to noise is much lower than these levels and that noise-related hearing impairments are not reversible, the GDG considered that there should be no risk of hearing impairment due to environmental noise and considered any increased risk of hearing impairment relevant.

2.4.4 Strength of the recommendations

Finally, having determined the guideline exposure levels based on the ranking of prioritized health outcome measures, setting the strength of the recommendation was set as the final step of the guideline development process. This was also guided by the GRADE methodology (Alonso-Coello et al., 2016a; 2016b). According to this approach, strength of recommendation can be set as either strong or conditional (WHO, 2014c).

- A **strong** recommendation can be adopted as policy in most situations. The guideline is based on the confidence that the desirable effects of adherence to the recommendation outweigh the undesirable consequences. The quality of evidence for a net benefit – combined with information about the values, preferences and resources – inform this recommendation, which should be implemented in most circumstances.
- A **conditional** recommendation requires a policy-making process with substantial debate and involvement of various stakeholders. There is less certainty of its efficacy owing to lower quality of evidence of a net benefit, opposing values and preferences of individuals and populations affected or the high resource implications of the recommendation, meaning there may be circumstances or settings in which it will not apply.

The GRADE approach defines a number of parameters that should be assessed to determine the strength of recommendations: quality of evidence, balance of benefits and harms, values and preference related to the outcomes of interventions to exposure, resources implications, priority of the problem, equity and human rights, acceptability and feasibility (Box 2; Morgan et al., 2016).

Box 2 Parameters determining the strength of a recommendation

Quality of evidence further represents the confidence in the estimates of effect of the evaluated evidence, across outcomes critical and important to decision-making. The higher the quality of evidence, the greater the likelihood of a strong recommendation.

Balance of benefits and harms requires an evaluation of the absolute effects of both benefits and harms (or downsides) of the intervention or exposure and their importance. The greater net benefit or net harm associated with an intervention or an exposure, the greater the likelihood of a strong recommendation in favour or against an intervention or exposure.

Values and preferences related to the outcomes of an intervention or exposure set out the relative importance assigned to health outcomes by those affected by them; how such importance varies within and across populations; and whether this importance or variability is surrounded by uncertainty. The less uncertainty or variability there is about the values and preferences of people experiencing the critical or important outcomes, the greater the likelihood of a strong recommendation.

Resource implications take into consideration how resource-intensive and how cost-effective and substantially beneficial an intervention or exposure is. The more advantageous or clearly disadvantageous the resource implications are, the greater the likelihood of a strong recommendation either for or against the intervention or exposure.

The priority of the problem is determined by its importance and frequency (the burden of disease, disease prevalence or baseline risk). The greater the importance of the problem, the greater the likelihood of a strong recommendation.

Equity and human rights considerations are an important aspect of the process. The greater the likelihood that the intervention will reduce inequities, improve equity or contribute to the realization of one or several human rights as defined under the international legal framework, the greater the likelihood of a strong recommendation.

Acceptability plays a prominent role: the greater the acceptability of an option to all or most stakeholders, the greater the likelihood of a strong recommendation.

Feasibility overlaps with values and preferences, resource considerations, existing infrastructures, equity, cultural norms, legal frameworks and many other considerations. The greater the feasibility of an option from the standpoint of all or most stakeholders, the greater the likelihood of a strong recommendation.

The GDG evaluated the strength of the recommendations based on these parameters, following a two-step procedure. Initially, the strength of each recommendation was set as strong or conditional based on an assessment of the quality of evidence. The GDG then identified and assessed contextual

parameters that might have a contributory role (see Box 2 above). Based on this qualitative evaluation, the initial recommendation strength was either adapted or confirmed. It is important to note that while the initial parameter "quality of evidence" was informed by comprehensive systematic reviewing processes, the remaining contextual parameters were assessed by the informed qualitative expert judgement of the GDG.

Furthermore, the GDG agreed to decision-making rules, applied when formulating the recommendations. An evidence rating of low quality or very low quality would lead only to a conditional recommendation. Setting a strong recommendation was only considered if the evidence was at least moderate quality. The final recommendations were formulated based on the consideration of all the parameters and decision rules adopted by the GDG. A detailed exploration of all the recommendations is set out in Chapter 3.

2.5 Individuals and partners involved in the guideline development process

The process of WHO guideline development is conducted by several groups with clearly defined roles and responsibilities. Comprising WHO staff members, experts and stakeholders, these are the Steering Group, the GDG, the Systematic Review Team and the External Review Group.

The **Steering Group** includes WHO staff members with different affiliations but whose work experience is relevant to the topic of environmental noise and associated health outcomes. It is involved at all stages of planning, selecting members of the GDG and External Review Group, reviewing evidence and developing potential recommendations at the main expert meetings, as well as ongoing consultation on revisions following peer review. Details of the members of the Steering Group are listed in Table A1.1 in Annex 1.

The **GDG** consists of a group of content experts gathered to investigate all aspects of evidence contributing to the recommendations, including expertise in evidence-based guideline development. This Group defined the key questions and priorities of the research, chose and ranked outcomes and provided advice on any modifications of the scope as established by the Steering Group. The members also outlined the systematic review methods; appraised the evidence used to inform the guidelines; and advised on the interpretation of this evidence, with explicit consideration of the overall balance of benefits and harms. Ultimately the GDG formulated the final recommendations, taking into account the diverse values and preferences of individuals and populations affected. It also determined the strength of the results and responded to external peer reviews. The complete list of GDG members and their specific roles, affiliations and areas of expertise are listed in Table A1.2 in Annex 1.

The **Systematic Review Team** includes experts in the field of environmental health, commissioned by WHO staff to undertake systematic reviews of evidence. The GDG recommended a number of authors to conduct the evidence reviews and summary chapters, based on their expertise. Details of the members of the Systtematic Review Team are included in Table A1.3 in Annex 1.

The **External Review Group** is composed of technical content experts and end-users as well as stakeholders, and is balanced geographically and by gender. The experts and end-users were selected for their expertise in the field, and the Group also included representatives of professional groups and industry associations, who will be implementing the guidelines. Members were asked to

review the material at different stages of the development process. The list of technical experts and stakeholders is provided in Tables A1.4 and A1.5, respectively, in Annex 1.

Management of conflict of interest is an integral part of WHO's guideline development procedure. All members of the GDG and authors of the evidence reviews completed WHO declaration of interest forms. These were reviewed by the WHO Secretariat for potential conflicts of interest. A number of conflicts of interest were declared in the forms, but following a standardized management review it was not found necessary to exclude any members of the GDG or authors from their respective roles. Members of the External Review Group (technical experts only) were also asked to complete the form when invited to participate.

In addition, at the start of the meeting of the GDG all members of the GDG received a briefing about the nature of all types of conflict of interest (financial, academic/intellectual and nonacademic) and were asked to declare to the meeting any conflicts they might have. No member of the GDG or the Systematic Review Team was excluded from his/her respective role. A summary of the conflict of interest management is presented in Annex 3.

The GDG set its own rules on how it would work and how contentious issues should be resolved – for instance, by means of a vote. The main decision-making mechanism involved reaching consensus; if a vote was required, the experts involved in developing the underlying evidence for the specific recommendation were excluded from voting, and an agreement was reached via a two thirds majority of the rest of the group.

2.6 Previously published WHO guidelines on environmental noise

Prior to this publication, WHO published community noise guidelines (CNG) in 1999 (WHO, 1999) and night noise guidelines for Europe (NNG) in 2009 (WHO Regional Office for Europe, 2009).

2.6.1 CNG

The scope of WHO's efforts to develop the CNG in 1999 was similar to that for the current guidelines. The objective was then formulated as: "to consolidate scientific knowledge of the time on the health impacts of community noise and to provide guidance to environmental health authorities and professionals trying to protect people from the harmful effects of noise in nonindustrial environments" (WHO, 1999). The guidelines were based on studies carried out up to 1995 and a few meta-analyses from some years later.

The health risk to humans from exposure to environmental noise was evaluated and guideline values derived. At that time WHO had not yet developed its guideline development process, on which the current guidelines are based (WHO, 2014c). The main differences in content are that the previous guidelines were expert-based and provided more global coverage and applicability, such as issues of noise assessment and control that were addressed in detail. They included a discussion on noise sources and measurement, including the basic aspects of source characteristics, sound propagation and transmission. Adverse health effects of noise were characterized, and combined noise sources and their effects were considered. Furthermore, the guidelines included discussions of strategies and priorities in the management of indoor noise levels, noise policies and legislation, environmental

noise impact and enforcement of regulatory standards; although there were no chapters on wind turbine noise and leisure noise.

2.6.2 NNG

In 2009 the WHO Regional Office for Europe published the NNG to provide scientifically based advice to Member States for the development of future legislation and policy action in the area of assessment and control of night noise exposure.

The NNG complement the previous CNG, incorporating the advancement of research on noise and sleep disturbance up to 2006. The working group of experts reviewed available scientific evidence on the health effects of night noise and derived health-based guideline values. Again, WHO had not yet introduced its evidence-based recommendations policy and the NNG were mainly expert-based. They considered the scientific evidence on the threshold of night noise exposure indicated by L_{night} as defined in the END (EC, 2002a), and the experts concluded that a L_{night} value of 40 dB should be the target of the NNG (for all sources) to protect the public, including the most vulnerable groups such as children, chronically ill and elderly people. Further, an L_{night} value of 55 dB was recommended as an interim target for countries that could not follow the guidelines in the short term for various reasons or where policy-makers chose to adopt a stepwise approach.

2.6.3 Differences from the prior noise guidelines

The current guidelines differ from the older ones, recommending levels of exposure unlike those previously outlined (especially by the NNG). The following major differences between the previous and current guidelines explain the novel set of recommended values.

- The development process for the current guidelines adhered to a new, rigorous, evidence-based methodology, as outlined in the WHO handbook for guideline development (WHO, 2014c). WHO adopted these internationally recognized standards to ensure high methodological quality and a transparent, evidence-based decision-making process in the guideline development.
- The current guidelines consider cardiovascular disease a critical health outcome measure.
- They also consider a broader set of health outcomes, including adverse birth outcomes, diabetes, obesity and mental well-being. Wherever applicable, incidence, prevalence and mortality were considered separately.
- The current guidelines cover two new noise sources: wind turbines and leisure noise.
- Critical and important health outcomes are considered separately for each of the noise sources.
- The guideline development process included the health effects of intervention measures to mitigate noise exposure from different noise sources for the first time.
- The style of recommendations differs: the current guidelines include an exact exposure value for every health outcome regarded as critical, for each noise source. Guideline recommendation values were set for each of the noise sources separately, based on the exact exposure values and a prioritization scheme, developed with the help of DWs.
- The current guidelines apply a 1 dB increment scheme, whereas prior guidelines (CNG and NNG) formulated or presented recommendations in 5 dB steps.

- In comparison to the 1999 CNG, which defined environment-specific exposure levels, the current guidelines are source specific. They recommend values for outdoor exposure to road traffic, railway, aircraft and wind turbine noise, and indoor as well as outdoor exposure levels for leisure noise.
- Except for leisure noise, all exposure levels recommended in the current guidelines are average sound pressure levels for outdoor exposure.
- The current guidelines make use of the noise indices defined in the END: L_{den} and L_{night}.

The definition of "community noise" used in the CNG in 1999 was also adapted. The GDG agreed to use the term "environmental noise" instead, and offered an operational definition of: "noise emitted from all sources except sources of occupational noise exposure in workplaces".

The current environmental noise guidelines for the European Region supersede the CNG from 1999. Nevertheless, the GDG recommends that all CNG indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) should remain valid.

Furthermore, the current guidelines complement the NNG from 2009. Two main aspects of the NNG constitute this complementarity: the different guiding principles and the comprehensive investigation of the immediate physiological effects of environmental noise on sleep. As guiding principles the NNG defined effect thresholds or "lowest observed adverse health effect levels" for both immediate physiological reactions during sleep (i.e. awakening reactions or body movements during sleep) and long-term adverse health effects (i.e. self-reported sleep disturbance). These guideline exposure levels defined a level below which no effects were expected to occur (corresponding to 30 dB L_{night}) and proceeded to define the level where adverse effects start to occur (corresponding to 40 dB L_{night}), with the aim of protecting the whole population, including – to some extent – vulnerable groups. The development of the NNG values relied on evidence-based expert judgement. In contrast, the current guidelines formulate recommendations more strictly based on the available evidence and following the guiding principle to identify exposure values based on a relevant risk increase of adverse health effects. Thus, the recommended guideline values might not lead to full protection of the population, including all vulnerable groups. The GDG stresses that the aim of the current guidelines is to define an exposure level at which effects certainly begin.

Secondly, the NNG comprehensively investigate the immediate short-term effects of environmental noise during sleep, including physiological reactions such as awakening reactions and body movements. They also provided threshold information about single-event noise indicators (such as the $L_{A,max}$). In contrast, the current guideline values for the night time are only based on the prevalence of self-reported sleep disturbance and do not take physiological effects into account. The causal link between immediate physiological reactions and long-term adverse health effects is complex and difficult to prove. Thus, the current guidelines are restricted to long-term health effects during night time and therefore only include recommendations about average noise indicators: L_{night}. Nevertheless, the evidence review on noise and sleep (Basner & McGuire, 2018) includes an overview of single-event exposure–effect relationships.

3. Recommendations

This chapter presents specific recommendations on guideline exposure levels and/or interventions to reduce exposure and/or improve health for individual sources of noise: road traffic, railway, aircraft, wind turbines and leisure noise. The strength of each recommendation is provided (strong or conditional) and a short rationale for how each of the guideline levels was achieved is given.

The GDG discussed extensively the best way to present guideline exposure levels – either as the exact values or in 5 dB steps – and the approach to rounding the values to the nearest integer. The 5 dB increment, rounded down from the exact exposure value to the nearest 5 dB level, was initially chosen as being commonly applied in noise legislation and used in prior guidelines (WHO, 1999; EC, 2002a; WHO Regional Office for Europe, 2009). It was also used to meet the principle of precaution, since imprecision in the exposure assessment in the field of epidemiology tends to attenuate the actual effects in the population.

Use of 5 dB increments resulted in uneven magnitude of rounding down, however, raising concerns of arbitrariness. It became apparent that inclusion of both exact values and the 5 dB rounded-down values might be confusing and could affect the applicability of the guidelines. Hence, the GDG ultimately decided that formulating recommendations based on the exact calculated values, rounded only to the nearest integer, would ensure more clarity and transparency. Furthermore, it noted that adhering to a 5 dB roster might not reflect the progress in the precision of exposure assessment methods in recent decades, which would justify application of a 1 dB step.

The GDG acknowledged that the recommendations might be presented as the exact guideline exposure levels only, leaving the use of 5 dB bands to the potential policy decisions to formulate or revise noise legislation, which are beyond the scope of this publication. The WHO guideline values are public health-oriented recommendations, based on scientific evidence on health effects and on an assessment of achievable noise levels. They are strongly recommended and as such should serve as the basis for a policy-making process in which policy options are quantified and discussed. It should be recognized that in that process additional considerations of costs, feasibility, values and preferences should also feature in decision-making when choosing reference values such as noise limits for a possible standard or legislation.

In addition to the source-specific recommendations in the following sections, a short rationale for the decision-making process by the GDG for developing a particular recommendation is provided, as well as an overview of the evidence considered. This includes a recapitulation of the specific PICOS/PECCOS question (see section 2.3.1), along with a summary of evidence for each of the critical and important health effects from exposure to each of the noise sources, and for the effectiveness of interventions.

Furthermore, a description is provided of the other factors considered according to the GRADE dimensions for the assessment of the strength of recommendations (see section 2.4.4). While the quality of evidence is central to determining this, the process of moving from evidence to recommendations involves several other considerations. These include values and preferences, balance of benefits and harms, consideration of the priority of the problem, resource implications, equity and human rights aspects, acceptability and feasibility (WHO, 2014c).

3.1 Road traffic noise

Recommendations

For average noise exposure, the GDG **strongly** recommends reducing noise levels produced by road traffic below **53 dB** L_{den}, as road traffic noise above this level is associated with adverse health effects.

For night noise exposure, the GDG **strongly** recommends reducing noise levels produced by road traffic during night time below **45 dB** L_{night}, as road traffic noise above this level is associated with adverse effects on sleep.

To reduce health effects, the GDG **strongly** recommends that policy-makers implement suitable measures to reduce noise exposure from road traffic in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions, the GDG recommends reducing noise both at the source and on the route between the source and the affected population by changes in infrastructure.

3.1.1 Rationale for the guideline levels for road traffic noise

The exposure levels were derived in accordance with the prioritization process of critical health outcomes described in section 2.4.3. For each of the outcomes, the exposure level was identified by applying the benchmark, set as relevant risk increase to the corresponding ERF. In the case of exposure to road traffic noise, the process can be summarized as follows (Table 6).

Table 6. Average exposure levels (L_{den}) for priority health outcomes from road traffic noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD The 5% relevant risk increase occurs at a noise exposure level of 59.3 dB L_{den}. The weighted average of the lowest noise levels measured in the studies was 53 dB L_{den} and the RR increase per 10 dB is 1.08.	5% increase of RR	High quality
Incidence of hypertension One study met the inclusion criteria. There was no significant increase of risk associated with increased noise exposure in this study.	10% increase of RR	Low quality
Prevalence of highly annoyed population There was an absolute risk of 10% at a noise exposure level of 53.3 dB $L_{den.}$	10% absolute risk	Moderate quality
Permanent hearing impairment	No increase	No studies met the inclusion criteria
Reading skills and oral comprehension in children	One-month delay	Very low quality

In accordance with the prioritization process (see section 2.4.3), the GDG set a guideline exposure level of 53.3 dB L_{den} for average exposure, based on the relevant increase of the absolute %HA. It was confident that there was an increased risk for annoyance below this noise exposure level, but probably no increased risk for other priority health outcomes. In accordance with the defined rounding procedure, the value was rounded to 53 dB L_{den}. As the evidence on the adverse effects of road traffic noise was rated moderate quality, the GDG made the recommendation strong.

Next, the GDG assessed the evidence for night noise exposure and its effect on sleep disturbance (Table 7).

Table 7. Night-time exposure levels (L_{night}) for priority health outcomes from road traffic noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Sleep disturbance 3% of the participants in studies were highly sleep-disturbed at a noise level of **45.4 dB** L_{night}	3% absolute risk	Moderate quality

Based on the evidence of the adverse effects of road traffic noise on sleep disturbance, the GDG defined a guideline exposure level of 45.4 dB L_{night}. The exact exposure value was rounded to 45 dB L_{night}. As the evidence was rated moderate quality, the GDG made the recommendation strong.

The GDG also considered the evidence for the effectiveness of interventions. The results showed that:

- addressing the source by improving the choice of appropriate tyres, road surface, truck restrictions or by lowering traffic flow can reduce noise exposure;
- path interventions such as insulation and barrier construction reduce noise exposure, annoyance and sleep disturbance;
- changes in infrastructure such as construction of road tunnels lower noise exposure, annoyance and sleep disturbance;
- other physical interventions such as the availability of a quiet side of the residence reduce noise exposure, annoyance and sleep disturbance.

Given that it is possible to reduce noise exposure and that best practices already exist for the management of noise from road traffic, the GDG made a strong recommendation.

3.1.1.1 Other factors influencing the strength of recommendations

Other factors considered in the context of recommendations on road traffic noise included those related to values and preferences, benefits and harms, resource implications, equity, acceptability and feasibility; moreover, nonpriority health outcomes (the incidence of stroke and diabetes) were considered. Ultimately, the assessment of all these factors did not lead to a change in the strength of the recommendations. Further details are provided in section 3.1.2.3.

3.1.2 Detailed overview of the evidence

The following sections provide a detailed overview of the evidence constituting the basis for setting the recommendations on road traffic noise. It is presented and summarized separately for each of the critical health outcomes, and the GDG's judgement of the quality of evidence is indicated (for a detailed overview of the evidence on important health outcomes, see Annex 4). Research into health outcomes and effectiveness of interventions is addressed consecutively.

A comprehensive summary of all evidence considered for each of the critical and important health outcomes can be found in the eight systematic reviews published in the *International Journal of Environmental Research and Public Health* (see section 2.3.2 and Annex 2).

3.1.2.1 Evidence on health outcomes

The key question posed was: in the general population exposed to road traffic noise, what is the exposure–response relationship between exposure to road traffic noise (reported as various noise indicators) and the proportion of people with a validated measure of health outcome, when adjusted for main confounders? A summary of the PICOS/PECCOS scheme applied (see section 2.3.1) and the main findings is set out in Tables 8 and 9.

Table 8. PICOS/PECCOS scheme of critical health outcomes for exposure to road traffic noise

PECO	Description	
Population	General population	
Exposure	Exposure to high levels of noise produced by road traffic (average/night time)	
Comparison	Exposure to lower levels of noise produced by road traffic (average/night time)	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 9. Summary of findings for health effects from exposure to road traffic noise (L_{den})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)	Quality of evidence
Cardiovascular disease					
L_{den}	Incidence of IHD	RR = 1.08 (95% confidence interval (CI): 1.01–1.15) per 10 dB increase	53 dB	67 224 (7)	High (upgraded for dose-response)
L_{den}	Incidence of hypertension	RR = 0.97 (95% CI: 0.90–1.05) per 10 dB increase	N/A	32 635 (1)	Low (downgraded for risk of bias and because only one study was available)
Annoyance					
L_{den}	%HA	Odds ratio (OR) = 3.03 (95% CI: 2.59–3.55) per 10 dB increase	40 dB	34 112 (25)	Moderate (downgraded for inconsistency)
Cognitive impairment					
L_{den}	Reading and oral comprehension	Not estimated	N/A	Over 2844 (1)	Very low (downgraded for inconsistency)
Hearing impairment and tinnitus					
L_{den}	Permanent hearing impairment	–	–	–	–

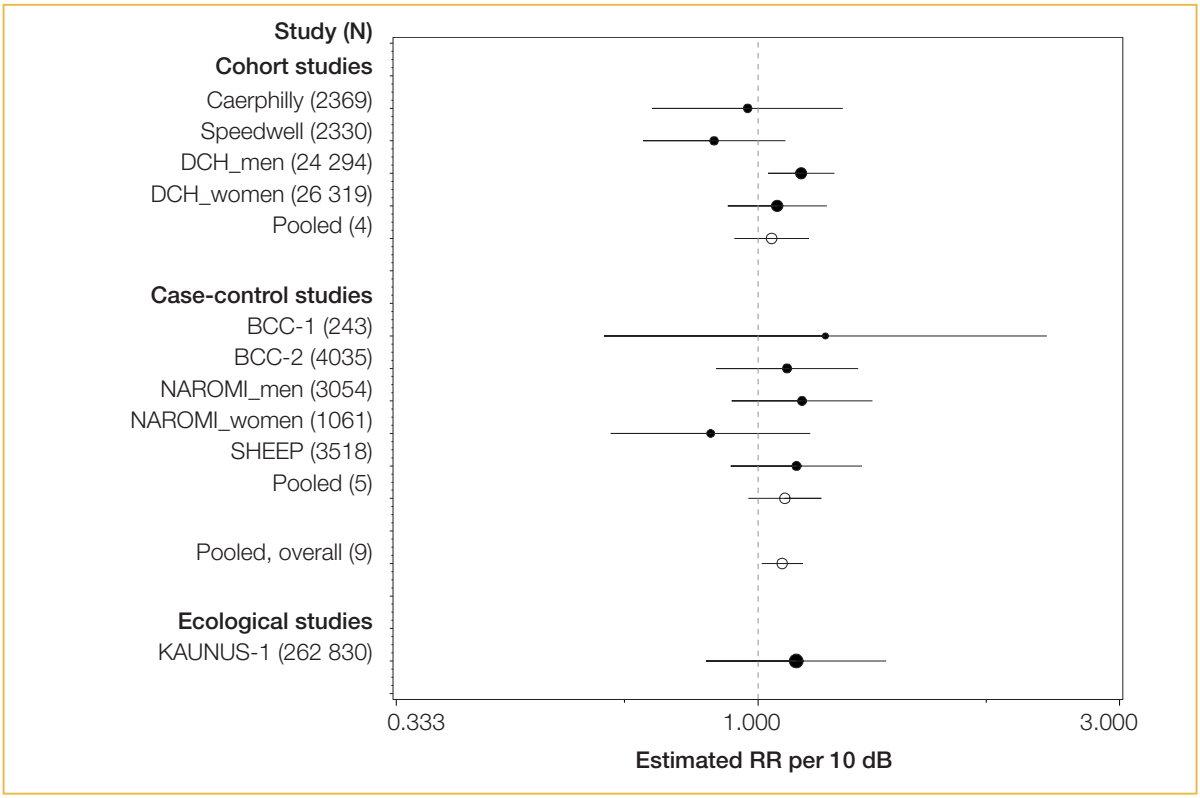
Cardiovascular disease

IHD

A total of three cohort (Babisch & Gallacher, 1990; Babisch et al., 1988; 1993a; 1993b; 1999; 2003; Caerphilly and Speedwell Collaborative Group, 1984; Sörensen et al., 2012a; 2012c) and four case-control studies (Babisch, 2004; Babisch et al., 1992; 1994; 2005a; Selander et al., 2009; Wiens, 1995) investigated the relationship between road traffic noise and the incidence of IHD. These involved a total of 67 224 participants, including 7033 cases. As identified in Fig. 1, the overall RR derived from the meta-analysis was 1.08 (95% CI: 1.01–1.15) per 10 dB L_{den} increase in noise levels, across a noise range of 40 dB to 80 dB. This evidence was rated high quality.

The data were supported by one ecological study conducted with 262 830 participants, including 418 cases, which also reported a statistically significant estimate (Grazuleviciene et al., 2004; Lekaviciute, 2007). In this study, a positive but nonsignificant association was found: RR of 1.12 (95% CI: 0.85–1.48) per 10 dB L_{den} increase in noise. This evidence was rated very low quality.

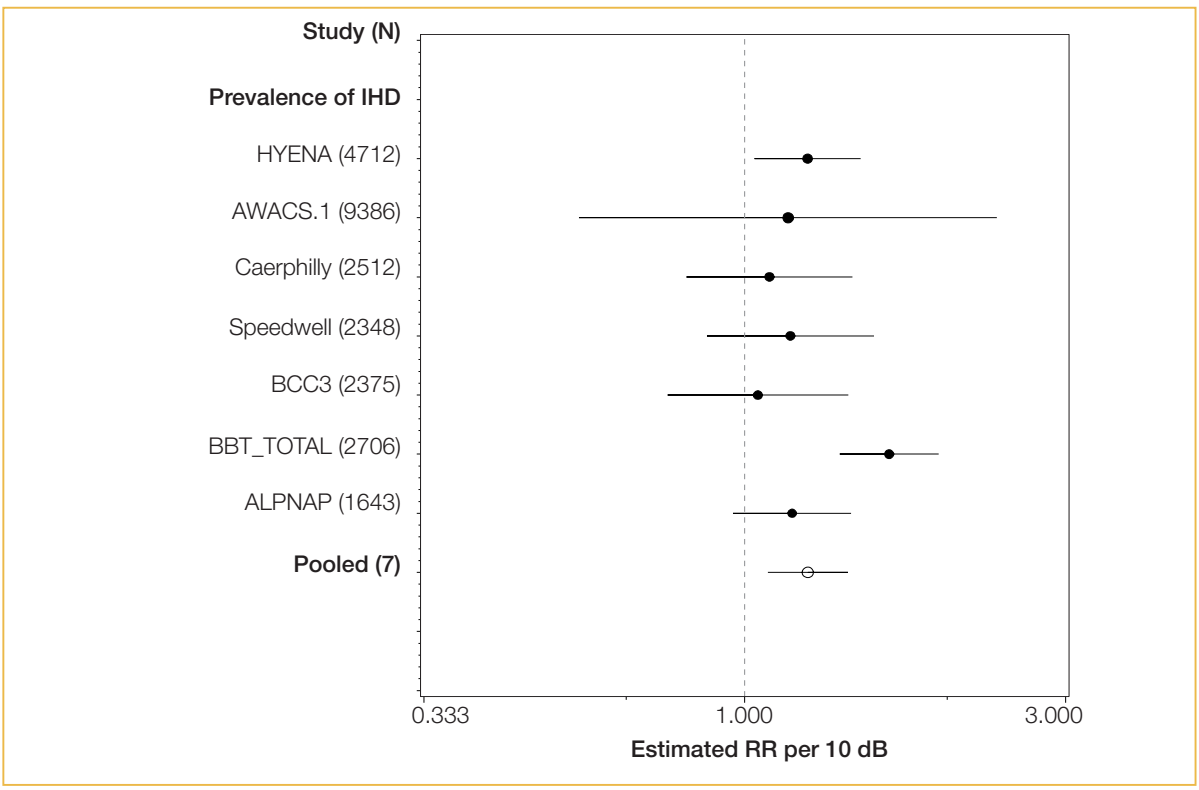
Fig. 1. The association between exposure to road traffic noise (L_{den}) and incidence of IHD



Notes: The dotted vertical line corresponds to no effect of exposure to road traffic noise. The black circles correspond to the estimated RR per 10 dB and 95% CI. The white circles represent the pooled random effect estimates and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Furthermore, additional evidence was available from eight cross-sectional studies that investigated the relationship between road traffic noise and prevalence of IHD (Babisch & Gallacher, 1990; Babisch et al., 1988; 1992; 1993a; 1993b; 1994; 1999; 2003; 2005a; 2008; 2012a; 2012b; Caerphilly and Speedwell Collaborative Group, 1984; Floud et al., 2011; 2013a; 2013b; Heimann et al., 2007; Jarup et al., 2005; 2008; Lercher et al., 2008; 2011; van Poll et al., 2014; Wiens, 1995). These studies involved a total of 25 682 participants, including 1614 cases. The overall RR was 1.24 (95% CI: 1.08–1.42) per 10 dB L_{den} increase in road traffic noise levels. The range in noise levels in the studies under evaluation was 30–80 dB. The results of the meta-analysis are presented in Fig. 2. This evidence was rated low quality.

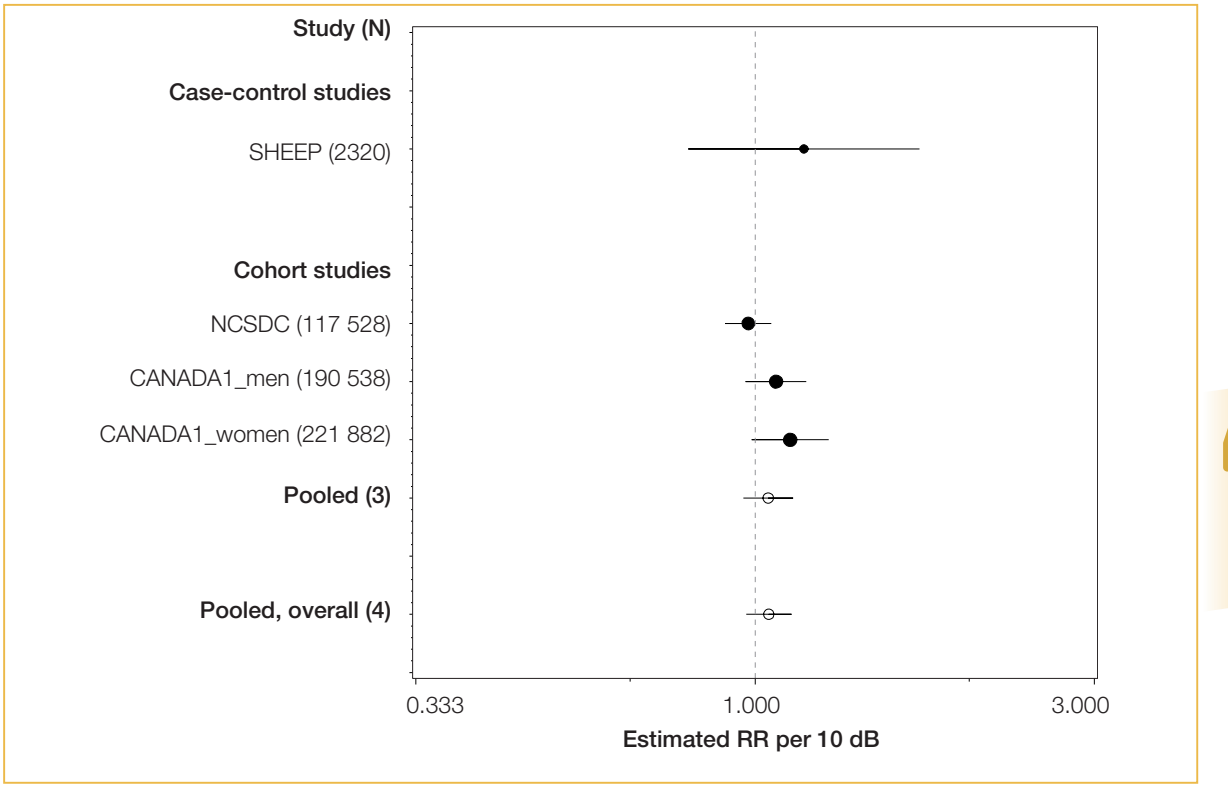
Fig. 2. The association between exposure to road traffic noise (L_{den}) and prevalence of IHD



Notes: The dotted vertical line corresponds to no effect of exposure to road traffic noise. The black circles correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the pooled random effect estimates and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Mortality from IHD was also investigated in one case-control (Selander et al., 2009) and two cohort studies (Beelen et al., 2009; Gan et al., 2012), which involved 532 268 participants, including 6884 cases. The quantitative relationship between road traffic noise and mortality from IHD was RR = 1.05 (95% CI: 0.97–1.13) per 10 dB L_{den} increase in noise levels (see Fig. 3). This evidence was rated moderate quality.

Fig. 3. The association between exposure to road traffic noise (L_{den}) and mortality from IHD



Notes: The dotted vertical line corresponds to no effect of exposure to road traffic noise. The black circles correspond to the estimated RR per 10 dB and 95% CI. The white circles represent the pooled random effect estimates and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Hypertension

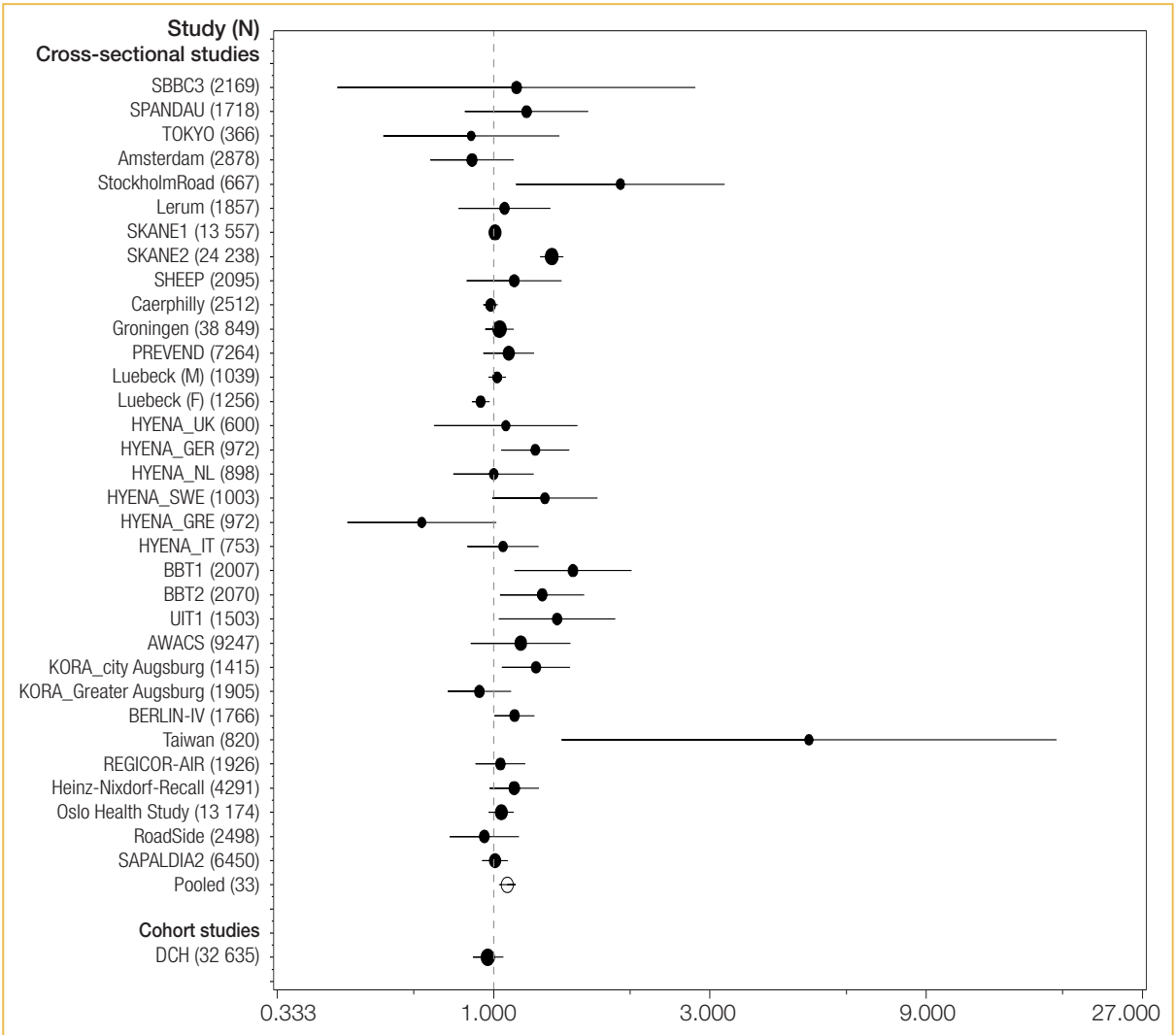
One cohort study into the relationship between road traffic noise and incidence of hypertension was identified; it involved 32 635 participants, including 3145 cases (Sörensen et al., 2011; 2012c). The study found a nonsignificant effect size of 0.97 (95% CI: 0.90–1.05) per 10 dB L_{den} increase in noise levels, which does not support an increased risk of hypertension due to exposure to road traffic noise. Because of the risk of bias and the availability of only one study, this evidence was rated low quality.

In addition, 26 cross-sectional studies were identified that looked at the association between road traffic noise and prevalence of hypertension (Babisch et al., 1988; 1992; 1994; 2005a; 2008; 2012a; 2012b; 2013a; 2013b; 2014b; 2014c; Barregard et al., 2009; Bjork et al., 2006; Bluhm et al., 2007; Bodin et al., 2009; Caerphilly and Speedwell Collaborative Group, 1984; Chang et al., 2011; 2014; de Kluizenaar et al., 2007a; 2007b; Dratva et al., 2012; Eriksson et al., 2012; Foraster et al., 2011; 2012; 2013; 2014a; 2014b; Fuks et al., 2011; Hense et al., 1989; Herbold et al., 1989; Jarup et al., 2005; 2008; Knipschild et al., 1984; Lercher et al., 2008; 2011; Maschke, 2003; Maschke & Hecht,

2005; Maschke et al., 2003; Oftedal et al., 2011; 2014; Selander et al., 2009; van Poll et al., 2014; Wiens, 1995; Yoshida et al., 1997). In total, these studies involved 154 398 participants, including 18 957 cases. The overall RR for prevalence of hypertension was 1.05 (95% CI: 1.02–1.08) per 10 dB L_{den} increase in noise levels. The noise range of the studies under evaluation was 20–85 dB. The overall evidence was rated very low quality.

Fig. 4 shows the association between road traffic noise and incidence and prevalence of hypertension.

Fig. 4. The association between exposure to road traffic noise (L_{den}) and hypertension



Notes: The dotted vertical line corresponds to no effect of exposure to road traffic noise. The black dots correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the summary estimate and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Stroke

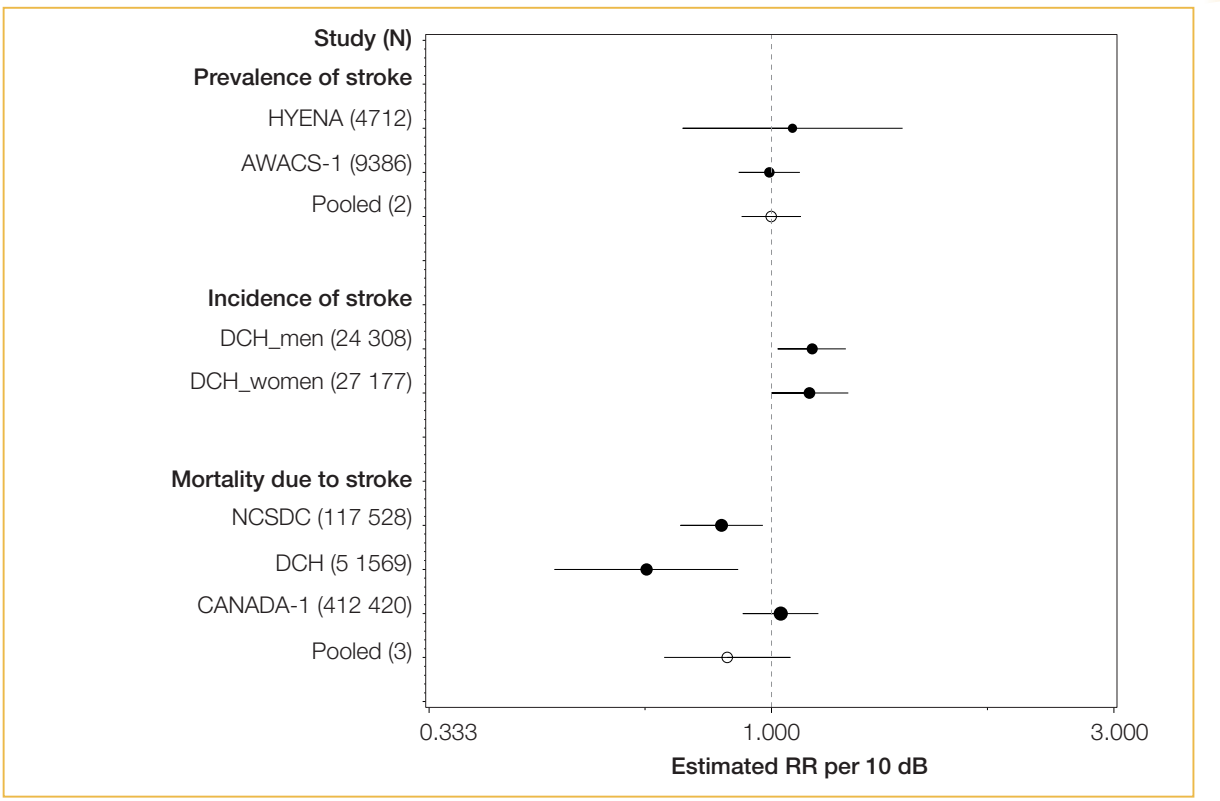
One cohort study into the relationship between road traffic noise and incidence of stroke was identified (Sörensen et al., 2011; 2012b; 2014). It involved 51 485 participants, including 1881 cases, and found an RR of 1.14 (95% CI: 1.03–1.25) per 10 dB L_{den} increase in noise levels, across a range of around 50–70 dB. The evidence was rated moderate quality.

Two cross-sectional studies on road traffic noise and prevalence of stroke involved 14 098 participants, including 151 cases (Babisch et al., 2005a; 2008; 2012a; 2012b; 2013a; Floud et al., 2011; 2013a; 2013b; Jarup et al., 2005; 2008; van Poll et al., 2014) yielded an estimated RR of 1.00 (95% CI: 0.91–1.10) per 10 dB L_{den} increase in noise levels. This evidence was rated very low quality.

Furthermore, three cohort studies investigated the relationship between road traffic noise and mortality due to stroke (Beelen et al., 2009; Gan et al., 2012; Sörensen et al., 2011; 2012b; 2014). These involved 581 517 participants, including 2634 cases, and their pooled estimate was a statistically nonsignificant RR = 0.87 (95% CI: 0.71–1.06) per 10 dB L_{den} increase in road traffic noise levels. This evidence was rated moderate quality.

Fig. 5 presents the results of the meta-analysis for road traffic noise and measures of stroke.

Fig. 5. The association between exposure to road traffic noise (L_{den}) and stroke



Notes: The dotted vertical line corresponds to no effect of exposure to road traffic noise. The black dots correspond to the estimated RR per 10 dB and 95% CI. The white circles represent the summary estimate and 95% CI.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Children's blood pressure

Six cross-sectional studies investigated the change in systolic and diastolic blood pressure in children exposed to road traffic noise in residential settings (Belojevic & Evans, 2011; 2012; Bilenko et al., 2013; Liu et al., 2013; 2014; Regecova & Kellerova, 1995; van Kempen et al., 2006). In total, 4197 children were included in these studies; the number of cases was not reported. For each increase in 10 dB L_{den} in noise levels, there was a statistically nonsignificant increase in systolic and in diastolic blood pressure of 0.08 mmHg (95% CI: –0.48–0.64) and 0.47 mmHg (95% CI: –0.30–1.24), respectively. The overall evidence was rated very low quality.

Furthermore, five cross-sectional studies investigated the association between systolic and diastolic blood pressure in children and exposure to road traffic noise in educational settings (Belojevic & Evans, 2011; 2012; Bilenko et al., 2013; Clark et al., 2012; Paunovic et al., 2013; Regecova & Kellerova, 1995; van Kempen et al., 2006). In total, 4520 children were included in these studies; the number of cases was not reported. Systolic blood pressure decreased statistically nonsignificantly, at –0.60 mm (95% CI: –1.51–0.30) per 10 dB L_{den} increase in road traffic noise levels. Diastolic blood pressure increased statistically nonsignificantly, at 0.46 mm (95% CI: –0.60–1.53) per 10 dB L_{den} increase in road traffic noise levels. For both relationships, the evidence was rated very low quality.

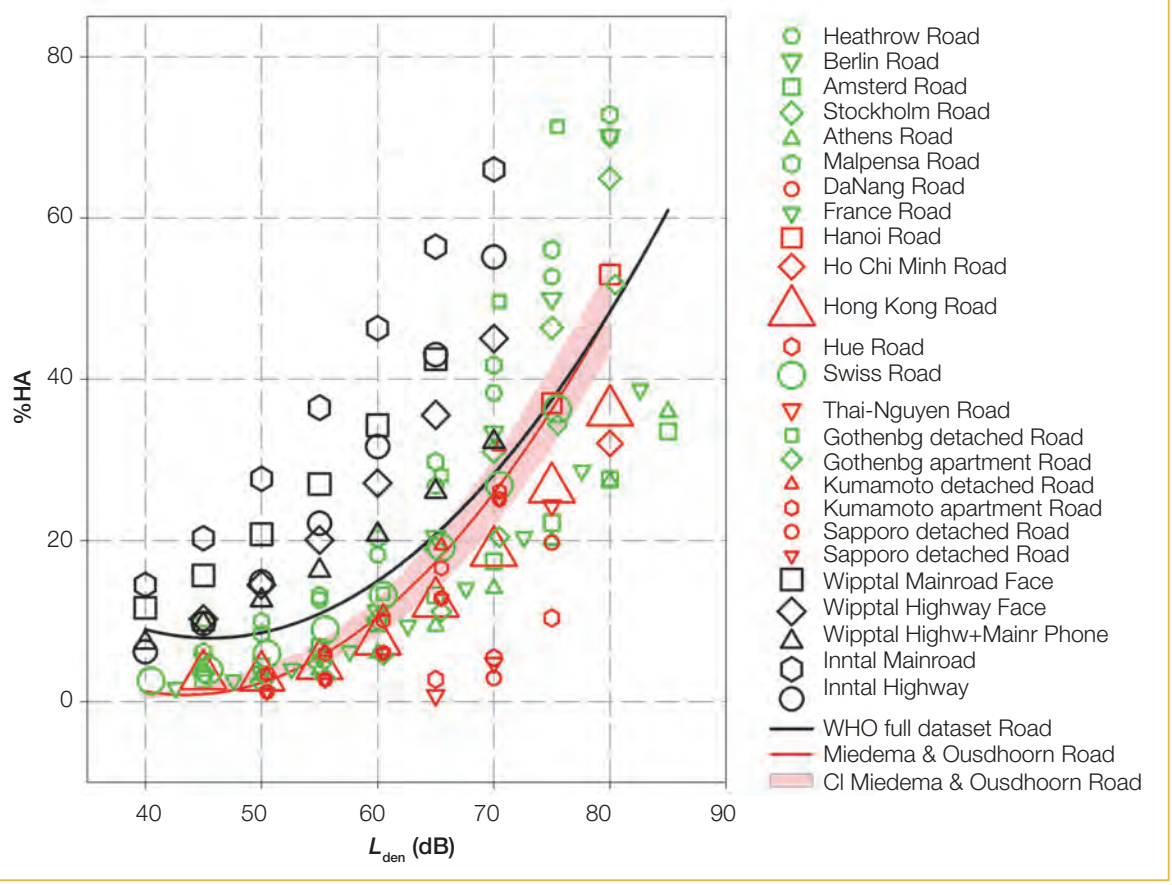
Annoyance

A vast amount of research proves the association between road traffic noise and annoyance. In total, 17 road traffic noise studies were identified that were used to model ERFs of the relationship between L_{den} and %HA (Babisch et al., 2009; Brink, 2013; Brink et al., 2016; Brown et al., 2014; 2015; Champelovier et al., 2003; Heimann et al., 2007; Lercher et al., 2007; Medizinische Universitaet Innsbruck, 2008; Nguyen et al., 2012a; Pierette et al., 2012; Sato et al., 2002; Shimoyama et al., 2014). These incorporated data from 34 112 study participants. The estimated data points of each of the studies are plotted in Fig. 6, alongside an aggregated ERF including the data from all the individual studies (see the black line for "WHO full dataset"). The lowest category of noise exposure considered in any of the studies, and hence included in the systematic review, is 40 dB, corresponding to approximately 9%HA. The benchmark level of 10%HA is reached at 53.3 dB L_{den} (see Fig 6).

Table 10 shows the %HA in relation to exposure to road traffic noise. The calculations are based on the regression equation $\%HA = 78.9270–3.1162 \times L_{den} + 0.0342 \times L_{den}^2$ derived from the systematic review (Guski et al., 2017). Even though there is a large evidence base substantiating the association of average road traffic noise and noise annoyance, the overall evidence had to be rated low quality. The main reasons for downgrading included limitations regarding the acoustical data provided, the nature of study design (most of the studies in the realm of annoyance research follow a cross-sectional approach), the inconsistency of results and the variety in the questions asked.

Nevertheless, the general quality of the evidence was substantiated with the help of additional statistical analyses that apply classic health outcome measures to estimate noise annoyance. When comparing road traffic noise exposure at 50 dB and 60 dB, the analyses revealed evidence rated moderate quality for an association between road traffic noise and %HA for an increase per 10 dB (OR = 2.74; 95% CI: 1.88–4.00). Moreover, there was evidence rated high quality for the increase of %HA per 10 dB increase in sound exposure, when data on all sound classes were included (OR = 3.03; 95% CI: 2.59–3.55).

Fig. 6.Scatterplot and quadratic regression of the relationship between road traffic noise (L_{den}) and annoyance (%HA)



Notes: The ERF by Miedema & Oudshoorn (2001) is added in red for comparison.
The size of the data points corresponds to the number of participants in the respective study (size = SQRT(N)/10).
If two results from different studies fall on the same data point, the last point plotted may mask the former one.
The black curve is derived from aggregated secondary data, while the red one is derived from individual data.
There is no indication of 95% CIs of the WHO full dataset, as a weighting based on the total number of participants for each 5 dB L_{den} sound class could not be calculated; weighting based on all participants of all sound classes proved to be unsuitable. The range of data included is illustrated by the distribution of data points.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and annoyance (Guski et al., 2017).

Table 10. The association between exposure to road traffic noise (L_{den}) and annoyance (%HA)

L_{den} (dB)	%HA
40	9.0
45	8.0
50	8.6
55	11.0
60	15.1
65	20.9
70	28.4
75	37.6
80	48.5

Cognitive impairment

Evidence rated very low quality was available for the association between road traffic noise and reading and oral comprehension, assessed by tests. The review identified two papers that reported the results of the cross-sectional road traffic and aircraft noise exposure and children's cognition and health (RANCH) study, which examined exposure–effect relationships (Clark et al., 2006; Stansfeld et al., 2005). The study of over 2000 children aged 9–10 years, attending 89 schools around three major airports in the Netherlands, Spain and the United Kingdom did not find an exposure–effect relationship between road traffic noise exposure at primary school, which ranged from 31 to 71 dB $L_{Aeq,16h}$, and children's reading comprehension.

Few studies have investigated other health outcome measures related to cognition. Evidence rated low quality was available for an association between road traffic noise and cognitive impairment assessed through standardized tests (Cohen et al., 1973; Lukas et al., 1981; Pujol et al., 2014; Shield & Dockrell, 2008). There was evidence rated very low quality for an association between road traffic noise and long-term memory (Matheson et al., 2010; Stansfeld et al., 2005). No studies examined effects on short-term memory.

There was evidence rated very low quality, however, that road traffic noise does not have a considerable effect on children's attention (Cohen et al., 1973; Stansfeld et al., 2005). Further, there was evidence rated low quality that road traffic noise does not have a substantial effect on executive function (working memory), with studies consistently reporting no association (Clark et al., 2012; Matheson et al., 2010; Stansfeld et al., 2005; van Kempen et al., 2010; 2012).

Hearing impairment and tinnitus

No studies were found, and therefore no evidence was available for the association between road traffic noise and hearing impairment and tinnitus.

Sleep disturbance

For road traffic noise and self-reported sleep outcomes (awakenings from sleep, the process of falling asleep and sleep disturbance), 12 studies were identified that included a total of 20 120

participants (Bodin et al., 2015; Brown et al., 2015; Hong et al., 2010; Phan et al., 2010; Ristovska et al., 2009; Sato et al., 2002; Shimoyama et al., 2014); these were cross-sectional studies, conducted in healthy adults. The health outcome was measured by self-reporting via general health and noise surveys that included questions about sleep in general, and other questions about how noise affects sleep (see Table 11).

Table 11. Summary of findings for health effects from exposure to road traffic noise (L_{night})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)	Quality of evidence
Effects on sleep					
L_{night}	%HSD	OR: 2.13 (95% CI: 1.82–2.48) per 10 dB increase	43 dB	20 120 (12)	Moderate (downgraded for study limitations, inconsistency; upgraded for dose-response, magnitude of effect)

The model in the systematic review (Basner & McGuire, 2018) was based on outdoor L_{night} levels between 40 dB and 65 dB only; 40 dB was chosen as the lower limit because of possible inaccuracies of predicting lower noise levels. The range of noise exposure reported in the studies reviewed was 37.5–77.5 dB L_{night}. About 2% (95% CI: 0.90–3.15) of the population was characterized as highly sleep-disturbed at L_{night} levels of 40 dB. The %HSD at other, higher levels of road traffic noise is presented in Table 12. The association between road traffic noise and the probability of being highly sleep-disturbed was OR: 2.13 (95% CI: 1.82–2.48) per 10 dB increase in noise. This evidence was rated moderate quality.

Table 12. The association between exposure to road traffic noise (L_{night}) and sleep disturbance (%HSD)

L_{night} (dB)	%HSD	95% CI
40	2.0	0.9–3.15
45	2.9	1.40–4.44
50	4.2	2.14–6.27
55	6.0	3.19–8.84
60	8.5	4.64–12.43
65	12.0	6.59–17.36

Additional analyses were conducted for other health outcome measures related to sleep, which provided supporting evidence on the overall relationship between road traffic noise and sleep disturbance. When the noise source was not specified in the question, the relationship between road traffic noise and self-reported sleep outcomes was still positive but no longer statistically significant, with an OR of 1.09 (95% CI: 0.94–1.27) per 10 dB increase (Bodin et al., 2015; Brink, 2011; Frei et al., 2014; Halonen et al., 2012). This evidence was rated very low quality.

There was evidence rated moderate quality for an association between road traffic noise and sleep outcomes measured with polysomnography (probability of additional awakenings) with an OR of 1.36 (95% CI: 1.19–1.55) per 10 dB increase in indoor $L_{AS,max}$ [13] (Basner et al., 2006; Elmenhorst et al., 2012). Further, evidence rated low quality showed an association between road traffic noise and sleep outcomes measured as motility in adults (Frei et al., 2014; Griefahn et al., 2000; Oehrstroem et al., 2006a; Passchier-Vermeer et al., 2007; Pirrera et al., 2014). Finally, there was evidence rated very low quality for an association between road traffic noise and both self-reported and motility-measured sleep disturbance in children (Ising & Ising, 2002; Lercher et al., 2013; Oehrstroem et al., 2006a; Tiesler et al., 2013).

3.1.2.2 Evidence on interventions

This section summarizes the evidence underlying the recommendation on the effectiveness of interventions for road traffic noise exposure. The key question posed was: in the general population exposed to road traffic noise, are interventions effective in reducing exposure to and/or health outcomes from road traffic noise? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 13 and 14.

Table 13. PICOS/PECCOS scheme of the effectiveness of interventions for exposure to road traffic noise

PICO	Description	
Population	**General population**	
Intervention(s)	The interventions can be defined as:	
	(a) a measures that aim to change noise exposure and associated health effects;	
	(b) a measures that aim to change noise exposure, with no particular evaluation of the impact on health; or	
	(c) a measures designed to reduce health effects, but that may not include a reduction in noise exposure.	
Comparison	**No intervention**	
Outcome(s)	For average noise exposure:	For night noise exposure:
	1. cardiovascular disease	1. effects on sleep
	2. annoyance	
	3. cognitive impairment	
	4. hearing impairment and tinnitus	
	5. adverse birth outcomes	
	6. quality of life, well-being and mental health	
	7. metabolic outcomes	

[13] $L_{AS,max}$ is the maximum time-weighted and A-weighted sound pressure level with SLOW time constant within a stated time interval starting at t1 and ending at t2, expressed in dB.

Table 14. Summary of findings for road traffic noise interventions by health outcome

Type of intervention	Number of participants (studies)	Effect of intervention	Quality of evidence
Annoyance			
Type A – source interventions (change in traffic flow rate, improved road resurfacing, truck restriction strategy, complex set of barriers, road surfaces and other measures)	6096[a] (9)	• Changes in noise level ranged from around –15 dB to +15.5 dB (various noise metrics). • Most studies found that the intervention resulted in a change in annoyance.	Moderate (downgraded for study limitations; upgraded for dose-response)
Type B – path interventions (dwelling insulation, barrier construction, building intervention)	2970 (7)	• Changes in noise level ranged from –3 dB to –13 dB (various noise metrics). • All studies found that the intervention resulted in a change in annoyance, as estimated by an ERF.	Moderate (downgraded for study limitations; upgraded for dose-response)
Type C – changes in infrastructure (new road tunnel infrastructure)	1211 (2)	• Noise levels reduced by an average of –12 dB ($L_{Aeq,24h}$). • Both studies found lower annoyance responses post intervention, with no change in the controls.	Moderate (downgraded for study limitations; upgraded for dose-response)
Type D – other physical interventions (availability of quiet side to the dwelling, existence of nearby green space)	26 786 (6)	• Because of large variability in noise levels between most and least exposed façade (quiet side), access to quiet side and/or green space resulted in less annoyance.	Very low (downgraded for study limitations)
Sleep disturbance			
Type B – path interventions (1: façade insulation; 2: enlargement of motorway lanes but with dwelling insulation, barriers and quiet pavement)	1158 (2)	• 1: façade insulation resulted in a reduction of 7 dB for indoor noise level. • 2: enlargement led to reduction in the extent of population exposure at higher noise levels (55–65 dB) with an increase in lower levels (45–55 dB) • Both path interventions resulted in changes in sleep outcomes	Moderate (downgraded for study limitations)
Type C – changes in infrastructure (new road tunnel infrastructure)	166 (2)	• Noise levels reduced by an average of –12 dB ($L_{Aeq,24h}$). • Both studies found lower sleep disturbance indicators/ improvement in sleep post intervention, with no change in the controls.	Moderate (downgraded for study limitations)
Type D – other physical interventions (availability of quiet side to the dwelling)	100 (1)	• An absence of quiet façade resulted in increased reporting of difficulty in falling asleep.	Very low (downgraded for study limitations, inconsistency)
Cardiovascular disease			
Type D – other physical interventions (availability of quiet side to the dwelling)	9203 (4)	• Three studies found changes (including in self-reported hypertension) with and without a quiet side. One study found no change.	Very low (downgraded for study limitations)

Note: [a] This figure does not include number of participants from the studies by Langdon & Griffiths (1982) and Baughan & Huddart (1993), as the exact number of respondents was not reported.

Type A – source interventions

Most of the nine source intervention studies – Baughan & Huddart (1993), Brown (1987; 2015), Brown et al. (1985), Griffiths & Raw (1987; 1989), Kastka (1981), Langdon & Griffiths (1982), Pedersen et al. (2013; 2014), Stansfeld et al. (2009b) – showed an effect in annoyance due to changes in road traffic flow rates. In some cases these were combined with other measures like improved road resurfacing, truck restrictions or complex control measures, including barriers or road surfaces. A majority of the changes resulted in reductions of noise levels.

Regarding the strength of association between exposure and annoyance outcome, all intervention studies demonstrated that the response was of at least the magnitude estimated by a steady-state ERF. The limited available evidence on long-term effects shows that this excess response undergoes some attenuation but is largely maintained over several years. In spite of the high risk of bias in all studies, the evidence in the systematic review was initially assessed as high quality, due to an upgrade because of the dose-response effect. However, the GDG decided to downgrade this assessment in an effort to maximize consistency with the grading approach of the remaining systematic reviews. It was therefore rated moderate quality.

Type B – path interventions

Seven path intervention studies – Amundsen et al. (2011; 2013), Bendtsen et al. (2011), Gidloef-Gunnarsson et al. (2010), Kastka et al. (1995), Nilsson & Berglund (2006), Vincent & Champelovier (1993) – explored the effects on annoyance by interventions related to dwelling insulation, barrier constructions and a combination of both, as well as a full-scale building intervention. With the help of pre/post designs, the studies assessed changes in noise exposure achieved by the interventions over different periods of time. In six studies the path intervention was associated with a change in annoyance outcomes. Four of these showed that the annoyance response to the change was in the same direction and of at least the same magnitude estimated by the ERF. In spite of the high risk of bias in all studies, the evidence in the systematic review was initially assessed as high quality, due to an upgrade because of the dose-response effect. However, the GDG decided to downgrade this assessment in an effort to maximize consistency with the grading approach of the remaining systematic reviews. The evidence was therefore rated moderate quality.

Two of the studies (Amundsen et al., 2013; Bendtsen et al., 2011) assessed path interventions and sleep disturbance. The results showed a reduction in the %HSD after the interventions were conducted. One of the studies included a two-year follow-up, revealing the persistence of the effect. Risk of bias was assessed as high in both studies. The evidence was rated moderate quality.

Type C – new/closed infrastructure interventions

Two infrastructural intervention studies (Gidloef-Gunnarsson et al., 2013; Oehrstroem, 2004; Oehrstroem & Skanberg, 2000) evaluated the impact on annoyance of major reductions in road traffic flows, combined with other environmental improvements. One was a new road tunnel infrastructure, resulting in substantial traffic and noise levels reductions for residents near the previously heavy-traffic road. Both studies were pre/post designs using repeated measures of annoyance outcomes. Following the reduction in noise levels (around –12 dB $L_{Aeq,24h}$), both studies demonstrated a statistically significant lower degree of annoyance, while there was no change in

the control group. Both also reported that the after-scores in the studies matched those estimated by the ERF, but both reported excess response, meaning that the response to change was in the direction estimated by the ERF but much steeper. In spite of the high risk of bias in all studies, the quality of the evidence in the systematic review was initially assessed as high, due to an upgrade because of the dose-response effect. However, the GDG decided to downgrade this assessment in an effort to maximize consistency with the grading approach of the remaining systematic reviews. The evidence was therefore rated moderate quality.

Two studies investigated the impact of new tunnels that removed traffic flow from surface roads on sleep disturbance (Oehrstroem, 2004; Oehrstroem & Skanberg, 2000; 2004). Subjective and objective measures of sleep quality were assessed before and after the intervention. Both studies demonstrated a statistically significant lower reporting of various sleep disturbance indicators post intervention. One study reported statistically significantly reduced time spent in bed after the intervention, which, according to the authors, could suggest increased sleep efficiency. Risk of bias was assessed as high, so this evidence was rated moderate quality.

Type D – other physical infrastructure interventions

No intervention studies were available to assess impacts on annoyance of other physical interventions. The only relevant studies (Babisch et al., 2012; de Kluizenaar et al, 2011; 2013; Gidloef-Gunnarsson & Oehrstroem 2007; van Renterghem & Botteldooren, 2012; 2010) did not provide direct evidence of an intervention. Instead, they provided indirect evidence on the magnitude of the likely effect of certain interventions (e.g. using the quiet side of the dwelling, green space in the neighbourhood) by comparing responses from groups with and without the intervention/feature of interest. All studies found an effect of the presence of the dimension investigated; in all but one, the effect was statistically significant. Risk of bias was assessed as high in all studies, so the evidence was rated very low quality.

One study investigated a subjective assessment of difficulty in falling asleep (van Renterghem & Botteldooren, 2012), before and after the intervention. The difference in the proportion of participants reporting difficulty falling asleep “at least sometimes” between homes with and without a quiet side was statistically significant. Absence of a quiet façade resulted in increased reporting of this sleep parameter. Confounding was adjusted for in the analyses of the ERFs, including noise sensitivity, window-closing behaviour and front-façade L_{den}. Risk of bias was assessed as high, so the evidence was rated very low quality.

Four studies that assessed the effect of other physical interventions on cardiovascular disease were identified (Babisch et al., 2012; 2014a; Bluhm et al., 2007; Lercher et al., 2011). Three of these found changes, including self-reported hypertension, with and without a quiet side of the dwelling; in two the difference was statistically significant. The risk of bias in these studies was generally high, so the evidence was rated very low quality.

3.1.2.3 Consideration of additional contextual factors

As the foregoing overview has shown, ample evidence about the adverse health effects of long-term exposure to road traffic noise exists. Based on the quality of the available evidence, the GDG set the strength of the recommendation on road traffic noise at strong. As a second step, it qualitatively

assessed contextual factors to explore whether other considerations could have a relevant impact on the recommendation strength. These considerations mainly concerned the balance of harms and benefits, values and preferences, equity, and resource use and implementation.

When assessing the balance of harms and benefits of interventions to reduce exposure to road traffic noise, the GDG initially noted that road traffic is the most widespread source of noise pollution, measured in terms of the number of affected people both within and outside urban areas. The EEA estimates that more than 100 million people in Europe are exposed to L_{den} levels above 55 dB; for night-time road traffic noise, over 72 million Europeans are exposed to L_{night} levels above 50 dB (Blanes et al., 2017).[14] The amount of road traffic noise emitted is unlikely to decrease significantly: both transport demand, including for passenger cars (EC, 2016b), and the number of city inhabitants (Eurostat, 2016) are expected to increase. Considering the significant burden of disease attributable to exposure to road traffic noise (WHO Regional Office for Europe & JRC, 2011), the GDG expects substantial health benefits to evolve from implementing the recommendations to reduce population exposure to road traffic noise. Depending on the intervention measures used (such as restrictions of traffic), possible harms could include effects on the transportation of goods and on individual mobility of the population. Both can have impacts on local, national and international economies. Overall, the GDG estimated that the benefits gained from minimizing adverse health effects due to road traffic noise exposure outweigh the possible (economic) harms.

Considering values and preferences, it has been established that people appreciate quiet areas as beneficial for their health and well-being, especially in urban areas (Shepherd et al., 2013; Gidloef-Gunnarsson & Oehrstroem, 2007; Oehrstroem et al., 2006b). Nevertheless, the GDG recognized that the convenience of individual mobility with the help of passenger cars is valued overall by large parts of the population in the EU, as illustrated by the sustained high volume of passenger kilometres driven in Europe (EEA, 2016a; 2017a). In general, values and preferences are expected to vary throughout society, as exposure to environmental noise and continuous road traffic noise is not equally distributed: those of individuals directly affected by long-term road traffic exposure are likely to differ from those that are not affected. Individuals with a higher average sound pressure level of road traffic noise are, for example, more willing to pay to reduce their noise exposure (Bristow et al., 2014).

In light of the dimension of equity, the GDG highlighted the fact that the risk of exposure to road traffic noise is not equally distributed throughout society. People with lower socioeconomic status and other disadvantaged groups often live in more polluted and louder areas, including in proximity to busy roads (EC, 2016a). Moreover, socioeconomic factors are not only related to differences in exposure to environmental factors such as noise but are also associated with increased vulnerability and poorer coping capacities (Karpati et al., 2002).

With resource use and implementation considerations, the GDG recognized that no comprehensive cost–benefit analysis for the WHO European Region yet exists, so this assessment is based on informed expert judgement regarding the feasibility of implementing the recommendation for the majority of the population. As the systematic review of environmental noise interventions and their

[14] These are gap-filled figures based on the reported data and including the situation both within and outside cities, as defined by the END.

associated impact on health shows, various effective measures exist to reduce noise exposure from road traffic and improve health (Brown & van Kamp, 2017). The resources needed to implement these measures vary as they rely on the type of intervention and the context. The GDG pointed out the following four major solutions, which are known to be cost-effective: choice of appropriate tyres, use of low-noise road surfaces, building of noise barriers and installation of soundproof windows (CSES et al., 2016). Other types of intervention include limitations of speed or type of traffic allowed on roads.

Regarding feasibility of implementation, the GDG was convinced that many of the solutions can be planned as part of regular maintenance processes and accelerated fleet and road modernization. In particular, appropriate tyres and road surfaces are only slightly more expensive than existing products, and various countries have already considered or adopted similar interventions to reduce noise levels (Ohiduzzaman et al., 2016; Sirin, 2016). This indicates that solutions to achieve recommended noise levels can be implemented and carry a reasonable cost on a societal level. The GDG noted, however, that the feasibility of implementing measures can be hindered by the fact that costs and benefits are not evenly distributed. In most cases, the health benefits gained by interventions that reduce long-term road traffic exposure accrue to citizens, whereas the costs are borne by road users, private companies and public authorities. Furthermore, the GDG expects challenges in the implementation of all long-term measures that include changes in behaviour of the population, such as increased use of car-sharing or public transport. Even though the overall costs are expected to be significant, because of the large number of people affected, the benefit of implementation of the recommendation to minimize the risk of adverse health effects due to road traffic noise for a majority of the population exceeds the resources needed.

In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation remains strong.

Other nonpriority adverse health outcomes

As an additional consideration, although not priority health outcomes and coming from a single study, the GDG noted the evidence rated moderate quality for an association between road traffic noise and the prevalence of diabetes (van Kempen et al., 2018). The noise levels in the study identified ranged from around 50 dB to 70 dB L_{den}, so the recommendation proposed is thought to be protective enough for this health outcome. Thus, it did not lead to a change in the recommendation.

Additional considerations or uncertainties

Individual noise annoyance judgements of residents are to a large extent moderated by personal variables (such as noise sensitivity and coping capacity). However, further situational factors that apply to many residents should be taken into account when analysing noise annoyance from road traffic noise, as they may moderate the relationship. These include the type(s) of road being considered (highways, urban main roads, secondary roads and so on) and the related traffic composition (share of cars, motorcycles and heavy and loud trucks) and pattern (fluctuation, frequency, intermittency). Moreover, the location of settlements and/or individual dwellings, proximity to the road, and location and availability of a quiet façade can also influence the relationship when predicting health outcomes such as annoyance.

3.1.3 Summary of the assessment of the strength of the recommendations

Table 15 provides a comprehensive summary of the different dimensions for the assessment of the strength of the road traffic noise recommendations.

Table 15. Summary of the assessment of the strength of the road traffic noise recommendation

Factors influencing the strength of recommendation	Decision
Quality of evidence	**Average exposure** (L_{den}) *Health effects* • Evidence for a relevant RR increase for incidence of IHD at **59 dB** L_{den} was rated **high quality**. • Evidence for the incidence of hypertension was rated **low quality**. • Evidence for a relevant absolute risk of annoyance at **53 dB** L_{den} was rated **moderate quality**. • Evidence for a relevant RR increase for reading and oral comprehension was rated **very low quality**. *Interventions* • Evidence on effectiveness of interventions to reduce noise exposure and/or health outcomes from road traffic noise is of varying quality. **Night-time exposure** (L_{night}) *Health effects* • Evidence for a relevant absolute risk of sleep disturbance related to night noise exposure from road traffic at **45 dB** L_{night} was rated **moderate quality**. *Interventions* • Evidence on effectiveness of interventions to reduce noise exposure and/or sleep disturbance from road traffic noise is of varying quality.
Balance of benefits versus harms and burdens	Health benefits can be gained from markedly reducing exposure of the population to road traffic noise; benefits outweigh the harms of interventions to reduce continuous road traffic noise.
Values and preferences	Quiet areas are valued by the population, especially by those affected by continuous noise exposure. Some variability is possible between those who benefit from interventions to reduce road traffic noise and those who finance the interventions.
Equity	Risk of exposure to road traffic noise is not equally distributed.
Resource use and implications	No comprehensive cost–effectiveness analysis data are available; nevertheless, a wide range of solutions exists and several are being implemented, showing that effective interventions are both feasible and economically reasonable.
Decisions on recommendation strength	• **Strong** for guideline level for average noise exposure (L_{den}) • **Strong** for guideline value for average night noise exposure (L_{night}) • **Strong** for specific interventions to reduce noise exposure

3.2 Railway noise

Recommendations

For average noise exposure, the GDG **strongly** recommends reducing noise levels produced by railway traffic below **54 dB** L_{den}, as railway noise above this level is associated with adverse health effects.

For night noise exposure, the GDG **strongly** recommends reducing noise levels produced by railway traffic during night time below **44 dB** L_{night}, as railway noise above this level is associated with adverse effects on sleep.

To reduce health effects, the GDG **strongly** recommends that policy-makers implement suitable measures to reduce noise exposure from railways in the population exposed to levels above the guideline values for average and night noise exposure. There is, however, insufficient evidence to recommend one type of intervention over another.

3.2.1 Rationale for the guideline levels for railway noise

The exposure levels were derived in accordance with the prioritizing process of critical health outcomes described in section 2.4.3. For each of the outcomes, the exposure level was identified by applying the benchmark, set as relevant risk increase to the corresponding ERF. In the case of exposure to railway noise, the process can be summarized as follows (Table 16).

Table 16. Average exposure levels (L_{den}) for priority health outcomes from railway noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD No studies were available and therefore incidence of IHD could not be used to assess the exposure level.	5% increase of RR	No studies met the inclusion criteria/no studies available
Incidence of hypertension One study met the inclusion criteria. There was no significant increase of risk associated with increased noise exposure in this study.	10% increase of RR	Low quality
Prevalence of highly annoyed population There was an absolute risk of 10% at a noise exposure level of 53.7 dB $L_{den.}$	10% absolute risk	Moderate quality
Permanent hearing impairment	No increase	No studies met the inclusion criteria/no studies available
Reading skills and oral comprehension in children	One-month delay	No studies met the inclusion criteria/no studies available

In accordance with the prioritization process (see section 2.4.3), the GDG set a guideline exposure level of 53.7 dB L_{den} for average exposure, based on the relevant increase of the absolute %HA. In accordance with the defined rounding procedure, the value was rounded to 54 dB L_{den}. As the evidence on the adverse effects of railway noise was rated moderate quality, the GDG made the recommendation strong.

Next, the GDG assessed the evidence for night noise exposure and its effect on sleep disturbance (Table 17).

Table 17. Night-time exposure levels (L_{night}) for priority health outcomes from railway noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Sleep disturbance 3% of the participants in studies were highly sleep-disturbed at a noise level of **43.7 dB** L_{night}	3% absolute risk	Moderate quality

Based on the evidence of the adverse effects of railway noise on sleep disturbance, the GDG defined a guideline exposure level of 43.7 dB L_{night}. The exact exposure value was rounded to 44 dB L_{night}. As the evidence was rated moderate quality, the GDG made the recommendation strong.

The GDG also considered the evidence for the effectiveness of interventions. The results showed that:

- intervening at the source by applying rail grinding procedures can reduce noise annoyance;
- behavioural interventions such as informing the community about noise interventions can reduce noise annoyance.

In light of the strong evidence about the adverse health effects, the GDG followed a precautionary approach and made a strong recommendation for interventions on railway noise, as it was confident that interventions are realizable and that best practices already exist for the management of noise from railways. Since the empirical evidence on the effectiveness of different types of intervention was rated either low or very low quality, the GDG felt that no recommendation could be made on the preferred type of intervention, and agreed not to recommend any specific type of intervention over another.

3.2.1.1 Other factors influencing the strength of recommendations

Other factors considered in the context of recommendations on railway noise included those related to values and preferences, benefits and harms, resource implications, equity, acceptability and feasibility; moreover, nonpriority health outcomes were considered. The assessment of all these factors – especially the values and preferences involved in railway noise – did not lead to a change in the strength of the recommendations. Further details are provided in Section 3.2.2.3.

3.2.2 Detailed overview of the evidence

The following sections provide a detailed overview of the evidence constituting the basis for setting the recommendations on railway noise. It is presented and summarized separately for each of the critical health outcomes, and the GDG's judgement of the quality of evidence is indicated (for a detailed overview of the evidence on important health outcomes, see Annex 4). Research into health outcomes and effectiveness of interventions is addressed consecutively.

A comprehensive summary of all evidence considered for each of the critical and important health outcomes can be found in the eight systematic reviews published in the *International Journal of Environmental Research and Public Health* (see section 2.3.2 and Annex 2).

3.2.2.1 Evidence on health outcomes

The key question posed was: in the general population exposed to railway noise, what is the exposure–response relationship between exposure to railway noise (reported as various noise indicators) and the proportion of people with a validated measure of health outcome, when adjusted for main confounders? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 18 and 19.

Table 18. PICOS/PECCOS scheme of critical health outcomes for exposure to railway noise

PECO	Description	
Population	General population	
Exposure	Exposure to high levels of noise produced by railway traffic (average/night time)	
Comparison	Exposure to lower levels of noise produced by railway traffic (average/night time)	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 19. Summary of findings for health effects from exposure to railway noise (L_{den})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)[a]	Quality of evidence
Cardiovascular disease					
L_{den}	Incidence of IHD	–	–	–	–
L_{den}	Incidence of hypertension	RR = 0.96 (95% CI: 0.88–1.04) per 10 dB increase	N/A	7249 (1)	Low (downgraded for risk of bias and availability of only one study)
Annoyance					
L_{den}	%HA	OR = 3.53 (95% CI: 2.83–4.39) per 10 dB increase	34	10 970 (10)	Moderate (downgraded for inconsistency, directness; upgraded for dose-response)
Cognitive impairment					
L_{den}	Reading and oral comprehension	–	–	–	–
Hearing impairment and tinnitus					
L_{den}	Permanent hearing impairment	–	–	–	–

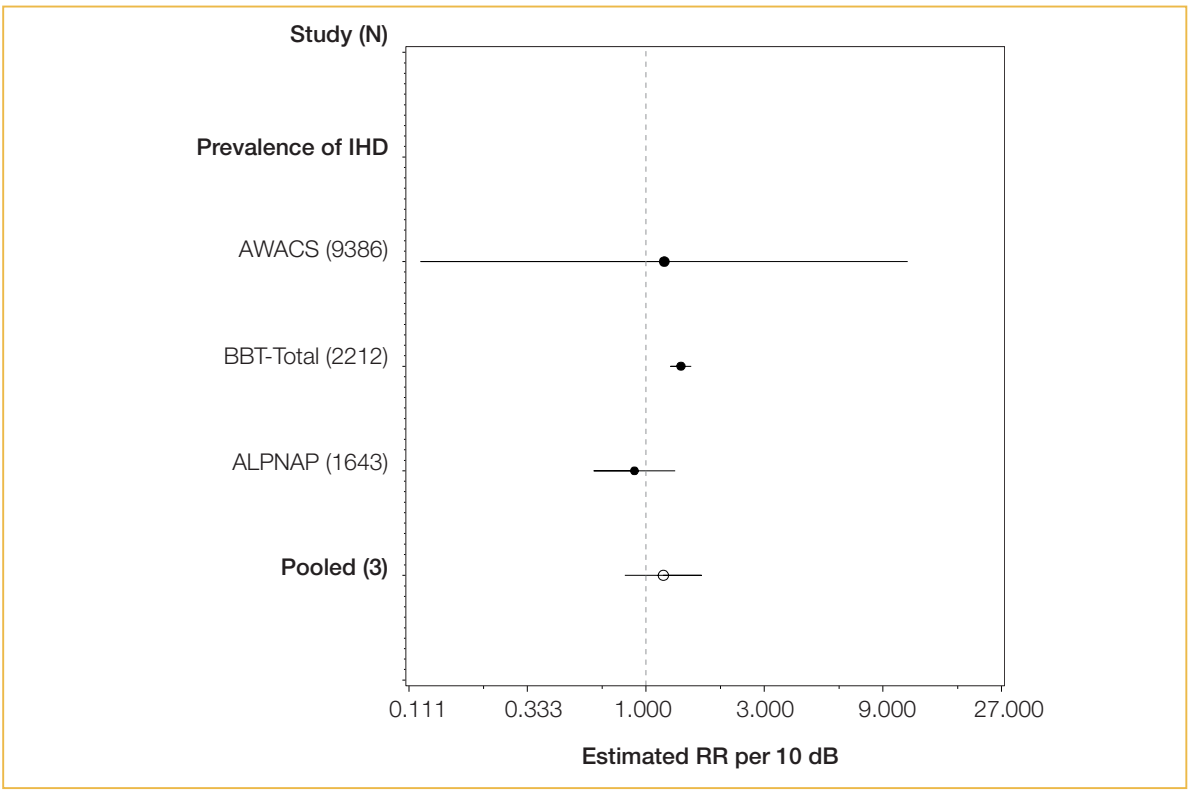
Note: [a] Results are partly derived from population-based studies.

Cardiovascular disease

IHD

No evidence was available on the relationship between railway noise and the incidence of or mortality from IHD. Four cross-sectional studies were identified, however, that assessed the prevalence of IHD in a total of 13 241 participants, including 283 cases (Heimann et al., 2007; Lercher et al., 2008; 2011; van Poll et al., 2014). The overall risk was not statistically significantly increased: the RR was 1.18 (95% CI: 0.82–1.68) per 10 dB L_{den} increase, with inconsistency across studies (see Fig. 7). The evidence was rated very low quality.

Fig. 7. The association between exposure to railway noise (L_{den}) and prevalence of IHD



Notes: The dotted vertical line corresponds to no effect of exposure to railway noise. The black circles correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the pooled random effect estimates and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

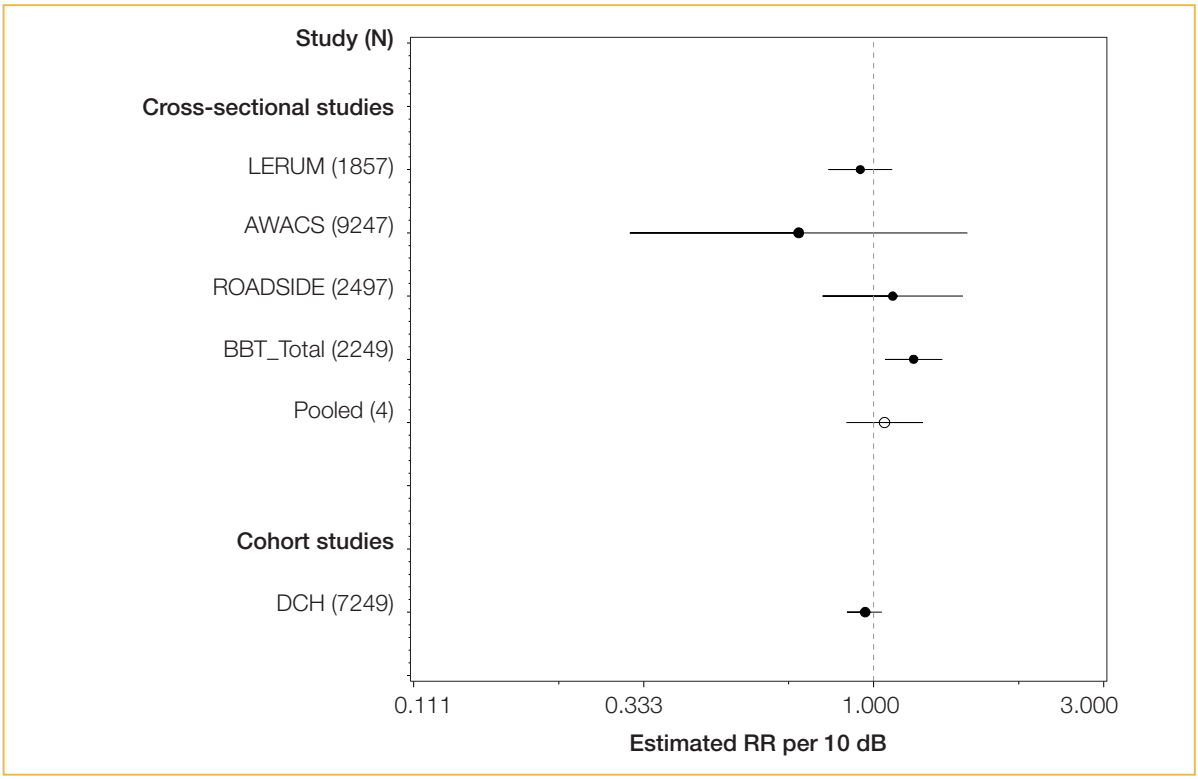
Hypertension

One cohort study on the relationship between railway noise and hypertension was identified; it assessed the incidence among people living in Denmark (Sörensen et al., 2011; 2012a). The study involved 7249 participants, including 3145 cases. The authors did not find an association between railway noise exposure and incidence of hypertension, with RR = 0.96 (95% CI: 0.88–1.04) per 10 dB L_{den} increase. This evidence was rated low quality.

In addition, five cross-sectional studies assessed the prevalence of hypertension in 15 850 participants, including 2059 cases (Barregard et al., 2009; Eriksson et al., 2012; Lercher et al., 2008; 2011; van Poll et al., 2014). The overall RR increase was not statistically significant, at 1.05 (95% CI: 0.88–1.26) per 10 dB L_{den} increase. Moreover, there was inconsistency among the results across studies. The evidence was rated very low quality.

Fig. 8 presents the studies investigating the relationship between railway noise and different measures of hypertension.

Fig. 8. The association between exposure to railway noise (L_{den}) and hypertension



Notes: The dotted vertical line corresponds to no effect of exposure to railway noise. The black dots correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the summary estimate and 95% CI.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Stroke

As for IHD, no evidence was available on the relationship between railway noise and incidence of or mortality from stroke. However, one cross-sectional study was identified that assessed the prevalence of stroke in 9365 participants, including 89 cases (van Poll et al., 2014). The overall risk was not statistically significantly increased, with RR = 1.07 (95% CI: 0.92–1.25) per 10 dB L_{den} increase. The evidence was rated very low quality.

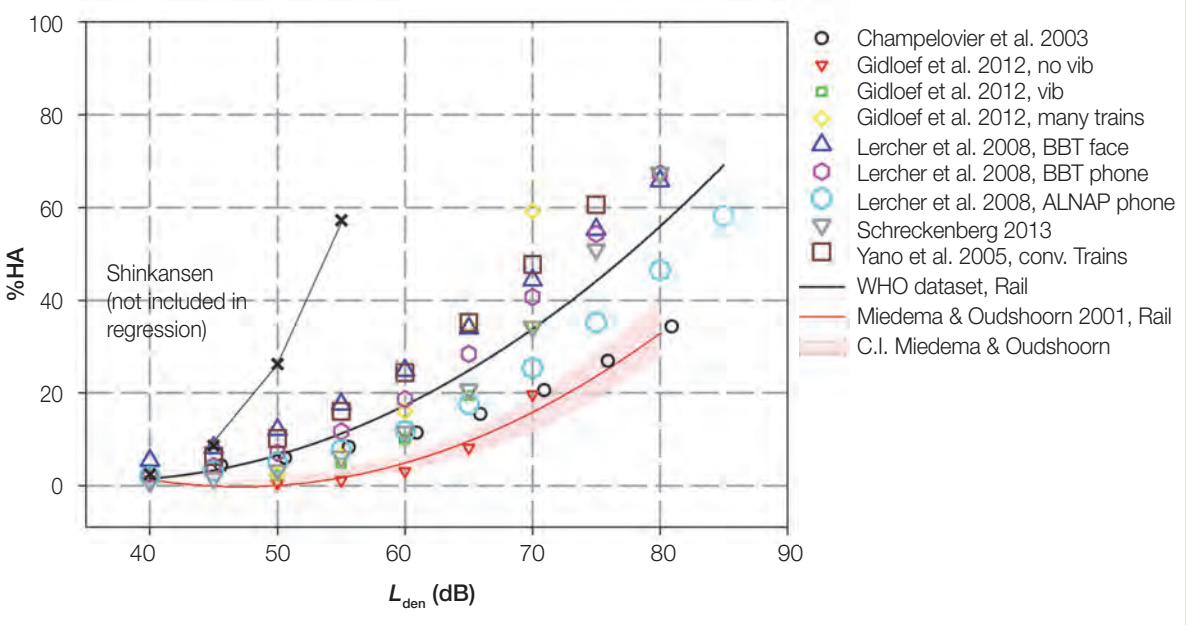
Children's blood pressure

No evidence was available for the association between railway noise and the systolic and/or diastolic blood pressure of children in residential and/or educational settings.

Annoyance

In total, 10 studies with ERFs on the association between railway noise and annoyance were included in analyses (Champelovier et al., 2003; Gidloef-Gunnarsson et al., 2012; Lercher et al., 2007; 2008; Sato et al., 2004; Schreckenberg, 2013; Yano et al., 2005; Yokoshima et al., 2008). The studies incorporated individual data from 10 970 participants. The estimated data points of each of these studies are plotted in Fig. 9, alongside an aggregated ERF including the data from all the individual studies (see the black line for "WHO dataset, Rail"). The lowest category of noise exposure considered in any of the studies, and hence included in the systematic review is 40 dB, corresponding to approximately 1.5%HA. The 10% benchmark for %HA is reached at 53.7 dB L_{den} (see Fig. 9).

Fig. 9. Scatterplot and quadratic regression of the relationship between railway noise (L_{den}) and annoyance (%HA)



Notes: The ERF by Miedema & Oudshoorn (2001) is added in red for comparison.
There is no indication of 95% CIs of the WHO dataset curve, as a weighting based on the total number of participants for each 5 dB L_{den} sound class could not be calculated; weighting based on all participants of all sound classes proved to be unsuitable. The range of data included is illustrated by the distribution of data points.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and annoyance (Guski et al., 2017).

Table 20 shows the %HA for railway noise exposure. The calculations are based on the regression equation %HA = 38.1596–2.05538 × L_{den} + 0.0285 × L_{den}^2 derived from the systematic review (Guski et al., 2017). The overall evidence was rated moderate quality. Additional statistical analyses of annoyance outcomes supported these findings. When comparing railway noise exposure at 50 dB and 60 dB, the analyses revealed evidence rated moderate quality for an association between railway noise and %HA for an increase per 10 dB (OR = 3.40; 95% CI: 2.05–5.62). Moreover, evidence rated high quality was available for the increase in %HA per 10 dB increase in sound exposure, when data on all sound classes were included (OR = 3.53; 95% CI: 2.83–4.39).

Table 20. The association between exposure to railway noise (L_{den}) and annoyance (%HA)

L_{den} (dB)	%HA
40	1.5
45	3.4
50	6.6
55	11.3
60	17.4
65	25.0
70	33.9
75	44.3
80	56.1

Cognitive impairment

Studies of railway noise on children's reading and oral comprehension were lacking. Nevertheless, other measures of cognition yielded evidence rated very low quality for an association between railway noise and children with poorer performance on standardized assessment tests (Bronzaft, 1981; Bronzaft & McCarthy, 1975). Evidence for the association between railway noise and children having poorer long-term memory (Lercher et al., 2003) was rated very low quality. No studies examined effects on short-term memory.

There was no clear relation between railway noise and attention in children (Lercher et al., 2003), and this evidence was rated very low quality.

Hearing impairment and tinnitus

No studies were found, and therefore no evidence was available on the association between railway noise and hearing impairment and tinnitus.

Sleep disturbance

For railway noise and self-reported sleep outcomes (awakenings from sleep, the process of falling asleep and sleep disturbance), five studies were identified that included a total of 7133 participants (Bodin et al., 2015; Hong et al., 2010; Sato et al., 2004; Schreckenberg, 2013). The studies were cross-sectional and conducted on healthy adults. The health outcome was measured by self-reporting via general health surveys and noise surveys that included questions about sleep in general, and other questions about how noise affects sleep (Table 21).

Table 21. Summary of findings for health effects from exposure to railway noise (L_{night})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)	Quality of evidence
Effects on sleep					
L_{night}	%HSD	OR: 3.06 (95% CI: 2.38–3.93) per 10 dB increase	33 dB	7133 (5)	Moderate (downgraded for study limitations, inconsistency; upgraded for dose-response, magnitude of effect)

The model in the systematic review (Basner & McGuire, 2018) was based on outdoor L_{night} levels between 40 dB and 65 dB only; 40 dB was chosen as the lower limit because of possible inaccuracies in predicting lower noise levels. The range of noise exposure reported in the studies was 27.5–82.5 dB L_{night}. About 2% (95% CI: 0.79–3.48) of the population was characterized as highly sleep-disturbed for L_{night} levels of 40 dB. The %HSD at other, higher levels of railway noise is presented in Table 17. The association between railway noise and the probability of being sleep-disturbed was OR: 3.1 (95% CI: 2.4–3.9) per 10 dB increase in noise. This evidence was rated moderate quality.

Table 22. The association between exposure to railway noise (L_{night}) and sleep disturbance (%HSD)

L_{night} (dB)	%HSD	95% CI
40	2.1	0.79–3.48
45	3.7	1.63–5.71
50	6.3	3.12–9.37
55	10.4	5.61–15.26
60	17.0	9.48–24.37
65	26.3	15.20–37.33

Additional analyses were conducted for sleep quality measures, which provided supporting evidence on the overall relationship between railway noise and sleep. When the noise source was not specified in the question, the relationship between railway noise and self-reported sleep outcomes was still positive but no longer statistically significant, with an OR of 1.27 (95% CI: 0.89–1.81) per 10 dB increase (Bodin et al., 2015; Brink, 2011; Frei et al., 2014). This evidence was rated very low quality.

There was evidence rated moderate quality for an association between railway noise and the probability of additional awakenings, measured with polysomnography, with an OR of 1.35 (95% CI: 1.21–1.52) per 10 dB increase in indoor $L_{AS,max}$ (Elmenhorst et al., 2012). Finally, evidence rated low quality was available for an association between railway noise and sleep outcomes measured as motility in adults (Griefahn et al., 2000; Hong et al., 2006; Lercher et al., 2010; Passchier-Vermeer et al., 2007), and rated very low quality for an association between railway noise and both self-reported and motility-measured sleep disturbance in children (Ising & Ising, 2002; Lercher et al., 2013; Tiesler et al., 2013).

3.2.2.2 Evidence on interventions

This section summarizes the evidence underlying the recommendation on the effectiveness of interventions for railway noise exposure (Tables 23 and 24). The key question posed was: in the

general population exposed to railway noise, are interventions effective in reducing exposure to and/or health outcomes from railway noise? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 23 and 24.

Table 23. PICOS/PECCOS scheme of the effectiveness of interventions for exposure to railway noise

PICO	Description	
Population	**General population**	
Intervention(s)	The interventions can be defined as: (a) a measure that aims to change noise exposure and associated health effects; (b) a measure that aims to change noise exposure, with no particular evaluation of the impact on health; or (c) a measure designed to reduce health effects, but that may not include a reduction in noise exposure.	
Comparison	**No intervention**	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 24. Summary of findings for railway noise interventions by health outcome

Type of intervention	Number of participants (studies)	Effect of intervention	Quality of evidence
Annoyance			
Type A – source interventions (rail grinding)	81 (1)	• Changes in noise level as a consequence of the intervention ranged from around –7dB to –8 dB. • Most studies found changes in annoyance outcomes, persisting more than 12 months after the intervention.	Very low (downgraded for study limitations, inconsistency, imprecision)
Type C – changes in infrastructure (new rail infrastructure)	6000[a] (1)	• A very small increase in total noise exposure was found (most had <+1 dB change; some had +2–4 dB change). • Original noise from road traffic overwhelmed the train noise for effectively all participants.	Very low (downgraded for study limitations, inconsistency, imprecision)
Type E – behaviour change interventions (informing the community about a noise intervention)	411 (1)	• Exposure levels were not reported; emission levels reduced by 1–2 dB. • A reduction in annoyance of the community as a result of the intervention was reported.	Very low (downgraded for study limitations, inconsistency, imprecision)

Note: [a] According to Lam & Au (2008), this records the number of invitation letters sent; the response rate was not reported.

Three studies on railway noise interventions met the criteria to be included in the evidence base. All studies consisted of a pre/post design and reported annoyance outcomes at people's dwellings (Lam & Au, 2008; Moehler et al., 1997; Schreckenberg et al., 2013). They could be categorized as a source intervention, a new/closed infrastructure intervention and a communication intervention. In two of the studies, the changes in exposure after the intervention were only small, although there were significant effects on noise annoyance. The study on source interventions and annoyance revealed that a change of –10 dB in noise exposure led to a significant reduction in annoyance, which persisted over a period of 12 months after the intervention. As confounding was not addressed, and railway noise was not the dominant sound source in the studies, the evidence was rated very low quality.

3.2.2.3 Consideration of additional contextual factors

As the foregoing overview has shown, sufficient evidence about the adverse health effects of long-term exposure to railway noise exists. Based on the quality of the available evidence, the GDG set the strength of recommendation on railway noise at strong. As a second step, it qualitatively assessed contextual factors to explore whether other considerations could have a relevant impact on the recommendation strength. These contextual considerations mainly concerned the balance of harms and benefits, values and preferences, and resource use and implementation.

When assessing the balance of harms and benefits of interventions to reduce exposure to railway noise and minimize noise-associated adverse health effects, the GDG recognized that railway transportation is the second most dominant source of environmental noise in Europe. Based on EEA estimates, the number of people exposed to L_{den} above 55 dB and L_{night} above 50 dB from railway noise is 17 million and 15 million, respectively (Blanes et al., 2017).[15] In light of the burden of disease from environmental noise, and railway noise in particular, the GDG agreed that the health benefits from a reduction of long-term railway noise exposure (especially during night time) to the recommended values would be significant. Considering possible harms related to adaptation of the recommended values, the GDG noted that reliance on railway transportation has increased in recent years in Europe and is expected to increase further, as an important component of the shift towards a greener economy. At a societal level, an environmental and economic benefit from the use of rail transportation is expected: trains contribute to lower environmental pollution and carbon emission than road transportation. Therefore, there is a need to balance the expected health benefits from reduced continuous railway noise exposure and the overall positive effects on the health of the population from increased reliance on the comparatively environmentally friendly mode of railway transportation. Overall, the GDG agreed that even though fewer people are exposed to railway noise than road traffic noise, it remains a major source of localized noise pollution; therefore, considerable benefits are gained by reducing exposure to railway noise.

When exploring values and preferences, the GDG acknowledged that, in general, people value rail as an alternative and more sustainable transportation method than air or road traffic (EEA, 2016a; 2016b; 2017b). Furthermore, the values and preferences in relation to implementation of the recommendation are expected to vary: those of individuals living in the vicinity of railway tracks are expected to differ from those of the rest of the population not exposed to railway noise on a long-term basis. Economic depreciation of housing and fear of adverse health effects were assumed

[15] These are gap-filled figures based on the reported data and including the situation both within and outside cities, as defined by the END.

to be two main aspects influencing the evaluation of affected individuals. This especially applies to areas where new railway tracks are being built, as this results in considerable change for local inhabitants. Moreover, the GDG acknowledged that preferences might also vary in the policy-making domain across different countries as the implementation of the recommendations would mean a renunciation of the so-called "railway bonus".[16]

On resource use and implementation considerations, the GDG pointed out that no comprehensive cost–benefit analysis for the WHO European Region has yet been conducted, so this assessment is based on informed qualitative expert judgement regarding the feasibility of implementing the recommendation for the majority of the population. The systematic review of environmental noise interventions and their associated impact on health shows that various measures to reduce continuous noise from railway traffic exist, although knowledge about their effectiveness remains limited (Brown & van Kamp, 2017). The GDG noted that the resources needed to implement different measures may vary considerably, as they depend on the situation and the type of intervention required. Implementation of some measures is expected to be most feasible during the development of new railway tracks; such as rail pads, bi-bloc sleepers, small noise barriers and – in extreme cases – tunnels, cuttings or earthwork barriers. Other interventions include acoustic rail grinding, noise barriers built alongside the tracks, construction of quieter locomotives and wagons and replacement of brakes on freight trains. The GDG assumed that most of these solutions could be planned as part of regular maintenance or, for instance, by speeding up fleet modernization and track modernization. Even though not broadly implemented, the solutions mentioned above have already been considered or adopted to reduce noise levels from railway noise exposure. Some EU countries (such as Germany), have programmes to replace old brake blocks from freight trains with newer, quieter ones and to ban all freight trains with old brake blocks from 2020 (Umweltbundesamt, 2017). This illustrates that solutions to achieve recommended noise levels can be implemented at a reasonable cost. Overall, the GDG agreed that the benefit of implementation of the recommendation to minimize the risk of adverse health effects due to railway noise for a majority of the population exceeds the (monetary) resources needed.

In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation remains strong.

Additional considerations or uncertainties

The GDG acknowledged that the main body of evidence for the recommendations on railway noise for average exposure was based on annoyance studies, conducted mainly in Asia and Europe. Studies are few for other priority health outcomes, and the evidence was generally rated low/very low quality. There is therefore uncertainty about the effects on health outcomes. Nevertheless, as a precautionary approach, a strong recommendation is made for average exposure to L_{den}, as a broad evidence base exists for health effects from exposure to other sources of transportation noise. However, the GDG stressed the importance of further research into health effects due to long-term exposure to railway noise.

Moreover, situational factors should be taken into account when analysing annoyance from railway noise. In particular, ground-borne vibrations are sometimes an additional exposure variable in railway

[16] The "railway bonus" is a correction factor commonly applied in the noise abatement policy domain in recent decades. It subsidizes the noise rating level for railway transportation by a predefined factor (Schuemer & Schuemer-Kohrs, 1991).

noise situations – especially in the case of annoyance – which may be difficult to separate from noise effects. In the set of 11 studies included in the systematic review on railway noise and annoyance, only two explicitly mentioned ground-borne vibrations as an additional source of annoyance.

Overall, the low-carbon, low-polluting nature of railway transport, especially using electric trains, means that rail is favoured over road and air traffic. However, night-time railway traffic on busy lines, including freight traffic, can be a significant source of sleep disturbance. Thus, guideline values should be set to encourage the development of rail traffic in Europe while at the same time giving adequate protection to residents from sleep disturbance.

3.2.3 Summary of the assessment of the strength of the recommendations

Table 25 provides a comprehensive summary of the different dimensions for the assessment of the strength of the railway noise recommendations.

Table 25. Summary of the assessment of the strength of the recommendation

Factors influencing the strength of recommendation	Decision
Quality of evidence	**Average exposure** (L_{den}) *Health effects* • Evidence for a relevant absolute risk of annoyance at **54 dB** L_{den} was rated **moderate quality.** • Evidence for a relevant RR increase of the incidence of hypertension was rated **low quality**. One study met the inclusion criteria but did not find a significant increase. *Interventions* • Evidence that different types of intervention reduce noise annoyance from railways was rated **very low quality**. **Night-time exposure** (L_{night}) *Health effects* • Evidence for a relevant absolute risk of sleep disturbance related to night noise exposure from railways at **44 dB** L_{night} was rated **moderate quality**. *Interventions* • No evidence was available on the effectiveness of interventions to reduce noise exposure and/or sleep disturbance from railway noise.
Balance of benefits versus harms and burdens	Railway noise is a major source of localized pollution. The health benefits of adapting the recommendation outweigh the harms. Nevertheless, it is important to consider the relevance of railways as an environmentally friendly mode of transportation.
Values and preferences	Quiet areas are valued by the population; especially by those affected by continuous noise exposure. Some variability is expected among those directly affected by railway noise and those not affected.
Resource implications	No comprehensive cost–effectiveness-analysis data are available, although a wide range of interventions exists, indicating that measures are both feasible and economically reasonable.
Decisions on recommendation strength	• **Strong** for guideline value for average noise exposure (L_{den}). • **Strong** for guideline value for night noise exposure (L_{night}). • **Strong** for specific interventions to reduce noise exposure.

3.3 Aircraft noise

Recommendations

For average noise exposure, the GDG **strongly** recommends reducing noise levels produced by aircraft below **45 dB** L_{den}, as aircraft noise above this level is associated with adverse health effects.

For night noise exposure, the GDG **strongly** recommends reducing noise levels produced by aircraft during night time below **40 dB** L_{night}, as aircraft noise above this level is associated with adverse effects on sleep.

To reduce health effects, the GDG strongly recommends that policy-makers implement suitable measures to reduce noise exposure from aircraft in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions the GDG recommends implementing suitable changes in infrastructure.

3.3.1 Rationale for the guideline levels for aircraft noise

The exposure levels were derived in accordance with the prioritization process of critical health outcomes described in section 2.4.3. For each of the outcomes, the exposure level was identified by applying the benchmark, set as relevant risk increase to the corresponding ERF. In the case of exposure to aircraft noise, the process can be summarized as follows (Table 26).

Table 26. Average exposure levels (L_{den}) for priority health outcomes from aircraft noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD A relevant risk increase from exposure to aircraft noise occurs at 52.6 dB L_{den}. The weighted average of the lowest noise levels measured in the studies was 47 dB L_{den} and the corresponding RR in the meta-analysis was 1.09 per 10 dB.	5% increase of RR	Very low quality
Incidence of hypertension One study met the inclusion criteria. There was no significant increase of risk associated with increased noise exposure in this study.	10% increase of RR	Low quality
Prevalence of highly annoyed population There was an absolute risk of 10% at a noise exposure level of 45.4 dB L_{den}.	10% absolute risk	Moderate quality
Permanent hearing impairment	No increase	No studies met the inclusion criteria
Reading skills and oral comprehension in children A relevant risk increase was found at 55 dB L_{den}.	One-month delay	Moderate quality

Based on the evaluation of evidence on relevant risk increases from the prioritized health outcomes, the GDG set a guideline exposure level of 45.4 dB L_{den} for average exposure to aircraft noise, based on the absolute %HA. It was confident that there was an increased risk for annoyance below this exposure level, but probably no relevant risk increase for other priority health outcomes. In accordance with the defined rounding procedure, the value was rounded to 45 dB L_{den}. As the evidence on the adverse effects of aircraft noise was rated moderate quality, the GDG made the recommendation strong.

Next, the GDG considered the evidence for night noise exposure and its effect on sleep disturbance (Table 27).

Table 27. Night-time exposure levels (L_{night}) for priority health outcomes from aircraft noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Sleep disturbance 11% of participants were highly sleep-disturbed at a noise level of 40 dB L_{night}.	3% absolute risk	Moderate quality

Based on the evidence of the adverse effects of aircraft noise on sleep disturbance, the GDG defined a guideline exposure level of 40.0 dB L_{night}. It should be stressed that this recommendation for average aircraft noise levels at night far exceeds the benchmark of 3%HSD defined as relevant risk increase, but since no reliable acoustic data below this level were available, the GDG decided not to lower the guideline exposure level further, as an extrapolation of the exposure–response relationship to achieve these values would have been unavoidable. As the evidence was rated moderate quality, the GDG made the recommendation strong.

The GDG also considered the evidence for the effectiveness of interventions. The results showed that changes in infrastructure (opening and/or closing of runways, or flight path rearrangements) can lead to a reduction in aircraft noise exposure, as well as a decline in cognitive impairment in children and a reduction in annoyance. Moreover, examples of best practice already exist for the management of noise from aircraft, so the GDG made a strong recommendation.

3.3.1.1 Other factors influencing the strength of recommendations

Other factors considered in the context of recommendations on aircraft traffic noise included those related to values and preferences, benefits and harms, resource implications, equity, acceptability and feasibility; moreover, nonpriority health outcomes were considered. Ultimately, the assessment of all these factors did not lead to a change in the strength of the recommendations. Further details are provided in section 3.3.2.3.

3.3.2 Detailed overview of the evidence

The following sections provide a detailed overview of the evidence constituting the basis for setting the recommendations on aircraft noise. It is presented and summarized separately for each of the critical health outcomes, and the GDG's judgement of the quality of evidence is indicated (for a detailed overview of the evidence on important health outcomes, see Annex 4). Research into health outcomes and effectiveness of interventions is addressed consecutively.

A comprehensive summary of all evidence considered for each of the critical and important health outcomes can be found in the eight systematic reviews published in the *International Journal of Environmental Research and Public Health* (see section 2.3.2 and Annex 2).

3.3.2.1 Evidence on health outcomes

The key question posed was: in the general population exposed to aircraft noise, what is the exposure–response relationship between exposure to aircraft noise (reported as various noise indicators) and the proportion of people with a validated measure of health outcome, when adjusted for main confounders? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 28 and 29.

Table 28. PICOS/PECCOS scheme of critical health outcomes for exposure to aircraft noise

PECO	Description	
Population	General population	
Exposure	Exposure to high levels of noise produced by aircraft traffic (average/night time)	
Comparison	Exposure to lower levels of noise produced by aircraft traffic (average/night time)	
Outcome(s)	For average noise exposure:	For night noise exposure:
	1. cardiovascular disease	1. effects on sleep
	2. annoyance	
	3. cognitive impairment	
	4. hearing impairment and tinnitus	
	5. adverse birth outcomes	
	6. quality of life, well-being and mental health	
	7. metabolic outcomes	

Table 29 .Summary of findings for health effects from exposure to aircraft noise (L_{den})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)[a]	Quality of evidence
Cardiovascular disease					
L_{den}	Incidence of IHD	RR = 1.09 (95% CI: 1.04–1.15) per 10 dB increase	47 dB	9 619 082[a] (2)	Very low (downgraded for risk of bias; upgraded for dose-response)
L_{den}	Incidence of hypertension	RR = 1.00 (95% CI: 0.77–1.30) per 10 dB increase	N/A	4712 (1)	Low (downgraded for risk of bias and because only one study available)
Annoyance					
L_{den}	%HA	OR = 4.78 (95% CI: 2.27–10.05) per 10 dB increase	33 dB	17 094 (12)	Moderate (downgraded for inconsistency)
Cognitive impairment					
L_{den}	Reading and oral comprehension	1–2-month delay per 5 dB increase	Around 55 dB	(4)	Moderate (downgraded for inconsistency)
Hearing impairment and tinnitus					
L_{den}	Permanent hearing impairment	–	–	–	–

Note: [a] Results are partly derived from population-based studies.

Cardiovascular disease

IHD

No cohort or case-control studies on the relationship between aircraft noise and IHD are available. However, two ecological studies were identified that provide information on the relationship between aircraft noise and incidence (hospital admission) of IHD (Correia et al., 2013; Hansell et al., 2013). These involved a total of 9 619 082 participants, including 158 977 cases. The RR was 1.09 (95% CI: 1.04–1.15) per 10 dB L_{den} increase, and the lowest exposure range was ≤51 dB and <45 dB. Given the weights in the meta-analysis of these two studies, the weighted average starting level was calculated as 47 dB. The evidence was rated very low quality.

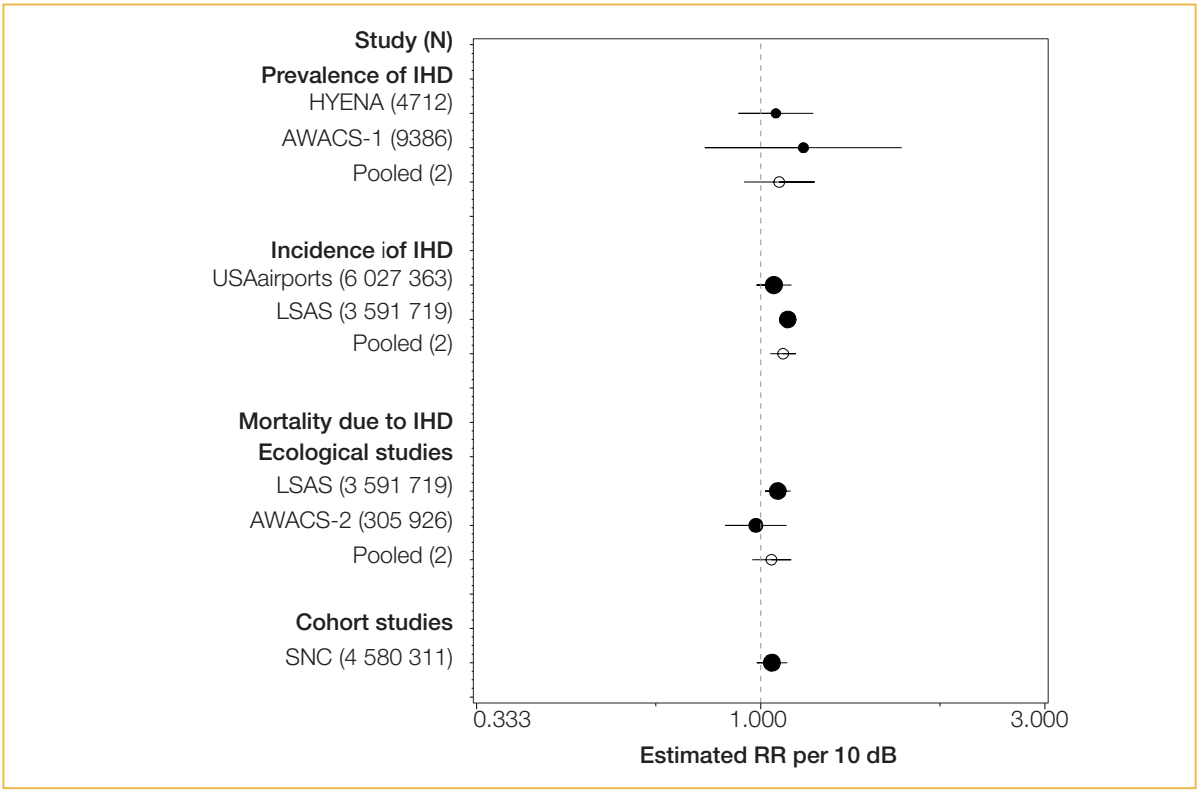
Two cross-sectional studies were identified that assessed the prevalence of IHD in people living in cities located around airports in Europe. The studies involved 14 098 participants, including 340 cases (Babisch et al., 2005b; 2008; 2012a; 2012b; 2013a; Floud et al., 2011; 2013a; 2013b; Jarup et al., 2005; 2008; van Poll et al., 2014). The overall risk was RR = 1.07 (95% CI: 0.94–1.23) per 10 dB L_{den} increase. The evidence was rated low quality.

With regard to the relationship between aircraft noise and mortality due to IHD, one cohort study (Huss et al., 2010) and two ecological studies (Hansell et al., 2013; van Poll et al., 2014) were identified. The cohort study identified 4 580 311 participants, including 15 532 cases, living in Switzerland, and the authors found an RR of 1.04 (95% CI: 0.98–1.11) per 10 dB L_{den} increase in noise. The evidence was rated low quality. The two ecological studies identified a total of 3 897 645

participants, including 26 066 cases in the Netherlands and the United Kingdom. The overall RR was 1.04 (95% CI: 0.97–1.12) per 10 dB L_{den} increase in noise, and the evidence was rated very low quality.

Fig. 10 summarizes the results for the relationship between aircraft noise and different measures of IHD.

Fig. 10. The association between exposure to aircraft noise (L_{den}) and IHD



Notes: The dotted vertical line corresponds to no effect of exposure to aircraft noise. The black circles correspond to the estimated RR per 10 dB and 95% CI. The white circles represent the pooled random effect estimates and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Hypertension

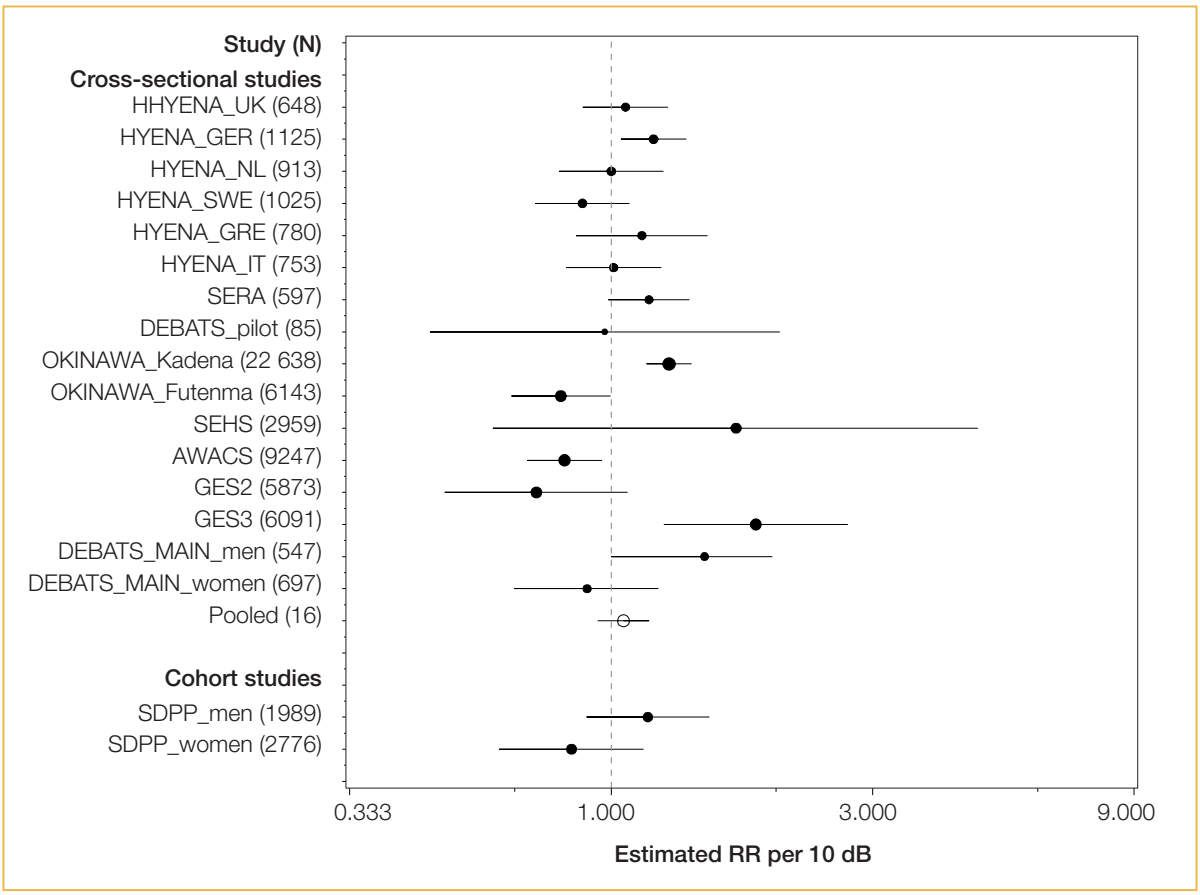
One cohort study was identified that assessed the relationship between aircraft noise and hypertension in people living in Sweden (Bluhm et al., 2004; 2009; Eriksson et al., 2007; 2010). The study involved 4712 participants, including 1346 cases. The authors found a nonstatistically significant effect size of RR = 1.00 (95% CI: 0.77–1.30) per 10 dB L_{den} increase. This evidence was rated moderate quality.

Furthermore, nine cross-sectional studies assessed the prevalence of hypertension in 60 121 participants, including 9487 cases (Ancona et al., 2010; Babisch et al., 2005b; 2008; 2012a; 2012b; 2013a; Breugelmans et al., 2004; Evrard et al., 2013; 2015; Houthuijs & van Wiechen, 2006; Jarup

et al., 2005; 2008; Matsui, 2013; Matsui et al., 2001; 2004; Rosenlund et al., 2001; van Kamp et al., 2006; van Poll et al., 2014). The overall RR was 1.05 (95% CI: 0.95–1.17) per 10 dB L_{den} increase, with inconsistency across studies. The evidence was rated low quality.

Fig. 11 summarizes the results for both prevalence and incidence of hypertension.

Fig. 11. The association between exposure to aircraft noise (L_{den}) and hypertension in cross-sectional and cohort studies



Notes: The dotted vertical line corresponds to no effect of aircraft noise exposure. The black dots correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the pooled summary estimate and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Stroke

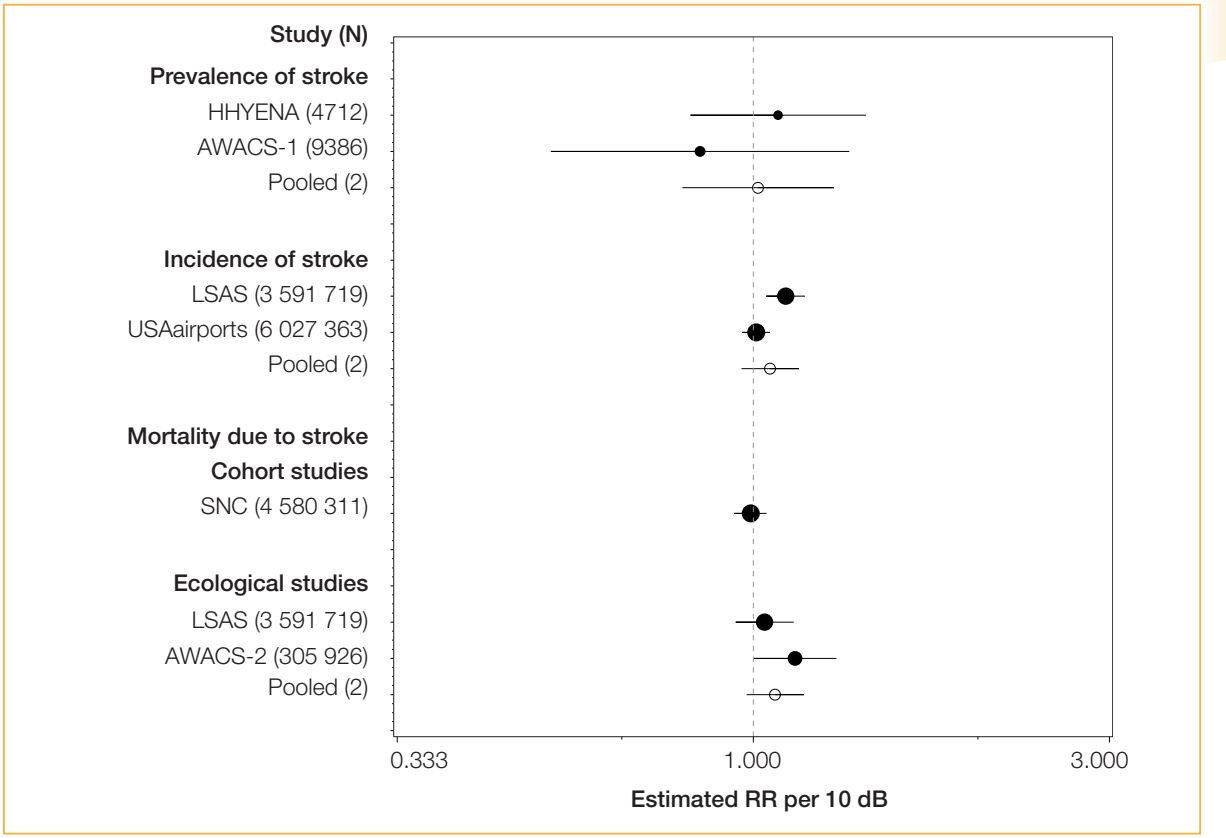
No cohort or case-control studies on the relationship between aircraft noise and incidence (hospital admission) of stroke were available, but two ecological studies were conducted in cities around airports in the United Kingdom and United States of America, involving 9 619 082 participants, including 97 949 cases (Correia et al., 2013; Hansell et al., 2013). An overall RR of 1.05 (95% CI: 0.96–1.15) per 10 dB L_{den} increase in noise was found. The evidence was rated very low quality.

Two cross-sectional studies were identified that assessed the prevalence of stroke in 14 098 participants, including 151 cases (Babisch et al., 2005b; 2008; 2012a; 2012b; 2013a; Floud et al., 2011; 2013a; 2013b; Jarup et al., 2005; 2008; van Poll et al., 2014). The overall RR was 1.02 (95% CI: 0.80–1.28) per 10 dB L_{den} increase. The evidence was rated very low quality.

On the relationship between aircraft noise and mortality due to stroke, one cohort study (Huss et al., 2010) and two ecological studies (Hansell et al., 2013; van Poll et al., 2014) were identified. The cohort study identified 4 580 311 participants, including 25 231 cases, living in Switzerland; the authors found an RR of 0.99 (95% CI: 0.94–1.04) per 10 dB L_{den} increase in noise. The overall evidence was rated moderate quality. The two ecological studies identified a total of 3 897 645 participants, including 12 086 cases, in the Netherlands and the United Kingdom. The overall RR was 1.07 (95% CI: 0.98–1.17) per 10 dB L_{den} increase in noise. The evidence was rated very low quality.

Fig. 12 summarizes the results for the relationship between aircraft noise and different measures of stroke.

Fig. 12. The association between exposure to aircraft noise (L_{den}) and stroke



Notes: The dotted vertical line corresponds to no effect of exposure to aircraft noise. The black dots correspond to the estimated RR per 10 dB and 95% CI. The white circle represents the summary estimate and 95% CI.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

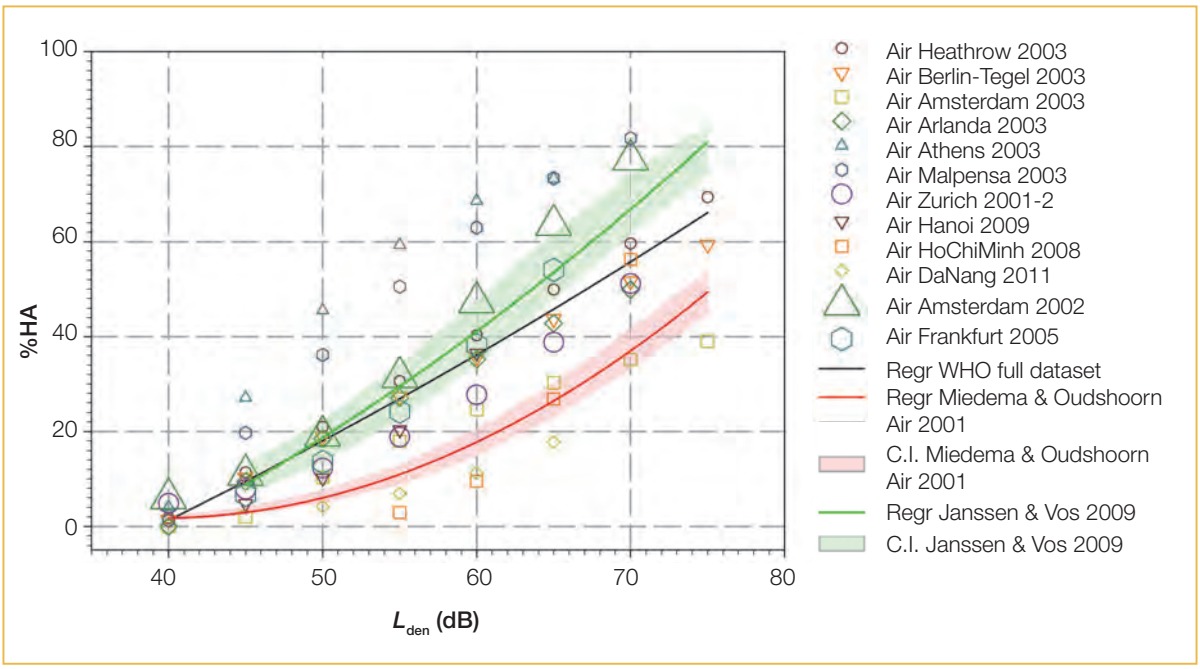
Children's blood pressure

For the association between aircraft noise and blood pressure in children, two cross-sectional studies were conducted in Australia, the Netherlands and the United Kingdom, including a total of 2013 participants (Clark et al., 2012; Morrell et al., 1998; 2000; van Kempen et al., 2006). The change in both systolic and diastolic blood pressure was assessed, in residential and/or educational settings. There was serious inconsistency in the results and therefore no overall estimate of the effect was developed. The evidence was rated very low quality.

Annoyance

A vast amount of evidence proves the association between aircraft noise and annoyance. In total, 12 aircraft noise studies were identified that were used to model ERFs of the relationship between L_{den} and %HA (Babisch et al., 2009; Bartels et al., 2013; Breugelmans et al., 2004; Brink et al., 2008; Gelderblom et al., 2014; Nguyen et al., 2011; 2012a; 2012b; Sato & Yano, 2011; Schreckenberg & Meis, 2007). These include data from 17 094 study participants. The estimated data points of each of the studies are plotted in Fig. 13, alongside an aggregated ERF including the data from all the individual studies (see the black line for "Regr WHO full dataset"). The lowest category of noise exposure considered in any of the studies, and hence included in the systematic review, is 40 dB, corresponding to approximately 1.2%HA. The benchmark level of 10%HA is reached at approximately 45 dB L_{den} (see Fig. 13).

Fig. 13. Scatterplot and quadratic regression of the relationship between aircraft noise (L_{den}) and annoyance (%HA)



Notes: ERFs by Miedema & Oudshoorn (2001, red), and Janssen & Vos (2009, green) are added for comparison. There is no indication of 95% CIs of the WHO dataset curve, as a weighting based on the total number of participants for each 5 dB L_{den} sound class could not be calculated; weighting based on all participants of all sound classes proved to be unsuitable. The range of data included is illustrated by the distribution of data points. For further details on the studies included in the figure please refer to the systematic review on environmental noise and annoyance (Guski et al., 2017).

Table 30 shows the %HA in relation to exposure to aircraft traffic noise. It is based on the regression equation %HA = –50.9693 + 1.0168 × L_{den} + 0.0072 × L_{den}^2 derived from the systematic review (Guski et al., 2017). As the majority of the studies are cross-sectional, the evidence was rated moderate quality.

The general quality of the evidence was further substantiated with the help of additional statistical analyses that apply classical health outcome measures to estimate noise annoyance. When comparing aircraft noise exposure at 50 dB and 60 dB, the analyses revealed evidence rated high quality for an association between aircraft noise and %HA for an increase per 10 dB (OR = 3.40; 95% CI: 2.42–4.80). Moreover, there was evidence rated high quality for the increase of %HA per 10 dB increase in sound exposure, when data on all sound classes were included (OR = 4.78; 95% CI: 2.27–10.05).

Table 30. The association between exposure to aircraft noise (L_{den}) and annoyance (%HA)

L_{den} (dB)	%HA
40	1.2
45	9.4
50	17.9
55	26.7
60	36.0
65	45.5
70	55.5

Cognitive impairment

Evidence rated moderate quality was available for an association between aircraft noise and reading and oral comprehension, assessed by standardized tests. This is based on a narrative review of 14 studies that examined aircraft noise exposure effects on reading and oral comprehension (Clark et al., 2006; 2012; 2013; Evans & Maxwell, 1997; Haines et al., 2001a; 2001b; 2001c; Hygge et al., 2002; Klatte et al., 2014; Matsui et al., 2004; Seabi et al., 2012; 2013; Stansfeld et al., 2005; 2010). Of these studies, 10 were cross-sectional, and only four had a longitudinal and/or intervention design (Clark et al., 2013; Haines et al., 2001c; Hygge et al., 2002; Seabi et al., 2013). Most of the studies (10 of 14) demonstrated a statistically significant association or at least demonstrated a trend between higher aircraft noise exposure and poorer reading comprehension.

This relationship is supported by evidence on other health outcome measures related to cognition. Evidence rated moderate quality was available for an association between aircraft noise and children with poorer performance on standardized assessment tests (Eagan et al., 2004; FICAN, 2007; Green et al., 1982; Sharp et al., 2014). There was also evidence rated moderate quality on aircraft noise being associated with children having poorer long-term memory (Haines et al., 2001b). No studies examined the effects on short-term memory.

However, there was no substantial effect (evidence rated low quality) of aircraft noise on children's attention (Haines et al., 2001a; Hygge et al., 2002; Matsui et al., 2004; Stansfeld et al., 2005; 2010), or on executive function (working memory) (evidence rated very low quality), with studies consistently suggesting no association for aircraft noise (Clark et al., 2012; Haines et al., 2001a;

Haines et al., 2001b; Klatte et al., 2014; Matheson et al., 2010; Stansfeld et al., 2005; 2010; van Kempen et al., 2010; 2012).

Hearing impairment and tinnitus

No studies were found, and therefore no evidence was available on the association between aircraft noise and hearing impairment and tinnitus.

Sleep disturbance

For aircraft noise and self-reported sleep outcomes, six studies were identified that included a total of 6371 participants (Nguyen et al., 2009; 2010; 2011; 2012c; 2015; Schreckenberg et al., 2009; Yano et al., 2015). The majority of studies were cross-sectional by design and were conducted in otherwise healthy adults. The model was based on outdoor L_{night} levels between 40 dB and 65 dB only; the lower limit of 40 dB was set because of inaccuracies in predicting lower noise levels (Table 31).

Table 31. Summary of findings for health effects from exposure to aircraft noise (L_{night})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)	Quality of evidence
Effects on sleep					
L_{night}	%HSD	OR: 1.94 (95% CI: 1.61–2.33) per 10 dB increase	35 dB	6371 (6)	Moderate (downgraded for study limitations, inconsistency; upgraded for dose-response, magnitude of effect)

The range of noise exposure reported in studies was 37.5–62.5 dB. Over 11% (95% CI: 4.72–17.81) of the population was characterized as highly sleep-disturbed at L_{night} levels of 40 dB. The %HSD at other, higher levels of aircraft noise is presented in Table 27. The table is derived from the regression model in the systematic review specified as $\%HSD = 16.79–0.9293 \times L_{night} + 0.0198 \times L_{night}^2$. The health outcome was measured in the studies by self-reporting, focusing on questions asking about awakenings from sleep, the process of falling asleep and/or sleep disturbance, where the question referred specifically to how noise affects sleep. The same relationship between aircraft noise and reporting being sleep-disturbed (all questions combined) can also be expressed as an OR of 1.94 (95% CI: 1.61–2.33) per 10 dB increase in noise. This evidence was rated moderate quality.

Table 32. The association between exposure to aircraft noise (L_{night}) and sleep disturbance (%HSD)

L_{night}	%HSD	95% CI
40	11.3	4.72–17.81
45	15.0	6.95–23.08
50	19.7	9.87–29.60
55	25.5	13.57–37.41
60	32.3	18.15–46.36
65	40.0	23.65–56.05

Additional analyses were included in the systematic review and provided supporting evidence on the association between aircraft noise and sleep. When the noise source was not specified in the survey question, the relationship between aircraft noise and self-reported sleep outcomes was still positive, although no longer statistically significant (OR: 1.17 (95% CI: 0.54–2.53) per 10 dB increase) (Brink, 2011). This evidence was rated very low quality.

Further, there was evidence rated moderate quality for an association between aircraft noise and polysomnography-measured outcomes (probability of additional awakenings), with an OR of 1.35 (95% CI: 1.22–1.50) per 10 dB increase in indoor $L_{AS,max}$ (Basner et al., 2006). Evidence rated low quality was also available for an association between aircraft noise and motility-measured sleep outcomes in adults (Passchier-Vermeer et al., 2002).

3.3.2.2 Evidence on interventions

The following section summarizes the evidence underlying the recommendation on the effectiveness of interventions for aircraft noise exposure. The key question posed was: in the general population exposed to aircraft noise, are interventions effective in reducing exposure to and/or health outcomes from aircraft noise? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 33 and 34.

Seven studies examining different types of interventions on aircraft noise met the inclusion criteria to become part of the evidence base of the systematic review. Six of these investigated infrastructure interventions (Breugelmans et al., 2007; Brink et al., 2008; Fidell et al., 2002; Hygge et al., 2002), and one assessed a path intervention (Asensio et al., 2014). The majority of studies focused on annoyance as a health outcome, but two also included effects on sleep and one investigated the effects of path interventions on cognitive development in children.

Table 33. PICOS/PECCOS scheme of the effectiveness of interventions for exposure to aircraft noise

PICO	Description	
Population	**General population**	
Intervention(s)	The interventions can be defined as: (a) a measure that aims to change noise exposure and associated health effects; (b) a measure that aims to change noise exposure, with no particular evaluation of the impact on health; or (c) a measure designed to reduce health effects, but that may not include a reduction in noise exposure.	
Comparison	**No intervention**	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 34. Summary of findings for aircraft noise interventions by health outcome

Type of intervention	Number of participants (studies)	Effect of intervention	Quality of evidence
Annoyance			
Type B – path interventions (retrofitting dwellings close to airports with acoustic insulation)	689 (1)	• Change in noise levels was not reported. • The study found a drop in annoyance following the insulation intervention	Very low (downgraded for study limitations, inconsistency, precision)
Type C – changes in infrastructure (opening and/or closing of runways, or flight path rearrangements)	2101 (3)	• There was a wide range of changes in noise levels (from –12 dB to +13.7 dB; most between ±1 dB and 2 dB; different noise indicators used). • All studies found changes in annoyance outcomes as a result of the intervention.	Moderate (downgraded for study limitations; upgraded for dose-response)
Sleep disturbance			
Type C – changes in infrastructure (flight path changes)	1707 (2)	• Changes in noise levels were mostly between ±1 dB and 2 dB. • Both studies found changes in sleep disturbance outcomes as a result of the intervention.	Low (downgraded for study limitations)
Cognitive development of children			
Type C – changes in infrastructure (opening and/or closing of runways, or flight path rearrangements)	326 (1)	• Changes in noise levels of +9 dB at the new airport and of –14 dB at the old airport were reported. • The study found various cognitive effects on children (for both the reduction and the increase in exposure). Effects disappeared when the old airport closed, emerging after the new airport opened.	Moderate (downgraded for inconsistency)

The largest body of research concentrated on the opening and closing of runways, leading to subsequent changes in flight paths (Breugelmans et al., 2007; Brink et al., 2008; Fidell et al., 2002). It showed that changes in noise exposure as a consequence of rearrangement of flight paths, step changes or increase or removal of over-flights resulted in statistically significant changes of the annoyance ratings of residents living in the vicinity of airports. The studies investigated both increases and reductions in exposure. Moreover, all the studies provided evidence that the change in response to noise exposure was an excess response to the intervention. As all the studies either adjusted for confounding or ruled out confounding by design, and the risk of bias was high in two studies but low in one, the evidence was rated moderate quality.

Two of these studies also investigated the effects of interventions on sleep disturbance. The results indicated that the percentage of sleep disturbance changed in association with the change in noise exposure caused by flight path adaptations (Breugelmans et al., 2007; Fidell et al., 2002). Both studies adjusted for confounding, but the risk of bias was assessed as high. Thus, the evidence was rated low quality.

One study examined the impact of rearranging flight paths on the cognitive effects on children (Hygge et al., 2002), showing various effects (for both the reduction and the increase in exposure).

The study ruled out confounding by study design and the risk of bias was assessed as low. The evidence was therefore rated moderate quality.

Alongside infrastructure interventions, a Spanish study presented evidence on path interventions (Asensio et al., 2014), showing a drop in annoyance following an insulation intervention. The study did not control for confounding and the risk of bias was assessed as high. The evidence was therefore rated very low quality.

3.3.2.3 Consideration of additional contextual factors

As the foregoing overview has shown, substantial evidence about the adverse health effects of long-term exposure to aircraft noise exists. Based on the quality of the available evidence, the GDG set the strength of the recommendation of aircraft noise at strong. As a second step, it qualitatively assessed contextual factors to explore whether other considerations could have a relevant impact on the recommendation strength. These considerations mainly concerned the balance of harms and benefits, values and preferences, equity, and resource use and implementation.

When assessing the balance of harms and benefits from implementing the recommendations on aircraft exposure, the GDG acknowledged that the number of people affected was lower than for road traffic or railway noise, since aircraft noise only affects the areas surrounding airports and under flight paths. Data from the EEA show that the estimated number of people in Europe exposed to L_{den} levels above 55 dB and L_{night} levels above 50 dB is 3 million and 1.2 million, respectively (Blanes et al., 2017).[17] Nevertheless, it remains a major source of localized noise pollution and has been predicted to increase (EASA et al., 2016). Furthermore, aircraft noise is regarded as more annoying than the other sources of transportation noise (Schreckenberg et al., 2015; Miedema & Oudshoorn, 2001); it is therefore associated with a significant burden on public health, and the GDG expects substantial health benefits for the population to evolve from implementing the recommendations to reduce exposure to aircraft traffic noise. Furthermore, the GDG noted that, depending on the intervention measure implemented (such as a night flight ban), additional health benefits could evolve, resulting from a simultaneous reduction in air pollution (EC, 2016a). The GDG also acknowledged that intervention measures like night flight bans might also reduce carbon emission, thereby positively influencing the shift towards a greener and more sustainable economy. Possible harms in relation to the applied noise abatement strategy, on the other hand, could include effects on the transportation of goods, as well as individual mobility of the population. Both could have impacts on local, national and international economies. Overall, the GDG estimated that the benefits gained from minimizing adverse health effects due to aircraft noise exposure outweigh the possible (economic) harms.

Considering values and preferences, the GDG noted that negative attitudes towards aircraft noise are especially prevalent in affected individuals who can see and hear aircraft from their house, or who fear that living in proximity of airports will have an impact on their health (Schreckenberg et al., 2015) or property value (economic loss) (Bristow et al., 2014). A lack of trust in the airport and government authorities can enhance these negative attitudes towards airports and aircraft noise (Borsky, 1979; Schreckenberg, 2017). Furthermore, the GDG recognized that values and preferences of individuals living in the vicinity of different airports may vary, as the infrastructural characteristics

[17] These are gap-filled figures based on the reported data and including the situation both within and outside cities, as defined by the END.

of airports have a significant effect on the evaluation of residents. Airports with a stable number of aircraft movements in the near past and no intention to change the number in the future can give rise to a different evaluation of values and preferences than airports with relatively sustained increases in the number of aircraft movements. This can result from the fact that opening new runways or increasing the number of flights usually means considerable change in the environment for inhabitants of the affected area. It has been postulated that the change of exposure itself may be an annoying factor, and this may explain why aircraft noise annoyance is generally higher than that for other sources of transportation noise at a comparable noise level (Brown & van Kamp, 2009). The GDG acknowledged that, in general, air travel is an important means of transportation relevant for businesses, the public and the economy. In Europe, aviation is projected to be the fastest-growing sector from passenger transport demand, by 2050 (EEA, 2016a). The general population tends to value the convenience of travel by air. Moreover, the GDG pointed out that exposure to aircraft noise is not equally distributed throughout society. The preferences of people living in the vicinity of airports are expected to differ from those of the general population that does not experience the same noise burden. This might facilitate variance in the values and preference of the population, as those benefiting from the services and revenues generated by an airport may regard noise reduction measures as an additional, unnecessary extra cost, while those living around an airport and affected by aircraft noise may be in favour of noise reductions, since this concerns their health and well-being. Despite these differences, however, the GDG was confident that a majority of the population would value the minimization of adverse health effects and therefor welcome the implementation of the recommendations.

Regarding the dimension of equity, the GDG highlighted that the risk of exposure to aircraft noise is not equally distributed throughout society. Members of society with a lower socioeconomic status and other disadvantaged groups often live in more polluted and louder areas, including in close proximity to airports (EC, 2016a). In addition to the increased risk of exposure to environmental noise, socioeconomic factors are also associated with increased vulnerability and poorer coping capacities (Karpati et al., 2002).

With resource use and implementation considerations, the GDG acknowledged that the economic evaluation of the health impacts of environmental noise is most elaborate and extensive for aircraft noise (Berry & Sanchez, 2014). Nevertheless, no comprehensive cost–benefit analysis for the WHO European Region yet exists, so this assessment is based on informed qualitative expert judgement regarding the feasibility of implementing the recommendation for the majority of the population. The systematic review of interventions and their associated impact on environmental noise and health shows that various measures to reduce continuous noise from aircraft exist. Moreover, the quality of the evidence was judged to be moderate (Brown & van Kamp, 2017). The GDG noted that the resources needed to implement different intervention measures may vary considerably, because they depend on the situation and the type of intervention required. The distribution of costs also differs from that for other modes of transportation, since exposure to aircraft noise is localized in a more agglomerated way, and overall the population affected is smaller compared to other modes of transportation. The GDG furthermore recognized that multiple cost-effective intervention strategies exist (EC, 2016b). Prohibition or discouragement strategies against citizens moving to the direct proximity of airports, for example, can be implemented in the context of urban planning. Likewise, diverting flight paths above less-populated areas can lead to a reduction in exposure. In principle,

such intervention measures do not involve any direct costs, although safety concerns may limit the feasibility of these strategies. Passive noise abatement measures like the installation of soundproof windows at the dwelling were also regarded as feasible and economically reasonable by the GDG, as these are implemented at several airports already. In relation to active abatement measures, the GDG acknowledged the "balanced approach" elaborated by International Civil Aviation Organization, which states that noise reduction should take place first at the source. As indicated by the Clean Sky Programme, this could, for example, entail shifting towards the introduction of new aircraft. This broad European research programme estimates that, depending on type, the shift to newly produced aircraft could lead to a reduction of approximately 55–79% of the area affected by aircraft noise, and consequently the population exposed. As this solution has been put forward by the aviation sector, it is considered feasible. Overall, this indicates that solutions to achieve recommended noise levels can be implemented and at reasonable costs. The GDG agreed that implementation of the recommendation to minimize the risk of adverse health effects due to aircraft noise for a majority of the population would require a reasonable amount of (monetary) resources. It noted, however, that the feasibility of implementing the measures could be hindered by the fact that costs and benefits are not equally distributed. In most cases, the health benefits citizens gain from interventions that reduce aircraft exposure are borne by private companies and public authorities.

In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation remains strong.

Other nonpriority adverse health outcomes

Although not a priority health outcome and coming from a single study, the GDG noted the evidence rated moderate quality for the statistically significant association between aircraft noise and the change in waist circumference (Eriksson et al., 2014). The range of noise levels in the study identified was 48 to 65 dB L_{den}, and therefore the recommendation would also be protective enough for this health outcome.

In the context of aircraft noise, when considering the impacts of exposure on cognitive impairment in children, these guideline recommendations also apply particularly to the school setting. Noise exposure at primary school and at home is often highly correlated; however, the evidence base considered comes mainly from studies designed around sampling at school and not residences.

Additional considerations or uncertainties

There is additional uncertainty when characterizing exposure using the acoustical description of aircraft noise by means of L_{den} or L_{night}. Use of these average noise indicators may limit the ability to observe associations between exposure to aircraft noise and some health outcomes (such as awakening reactions); as such, noise indicators based on the number of events (such as the frequency distribution of $L_{A,max}$) may be better suited. However, such indicators are not widely used.

The GDG acknowledged that the guideline recommendation for L_{night} may not be fully protective of health, as it implies that around 11% (95% CI: 4.72–17.81) of the population may be characterized as highly sleep-disturbed at the recommended L_{night} level. This is higher than the 3% absolute risk considered for setting the guideline level. However, the high calculation uncertainty in predicting noise levels lower than 40 dB prevented the GDG from recommending a lower level. Furthermore,

lower levels would probably require a ban on night or early morning flights altogether, which is not feasible in many situations, given that the general population tends to value the convenience of air travel.

3.3.3 Summary of the assessment of the strength of recommendation

Table 35 provides a comprehensive summary of the different dimensions for the assessment of the strength of the aircraft noise recommendations.

Table 35. Summary of the assessment of the strength of the recommendation

Factors influencing the strength of recommendation	Decision
Quality of evidence	**Average exposure (L_{den})** *Health effects* • Evidence for a relevant RR increase of the incidence of IHD at **52 dB** L_{den} was rated **very low quality.** • Evidence for a relevant RR increase of the incidence of hypertension was rated **low quality**. • Evidence for a relevant absolute risk of annoyance at **45 dB** L_{den} was rated **moderate quality**. • Evidence for a relevant RR increase of impaired reading and oral comprehension at **55 dB** L_{den} was rated **moderate quality**. *Interventions* • Evidence on effectiveness of interventions to reduce noise exposure and/or health outcomes from aircraft noise was of varying quality. **Night-time exposure (L_{night})** *Health effects* • Evidence for a relevant absolute risk of sleep disturbance related to night noise exposure from aircraft at **40 dB** L_{night} was rated **moderate quality**. *Interventions* • Evidence on effectiveness of changes in infrastructure (flight path changes) to reduce sleep disturbance from aircraft noise was rated **low quality**.
Balance of benefits versus harms and burdens	Aircraft noise is a major source of localized noise pollution. The health benefits of adapting the recommendations are expected to outweigh the harms.
Values and preferences	Quiet areas are valued by the population, especially by those affected by continuous aircraft noise exposure. Some variability is expected among those directly affected by aircraft noise and those not affected.
Equity	Risk of exposure to aircraft noise is not equally distributed.
Resource implications	No comprehensive cost–effectiveness analysis data are available; nevertheless, a wide variety of interventions exist (some at very low cost), indicating that measures are both feasible and economically reasonable.
Decisions on recommendation strength	• **Strong** for guideline value for average noise exposure (L_{den}) • **Strong** for guideline value for night noise exposure (L_{night}) • **Strong** for specific interventions to reduce noise exposure

3.4 Wind turbine noise

Recommendations

For average noise exposure, the GDG **conditionally** recommends reducing noise levels produced by wind turbines below **45 dB** L_{den}, as wind turbine noise above this level is associated with adverse health effects.

To reduce health effects, the GDG **conditionally** recommends that policy-makers implement suitable measures to reduce noise exposure from wind turbines in the population exposed to levels above the guideline values for average noise exposure. No evidence is available, however, to facilitate the recommendation of one particular type of intervention over another.

3.4.1 Rationale for the guideline levels for wind turbine noise

The exposure levels were derived in accordance with the prioritizing process of critical health outcomes described in section 2.4.3. For each of the outcomes, the exposure level was identified by applying the benchmark, set as relevant risk increase to the corresponding ERF. In the case of exposure to wind turbine noise, the process can be summarized as follows (Table 36).

Table 36. Average exposure levels (L_{den}) for priority health outcomes from wind turbine noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD Incidence of IHD could not be used to assess the exposure level.	5% increase of RR	No studies were available
Incidence of hypertension Incidence of hypertension could not be used to assess the exposure level.	10% increase of RR	No studies were available
Prevalence of highly annoyed population Four studies were available. An exposure–response curve of the four studies revealed an absolute risk of 10%HA (outdoors) at a noise exposure level of 45 dB L_{den}.	10% absolute risk	Low quality
Permanent hearing impairment	No increase	No studies were available
Reading skills and oral comprehension in children	One-month delay	No studies were available

In accordance with the prioritization process, the GDG set a guideline exposure level of 45.0 dB L_{den} for average exposure, based on the relevant increase of the absolute %HA. The GDG stressed that there might be an increased risk for annoyance below this noise exposure level, but it could not state whether there was an increased risk for the other health outcomes below this level owing to a lack of evidence. As the evidence on the adverse effects of wind turbine noise was rated low quality, the GDG made the recommendation conditional.

Next, the GDG considered the evidence for night noise exposure to wind turbine noise and its effect on sleep disturbance (Table 37).

Table 37. Night-time exposure levels (L_{night}) for priority health outcomes from wind turbine noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Sleep disturbance Six studies were available; they did not reveal consistent results about effects of wind turbine noise on sleep.	3% absolute risk	Low quality

Based on the low quantity and heterogeneous nature of the evidence, the GDG was not able to formulate a recommendation addressing sleep disturbance due to wind turbine noise at night time.

The GDG also looked for evidence about the effectiveness of interventions for wind turbine noise exposure. Owing to a lack of research, however, no studies were available on existing interventions and associated costs to reduce wind turbine noise.

Based on this assessment, the GDG therefore provided a conditional recommendation for average noise exposure (L_{den}) to wind turbines and a conditional recommendation for the implementation of suitable measures to reduce noise exposure. No recommendation about a preferred type of intervention could be formulated; nor could a recommendation be made for an exposure level for night noise exposure (L_{night}), as studies were not consistent and in general did not provide evidence for an effect on sleep.

3.4.1.1 Other factors influencing the strength of recommendation

Other factors considered in the context of recommendations on wind turbine noise included those related to values and preferences, benefits and harms, resource implications, equity, acceptability and feasibility. Ultimately, the assessment of all these factors did not lead to a change in the strength of recommendation, although it informed the development of a conditional recommendation on the intervention measures. Further details are provided in section 3.4.2.3.

3.4.2 Detailed overview of the evidence

The following sections provide a detailed overview of the evidence constituting the basis for setting the recommendations on wind turbine noise. It is presented and summarized separately for each of the critical health outcomes, and the GDG's judgement of the quality of evidence is indicated (for a detailed overview of the evidence on important health outcomes, see Annex 4). Research into health outcomes and effectiveness of intervention is addressed consecutively.

A comprehensive summary of all evidence considered for each of the critical and important health outcomes can be found in the eight systematic reviews published in the *International Journal of Environmental Research and Public Health* (see section 2.3.2 and Annex 2).

It should be noted that, due to the time stamp of the systematic reviews, some more recent studies were not included in the analysis. This relates in particular to several findings of the Wind Turbine Noise and Health Study conducted by Health Canada (Michaud, 2015). Further, some studies were omitted, as they did not meet the inclusion criteria, including, for instance, studies using distance to the wind turbine instead of noise exposure to investigate health effects. The justification for including and excluding studies is given in the systematic reviews (Basner & McGuire, 2018; Brown et al.,

2017; Clark & Paunovic, 2018; in press; Guski et al., 2017; Niewenhuijsen et al.,2017; Śliwińska-Kowalska & Zaborowski, 2017; van Kempen et al., 2018; see Annex 2 for further details).

3.4.2.1 Evidence on health outcomes

The key question posed was: in the general population exposed to wind turbine noise, what is the exposure–response relationship between exposure to wind turbine noise (reported as various noise indicators) and the proportion of people with a validated measure of health outcome, when adjusted for main confounders? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 38 and 39.

Table 38. PICOS/PECCOS scheme of critical health outcomes for exposure to wind turbine noise

PECO	Description	
Population	General population	
Exposure	Exposure to high levels of noise produced by wind turbines (average/night time)	
Comparison	Exposure to lower levels of noise produced by wind turbines (average/night time)	
Outcome(s)	For average noise exposure:	For night noise exposure:
	1. cardiovascular disease	1. effects on sleep
	2. annoyance	
	3. cognitive impairment	
	4. hearing impairment and tinnitus	
	5. adverse birth outcomes	
	6. quality of life, well-being and mental health	
	7. metabolic outcomes	

Table 39. Summary of findings for health effects from exposure to wind turbine noise (L_{den})

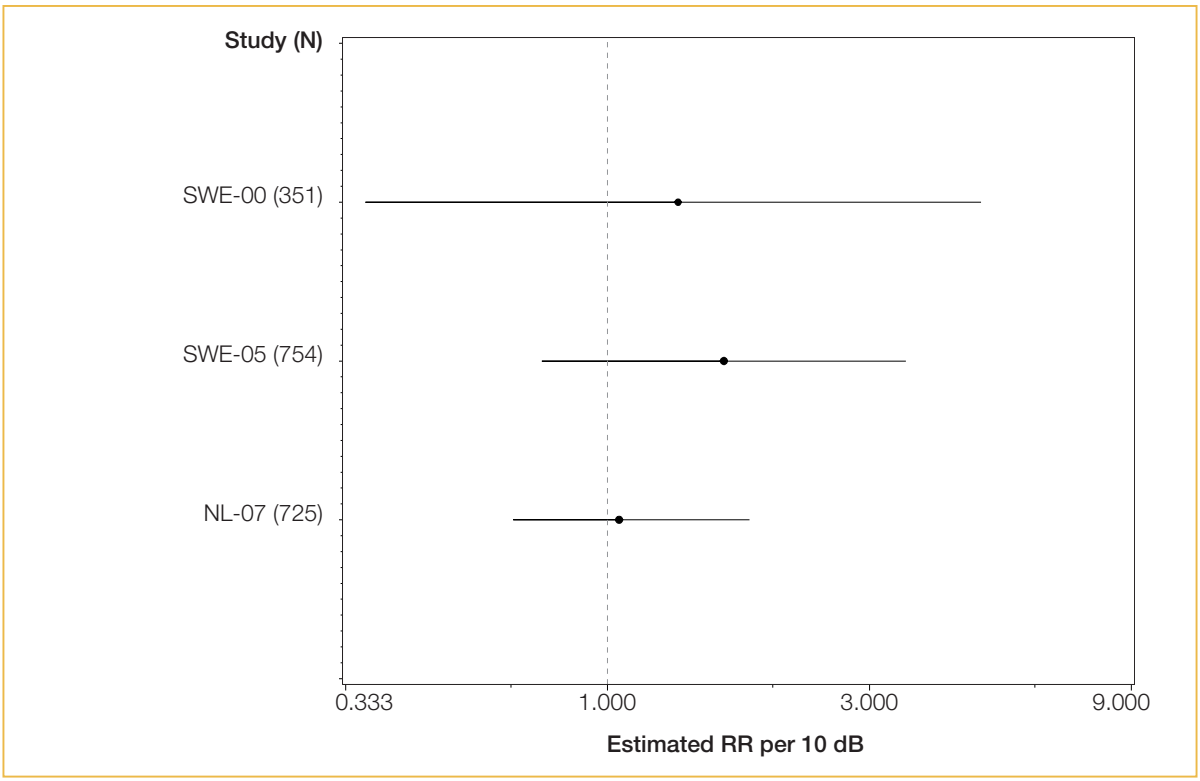
Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies	Number of participants (studies)	Quality of evidence
Cardiovascular disease					
L_{den}	Incidence of IHD	–	–	–	–
L_{den}	Incidence of hypertension	–	–	–	–
Annoyance					
L_{den}	%HA	Not able to pool because of heterogeneity	30 dB	2481 (4)	Low (downgraded for inconsistency and imprecision)
Cognitive impairment					
L_{den}	Reading and oral comprehension	–	–	–	–
Hearing impairment and tinnitus					
L_{den}	Permanent hearing impairment	–	–	–	–

Cardiovascular disease

For the relationship between wind turbine noise and prevalence of hypertension, three cross-sectional studies were identified, with a total of 1830 participants (van den Berg et al., 2008; Pedersen, 2011; Pedersen & Larsman, 2008; Pedersen & Persson Waye, 2004; 2007). The number of cases was not reported. All studies found a positive association between exposure to wind turbine noise and the prevalence of hypertension, but none was statistically significant. The lowest levels in studies were either <30 or <32.5 L_{den}. No meta-analysis was performed, since too many parameters were unknown and/or unclear. Due to very serious risk of bias and imprecision in the results, this evidence was rated very low quality (see Fig. 14).

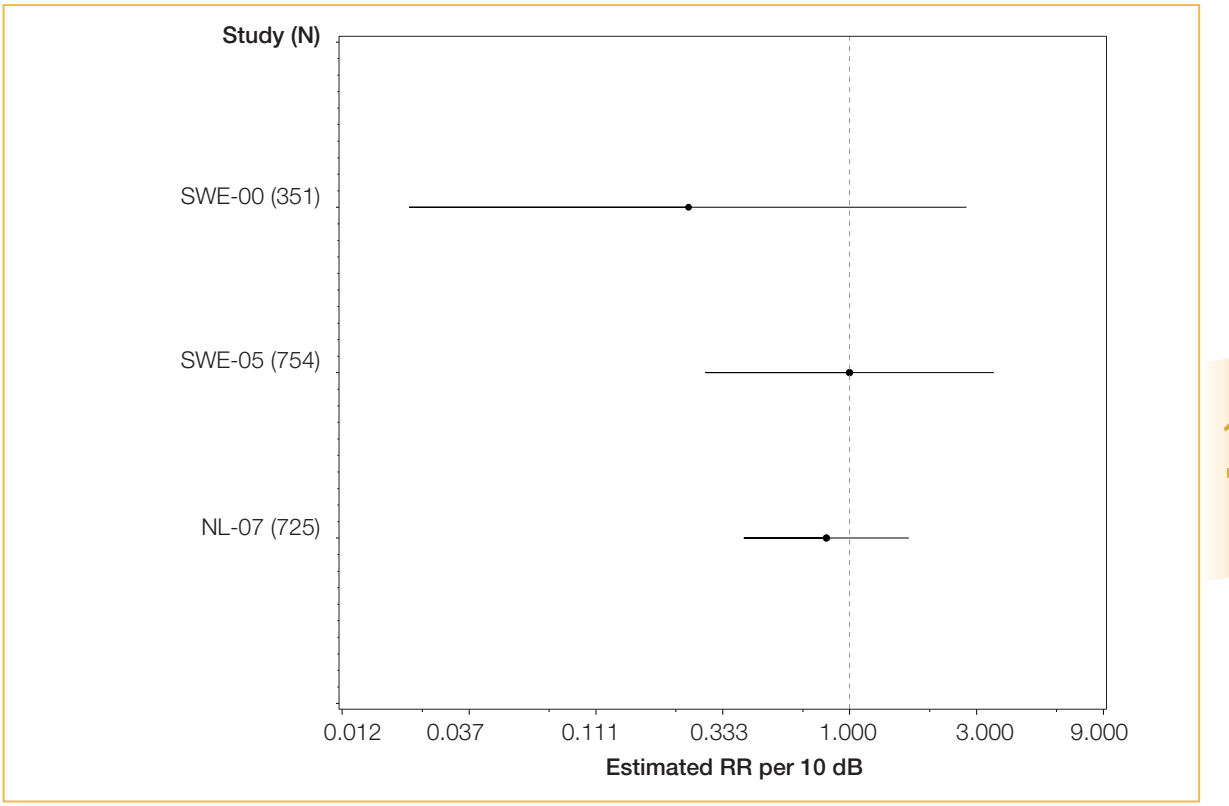
The same studies also looked at exposure to wind turbine noise and self-reported cardiovascular disease, but none found an association. No evidence was available for other measures of cardiovascular disease. As a result, only evidence rated very low quality was available for no considerable effect of audible noise (greater than 20 Hz) from wind turbines or wind farms on self-reported cardiovascular disease (see Fig. 15).

Fig. 14. The association between exposure to wind turbine noise (sound pressure level in dB) and hypertension



Notes: The dotted vertical line corresponds to no effect of exposure to wind turbine noise. The black dots correspond to the estimated RR per 10 dB and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Fig. 15. The association between exposure to wind turbine noise (sound pressure level) and self-reported cardiovascular disease



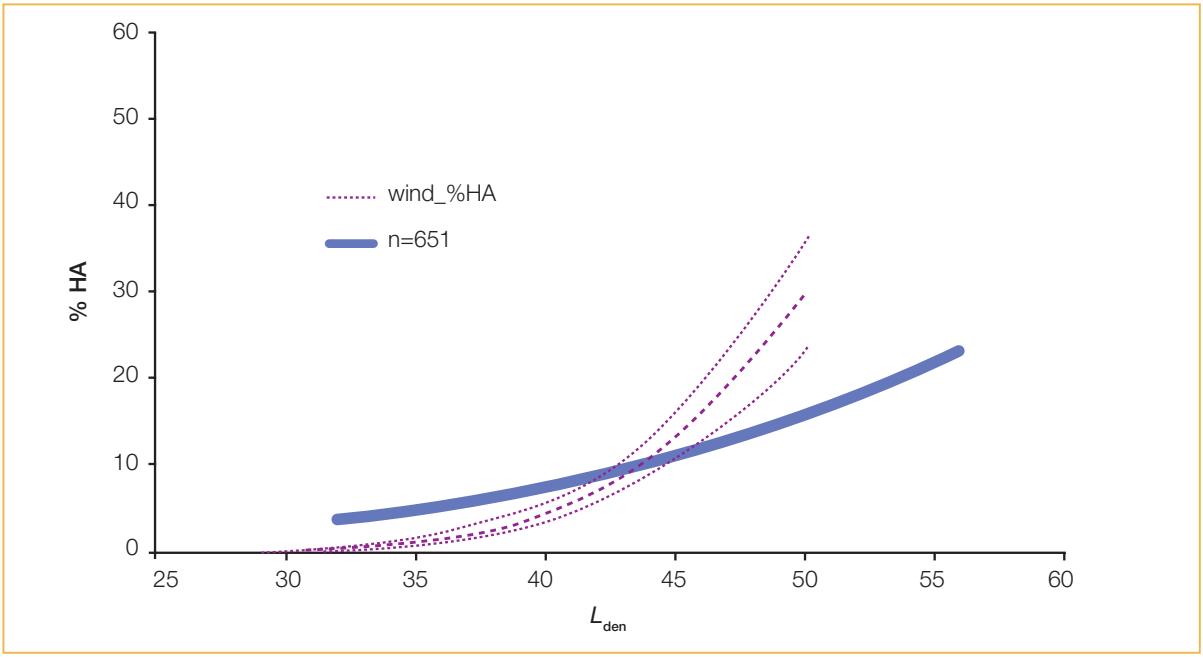
Notes: The dotted vertical line corresponds to no effect of exposure to wind turbine noise.The black circles correspond to the estimated RR per 10 dB (sound pressure level) and 95% CI. For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

Annoyance

Two publications containing descriptions of four individual studies were retrieved (Janssen et al., 2011; Kuwano et al., 2014). All four studies used measurements in the vicinity of the respondents' addresses; the noise exposure metrics used in the three original studies (Pedersen, 2011; Pedersen & Persson Waye, 2004; 2007) included in Janssen et al. (2011) were recalculated into L_{den}. The noise levels in the studies ranged from 29 dB to 56 dB. Different scales were used to assess annoyance, with slightly different definitions of "highly annoyed" and explicit reference to outdoor annoyance in the data used for the Janssen et al. (2011) curve. Construction of the ERFs provided in the two publications differed and they were therefore not further combined in a meta-analysis. Fig. 16 shows the %HA from the two publications. The 10% criterion for %HA is reached at around 45 dB L_{den} (where the two curves coincide). There was a wide variability in %HA between studies, with a range of 3–13%HA at 42.5 dB and 0–32%HA at 47.5 dB. The %HA in the sample is comparatively high, given the relatively low noise levels. There is evidence rated low quality for an association between wind turbine noise and annoyance, but this mainly applies to the association between wind turbine noise and annoyance and not to the shape of the quantitative relationship.

Further statistical analyses of annoyance yield evidence rated low quality for an association between wind turbine noise and %HA when comparing an exposure at 42.5 dB and 47.5 dB, with a mean difference in %HA of 4.5 (indoors) and 6.4 (outdoors). There is also evidence rated moderate quality for a correlation between individual noise exposure and annoyance raw scores (r = 0.28).

Fig. 16. Overlay of the two wind turbine annoyance graphs



Notes: Overlay of the two wind turbine outdoor annoyance graphs adapted from Janssen et al. (2011, red) and Kuwano et al. (2014, blue). The Kuwano et al. curve is based on L_{dn}; no correction for L_{den} has been applied.[18]
For further details on the studies included in the figure please refer to the systematic review on environmental noise and annoyance (Guski et al., 2017).

Cognitive impairment, hearing impairment and tinnitus, adverse birth outcomes

No studies were found, and therefore no evidence was available on the relationship between wind turbine noise and measures of cognitive impairment; hearing impairment and tinnitus; and adverse birth outcomes.

Sleep disturbance

Six cross-sectional studies on wind turbine noise and self-reported sleep disturbance were identified (Bakker et al., 2012; Kuwano et al., 2014; Michaud, 2015; Pawlaczyk-Luszczynska et al., 2014; Pedersen & Persson Waye, 2004; 2007). Noise levels were calculated using different methods, and different noise metrics were reported. Three of the studies asked how noise affects sleep; the other three evaluated the effect of wind turbine noise on sleep using questions that explicitly referred to noise (Table 40).

[18] L_{dn} is the day-night-weighted sound pressure level as defined in section 3.6.4 of ISO 1996-1:2016.

Table 40. Summary of findings for health effects from exposure to wind turbine noise (L_{night})

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of effects in studies	Number of participants (studies)	Quality of evidence
Effects on sleep					
L_{night}	%HSD	1.60 (95% CI: 0.86–2.94) per 10 dB increase	31 dB	3971 (6)	Low (downgraded for study limitations, inconsistency, precision)

The risk of bias was assessed as high for all six studies, as effects on sleep were measured by self-reported data. There were a limited number of subjects at higher exposure levels. A meta-analysis was conducted for five of the six studies, based on the OR for high sleep disturbance for a 10 dB increase in outdoor predicted sound pressure level. The pooled OR was 1.60 (95% CI: 0.86–2.94). The evidence was rated low quality.

3.4.2.2 Evidence on interventions

This section summarizes the evidence underlying the recommendation on the effectiveness of interventions for wind turbine noise exposure. The key question posed was: in the general population exposed to wind turbine noise, are interventions effective in reducing exposure to and/or health outcomes from wind turbine noise? A summary of the PICOS/PECCOS scheme applied is set out in Table 41.

Table 41. PICOS/PECCOS scheme of the effectiveness of interventions for exposure to wind turbine noise

PICO	Description	
Population	**General population**	
Intervention(s)	The interventions can be defined as: (a) a measure that aims to change noise exposure and associated health effects; (b) a measure that aims to change noise exposure, with no particular evaluation of the impact on health; or (c) a measure designed to reduce health effects, but that may not include a reduction in noise exposure.	
Comparison	**No intervention**	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

No studies were found, and therefore no evidence was available on the effectiveness of interventions to reduce noise exposure from wind turbines.

3.4.2.3 Consideration of additional contextual factors

As the foregoing overview has shown, very little evidence is available about the adverse health effects of continuous exposure to wind turbine noise. Based on the quality of evidence available, the GDG set the strength of the recommendation on wind turbine noise to conditional. As a second step, it qualitatively assessed contextual factors to explore whether other considerations could have a relevant impact on the recommendation strength. These considerations mainly concerned the balance of harms and benefits, values and preferences, and resource use and implementation.

Regarding the balance of harms and benefits, the GDG would expect a general health benefit from a marked reduction in any kind of long-term environmental noise exposure. Health effects of individuals living in the vicinity of wind turbines can theoretically be related not only to long-term noise exposure from the wind turbines but also to disruption caused during the construction phase. The GDG pointed out, however, that evidence on health effects from wind turbine noise (apart from annoyance) is either absent or rated low/very low quality (McCunney et al., 2014). Moreover, effects related to attitudes towards wind turbines are hard to discern from those related to noise and may be partly responsible for the associations (Knopper & Ollson, 2011). Furthermore, the number of people exposed is far lower than for many other sources of noise (such as road traffic). Therefore, the GDG estimated the burden on health from exposure to wind turbine noise at the population level to be low, concluding that any benefit from specifically reducing population exposure to wind turbine noise in all situations remains unclear. Nevertheless, proper public involvement, communication and consultation of affected citizens living in the vicinity of wind turbines during the planning stage of future installations is expected to be beneficial as part of health and environmental impact assessments. In relation to possible harms associated with the implementation of the recommendation, the GDG underlined the importance of wind energy for the development of renewable energy policies.

The GDG noticed that the values and preferences of the population towards reducing long-term noise exposure to wind turbine noise vary. Whereas the general population tends to value wind energy as an alternative, environmentally sustainable and low-carbon energy source, people living in the vicinity of wind turbines may evaluate them negatively. Wind turbines are not a recent phenomenon, but their quantity, size and type have increased significantly over recent years. As they are often built in the middle of otherwise quiet and natural areas, they can adversely affect the integrity of a site. Furthermore, residents living in these areas may have greater expectations of the quietness of their surroundings and therefore be more aware of noise disturbance. Negative attitudes especially occur in individuals who can see wind turbines from their houses but do not gain economically from the installations (Kuwano et al., 2014; Pedersen & Persson Waye, 2007; van den Berg et al., 2008). These situational variables and the values and preferences of the population may differ between wind turbines and other noise sources, as well as between wind turbine installations, which makes assessment of the relationship between wind turbine noise exposure and health outcomes particularly challenging.

Assessing resource use and implementation considerations, the GDG noted that reduction of noise exposure from environmental sources is generally possible through simple measures like insulating windows or building barriers. With wind turbines, however, noise reduction interventions are more

complicated than for other noise sources due to the height of the source and because outdoor disturbance is a particularly large factor. As generally fewer people are affected (compared to transportation noise), the expected costs are lower than for other environmental sources of noise. The GDG was not aware of any existing interventions (and associated costs) to reduce harms from wind turbine noise, or specific consequences of having regulations on wind turbine noise. Therefore, it could not assess feasibility, or discern whether any beneficial effects of noise reduction would outweigh the costs of intervention. In particular, there is no clear evidence on an acceptable and uniform distance between wind turbines and residential areas, as the sound propagation depends on many aspects of the wind turbine construction and installation.

In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation for wind turbine noise exposure remains conditional.

Additional considerations or uncertainties

Assessment of population exposure to noise from a particular source is essential for setting health-based guideline values. Wind turbine noise is characterized by a variety of potential moderators, which can be challenging to assess and have not necessarily been addressed in detail in health studies. As a result, there are serious issues with noise exposure assessment related to wind turbines.

Noise levels from outdoor sources are generally lower indoors because of noise attenuation from the building structure, closing of windows and similar. Nevertheless, noise exposure is generally estimated outside, at the most exposed façade. As levels of wind turbine noise are generally much lower than those of transportation noise, the audibility of wind turbines in bedrooms, particularly when windows are closed, is unknown.

In many instances, the distance from a wind farm has been used as a proxy to determine audible noise exposure. However, in addition to the distance, other variables – such as type, size and number of wind turbines, wind direction and speed, location of the residence up- or downwind from wind farms and so on – can contribute to the resulting noise level assessed at a residence. Thus, using distance to a wind farm as a proxy for noise from wind turbines in health studies is associated with high uncertainty.

Wind turbines can generate infrasound or lower frequencies of sound than traffic sources. However, few studies relating exposure to such noise from wind turbines to health effects are available. It is also unknown whether lower frequencies of sound generated outdoors are audible indoors, particularly when windows are closed.

The noise emitted from wind turbines has other characteristics, including the repetitive nature of the sound of the rotating blades and atmospheric influence leading to a variability of amplitude modulation, which can be a source of above average annoyance (Schäffer et al., 2016). This differentiates it from noise from other sources and has not always been properly characterized. Standard methods of measuring sound, most commonly including A-weighting, may not capture the low-frequency sound and amplitude modulation characteristic of wind turbine noise (Council of Canadian Academies, 2015).

Even though correlations between noise indicators tend to be high (especially between L_{Aeq}-like indicators) and conversions between indicators do not normally influence the correlations between the noise indicator and a particular health effect, important assumptions remain when exposure to

wind turbine noise in L_{den} is converted from original sound pressure level values. The conversion requires, as variable, the statistical distribution of annual wind speed at a particular height, which depends on the type of wind turbine and meteorological conditions at a particular geographical location. Such input variables may not be directly applicable for use in other sites. They are sometimes used without specific validation for a particular area, however, because of practical limitations or lack of data and resources. This can lead to increased uncertainty in the assessment of the relationship between wind turbine noise exposure and health outcomes.

Based on all these factors, it may be concluded that the acoustical description of wind turbine noise by means of L_{den} or L_{night} may be a poor characterization of wind turbine noise and may limit the ability to observe associations between wind turbine noise and health outcomes.

3.4.3 Summary of the assessment of the strength of recommendations

Table 42 provides a comprehensive summary of the different dimensions for the assessment of the strength of the wind turbine recommendations.

Table 42. Summary of the assessment of the strength of the recommendation

Factors influencing the strength of recommendation	Decision
Quality of evidence	**Average exposure (L_{den})** *Health effects* • Evidence for a relevant absolute risk of annoyance at **45 dB L_{den}** was rated **low quality.** *Interventions* • No evidence was available on the effectiveness of interventions to reduce noise exposure and/or health outcomes from wind turbines. **Night-time exposure (L_{night})** *Health effects* • No statistically significant evidence was available for sleep disturbance related to exposure from wind turbine noise at night. *Interventions* • No evidence was available on the effectiveness of interventions to reduce noise exposure and/or sleep disturbance from wind turbines.
Balance of benefits versus harms and burdens	Further work is required to assess fully the benefits and harms of exposure to environmental noise from wind turbines and to clarify whether the potential benefits associated with reducing exposure to environmental noise for individuals living in the vicinity of wind turbines outweigh the impact on the development of renewable energy policies in the WHO European Region.
Values and preferences	There is wide variability in the values and preferences of the population, with particularly strong negative attitudes in populations living in the vicinity of wind turbines.
Resource implications	Information on existing interventions (and associated costs) to reduce harms from wind turbine noise is not available.
Additional considerations or uncertainties	There are serious issues with noise exposure assessment related to wind turbines.
Decisions on recommendation strength	• **Conditional** for guideline value for average noise exposure (L_{den}) • **Conditional** for the effectiveness of interventions (L_{night})

3.5 Leisure noise

Recommendations

For average noise exposure, the GDG **conditionally** recommends reducing the yearly average from all leisure noise sources combined to **70 dB** $L_{Aeq,24h}$, as leisure noise above this level is associated with adverse health effects. The equal energy principle[19] can be used to derive exposure limits for other time averages, which might be more practical in regulatory processes.

For single-event and impulse noise exposures, the GDG **conditionally** recommends following existing guidelines and legal regulations to limit the risk of increases in hearing impairment from leisure noise in both children and adults.

Following a precautionary approach, to reduce possible health effects, the GDG **strongly** recommends that policy-makers take action to prevent exposure above the guideline values for average noise and single-event and impulse noise exposures. This is particularly relevant as a large number of people may be exposed to and at risk of hearing impairment through the use of personal listening devices (PLDs). There is insufficient evidence, however, to recommend one type of intervention over another.

3.5.1 Rationale for the guideline levels for leisure noise

As specific evidence for the relationship between leisure noise and hearing loss is of insufficient quality, the GDG decided to follow a different approach for this noise source, based on knowledge regarding prevention of hearing loss in the workplace and on the CNG (WHO, 1999). There is sufficient evidence that the nature of the noise matters little in causing hearing loss, so using the existing guidelines is a justified step to prevent permanent hearing loss from leisure noise.

In accordance with the procedures for the other noise sources, the GDG would have considered evidence on exposure–response relationships for the prioritized health outcomes. However, no such ERFs could be established in the systematic reviews for any of the health outcomes (Table 43).

Table 43. Average exposure levels ($L_{Aeq,24h}$) for priority health outcomes from leisure noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Incidence of IHD **Incidence of hypertension** **Prevalence of highly annoyed population** **Reading skills and oral comprehension in children**		No evidence was available
Permanent hearing impairment There is an indication that PLDs have an effect on hearing impairment and tinnitus. There was no evidence (because no studies were found) for an effect of other sources of leisure noise on hearing impairment or tinnitus. The results of the studies could not be synthesized because of heterogeneity of outcome measurement.	No increase	Very low quality/no evidence

[19] The equal energy principle states that the total effect of sound is proportional to the total amount of sound energy received by the ear, irrespective of the distribution of that energy in time (WHO, 1999).

In accordance with the evidence on the effects of PLDs on permanent hearing loss from leisure noise, the GDG recommended a guideline exposure level of 70 dB $L_{Aeq,24h}$ yearly average from all leisure noise sources combined. It was confident that there was no relevant risk increase for permanent hearing impairment below this exposure level of average leisure noise. The GDG recognized that a conversion to alternative time averages for exposure to leisure noise might be helpful for regulatory purposes; thus, a detailed table converting hourly and weekly exposure into yearly averages is provided in the subsection on additional considerations or uncertainties in section 3.5.2.3, Table 49. Furthermore, the GDG recommended sticking to the CNG recommendations for single events to limit the risk of hearing impairment from leisure noise increases for both children and adults (WHO, 1999).[20] Due to the nature and limited amount of available evidence, the GDG made the recommendation conditional.

Next, the GDG assessed the evidence for night noise exposure and its effect on sleep disturbance (Table 44).

Table 44. Night-time exposure levels (L_{night}) for priority health outcomes from leisure noise

Summary of priority health outcome evidence	Benchmark level	Evidence quality
Sleep disturbance	3% absolute risk	No evidence was available

Because of a lack of evidence, the GDG was not able to formulate a recommendation addressing sleep disturbance due to leisure noise at night time.

The GDG also looked for evidence about the effectiveness of interventions for leisure noise exposure. Owing to a lack of research, however, no studies were available on existing interventions and associated costs to reduce leisure noise. As no evidence was available, it was not possible to develop a recommendation on any specific type of intervention measure. However, following a precautionary approach, to reduce possible health effects, the GDG made a strong recommendation that policy-makers take action to prevent exposures above the guideline values for average noise and single-event and impulse noise exposures. This is particularly relevant as a large number of people may be exposed to and at risk of hearing impairment through the use of PLDs. There is insufficient evidence, however, to recommend one type of intervention over another.

3.5. 1.1 Other factors influencing the strength of recommendations

Other factors considered in the context of recommendations on leisure noise included those related to values and preferences, benefits and harms, resource implications, equity, acceptability and feasibility; moreover, nonpriority health outcomes were considered. Ultimately, the assessment of all these factors did not lead to a change in the strength of recommendation. Further details are provided in section 3.5.2.3.

[20] The GDG acknowledged the scarcity of cohort study-based evidence to define a threshold for hearing damage due to single loud exposures. It initially decided to propose $L_{AF,max}$ = 110, but after much discussion it appeared that the conversion of relevant standing limits (expressed in $L_{peak,C}$ and others) lacked sufficient basis.

3.5.2 Detailed overview of the evidence

The following sections provide a detailed overview of the evidence constituting the basis for setting the recommendations on leisure noise. As noted above, however, only limited evidence was available for several of the prioritized health outcomes, so it is presented and summarized for all critical and important health outcomes where possible, along with indications of the GDG's judgement of the quality of evidence. Research into health outcomes and effectiveness of interventions is addressed consecutively.

A comprehensive summary of all evidence considered for each of the critical and important health outcomes can be found in the eight systematic reviews published in the *International Journal of Environmental Research and Public Health* (see section 2.3.2 and Annex 2).

3.5.2.1 Evidence on health outcomes

The key question posed was: in the general population exposed to leisure noise, what is the exposure–response relationship between exposure to leisure noise (reported as various noise indicators) and the proportion of people with a validated measure of health outcome, when adjusted for main confounders? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 45 and 46.

Table 45. PICOS/PECCOS scheme of critical health outcomes for exposure to leisure noise

PECO	Description	
Population	General population	
Exposure	Exposure to high levels of noise produced by leisure activities (average/night time)	
Comparison	Exposure to lower levels of noise produced by leisure activities (average/night time)	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 46. Summary of findings for health effects from exposure to leisure noise ($L_{Aeq,24h}$)

Noise metric	Priority health outcome measure	Quantitative risk for adverse health	Lowest level of exposure across studies[a]	Number of participants (studies)	Quality of evidence
Cardiovascular disease					
$L_{Aeq,24}$	Incidence of IHD	–	–	–	–
$L_{Aeq,24}$	Incidence of hypertension	–	–	–	–
Annoyance					
$L_{Aeq,24}$	%HA	–	–	–	–
Cognitive impairment					
$L_{Aeq,24}$	Reading and oral comprehension	–	–	–	–
Hearing impairment and tinnitus					
$L_{Aeq,24}$	Permanent hearing impairment	Not estimated	–	484 (3)	Very low (downgraded for study limitations, precision)

Hearing impairment and tinnitus

Several types of leisure activity are accompanied by loud sounds, such as attending nightclubs, pubs and fitness classes; live sporting events; concerts or live music venues; listening to loud music through PLDs. This recommendation is informed by a systematic review that assessed the evidence on permanent hearing loss and tinnitus due to exposure to leisure noise (Śliwińska-Kowalska & Zaborowski, 2017). The review identified two existing systematic reviews that summarized recent estimates of the risk of developing permanent hearing loss from the use of PLDs. It did not identify any studies with objective measurement of exposure to any other type of leisure noise.

The Scientific Committee on Emerging and Newly Identified Hazards and Risk (SCENIHR) (EC, 2008b) report concluded that prolonged exposure to sounds from PLDs may result in temporary hearing threshold shift, permanent hearing threshold shift and tinnitus, as well as poor speech communication in noisy conditions. However, based on the data available, there was no direct evidence for an effect of repeated, regular daily exposure to music through PLDs on development of permanent noise-induced hearing loss. Data on tinnitus were inadequate and therefore inconclusive. No meta-analysis was provided for any of the hearing effects; nor were the exposure–effect curves reported. The SCENIHR report was based on a narrative review of 30 original papers with over 2000 participants and exposure to music sounds that covered a range of 60–120 dB. Studies included in the review were carried out between 1982 and 2007.

In 2014 a second systematic review was published by Vasconcellos et al. (2014). Although the objective of this publication was to determine threshold levels of personally modifiable risk factors for hearing loss in the paediatric population, specific thresholds analyses were limited. Based on the descriptive overview of original papers, the authors identified exposure to loud music (including use of PLDs) and working on a mechanized farm as the main risk factors for hearing loss in children

and teenagers. Thresholds of exposure to music, significantly associated with hearing loss in youth, were:

- more than four hours per week or more than five years of personal headphone usage;
- more than four visits per month to a discotheque.

The evidence review identified five new cross-sectional studies on noise from PLDs since the publication of the SCENIHR report (Feder et al., 2013; Levesque et al., 2010; Sulaiman et al., 2013; 2014; Vogel et al., 2014). Direct measurement of hearing thresholds with pure tone audiometry was performed only in three studies – by Feder et al. (2013) and Sulaiman et al. (2013 and 2014). In total, audiometric data from 484 subjects were analysed; among them, 449 were exposed and 35 were not exposed to PLD music. Two other studies by Levesque et al. (2010) and Vogel et al. (2014) did not perform audiometric measurement but reported on tinnitus in a total of 1067 participants.

Noise from PLDs was estimated based on direct measurement of equivalent sound pressure levels (in dB) in four studies (Feder, 2013; Levesque et al., 2010; Sulaiman et al., 2013; 2014) and based on converting volume-control setting levels of PLD into dB levels in one study (Vogel et al., 2014). The resulting exposure levels (L_{Aeq} values) had a mean of between 72 dB and 91 dB, although in two studies these data were not provided. In all studies, individual $L_{Aeq,8h}$ value was calculated based on an estimated level of music and the number of hours a day listening to the music through the PLD declared by an individual in the questionnaire. Resulting $L_{Aeq,8h}$ mean values were between 62 dB and 83 dB when provided.

Potential confounding was controlled by excluding the subjects with exposure to other sources of high-level noise or prior ear problems (Sulaiman et al., 2013), by excluding those with these factors and ototoxic drug intake (Sulaiman et al., 2014) or by controlling for these confounders by accounting for them in the statistical models. The confounders comprised socioeconomic status, demographic factors, tubes in the ear and leisure exposures in one study (Feder, 2013), and age and sex in one study (Vogel et al., 2014). One of the studies did not adjust for confounding factors (Levesque et al., 2010).

Data on permanent hearing loss were taken from audiometric measurements (Feder, 2013; Sulaiman et al., 2013; 2014), while data about permanent tinnitus were taken from self-reported responses to questionnaires (Levesque et al., 2010; Vogel et al., 2014). In one case, the outcome was defined as “permanent hearing-related symptoms”, but it is not clear what proportion of subjects experienced permanent tinnitus (Vogel et al., 2014).

For permanent hearing loss, there is no pooled effect size, because the authors of the original studies either did not report data or reported in different formats. However, these studies indicate a harmful effect of listening to PLDs. For permanent tinnitus, there is no pooled effect size because the effects of noise from PLDs on permanent tinnitus were contradictory. These results are generally consistent with previous reviews by SCENIHR (EC, 2008b) and Vasconcellos et al. (2014).

The risk of bias was assessed as high for all five studies. The overall evidence for an effect of PLDs on hearing impairment and tinnitus was rated very low quality.

3.5.2.2 Evidence on interventions

The following section summarizes the evidence underlying the recommendation on the effectiveness of interventions for leisure noise exposure. The key question posed was: in the general population exposed to leisure noise, are interventions effective in reducing exposure to and/or health outcomes from leisure noise? A summary of the PICOS/PECCOS scheme applied and the main findings is set out in Tables 47 and 48.

Table 47. PICOS/PECCOS scheme of the effectiveness of interventions for exposure to leisure noise

PICO	Description	
Population	General population	
Intervention(s)	The interventions can be defined as: (a) a measure that aims to change noise exposure and associated health effects; (b) a measure that aims to change noise exposure, with no particular evaluation of the impact on health; or (c) a measure designed to reduce health effects, but that may not include a reduction in noise exposure.	
Comparison	No intervention	
Outcome(s)	For average noise exposure: 1. cardiovascular disease 2. annoyance 3. cognitive impairment 4. hearing impairment and tinnitus 5. adverse birth outcomes 6. quality of life, well-being and mental health 7. metabolic outcomes	For night noise exposure: 1. effects on sleep

Table 48. Summary of findings for interventions for leisure noise

Type of intervention	Number of participants (studies)	Effect of intervention	Quality of evidence
Hearing impairment			
Type E – behaviour change interventions (education programme/campaign)	4151 (7)	None of the studies involved measurement or estimation of exposure levels or health outcomes. Most studies found a significant effect of change in knowledge or behaviour.	–

Seven individual studies on PLDs, attendance at music venues and participation in other recreational activities where there was risk of hearing damage and/or tinnitus were included in the systematic review (Dell & Holmes, 2012; Gilles & Van de Heyning, 2014; Kotowski et al., 2011; Martin et al., 2013; Taljaard et al., 2013; Weichbold & Zorowka, 2003; 2007). All studies examined interventions directed at changes in knowledge or behaviour and hearing impairment.

The studies all sought evidence on the effectiveness of some form of educational programme or campaign aimed at children, adolescents or college students. These addressed perceptions and

knowledge of the risk of high levels of noise – generally, but not exclusively, from PLD sources or from attendance at music events – and actual or intended changes to hearing damage risk behaviours, including avoidance, frequency or duration of exposure, regeneration periods when in high noise, or playback levels.

The outcome assessed in all intervention studies was the change in knowledge and behaviours towards hearing damage risk. The health outcome measures varied widely and included measurements on the youth attitude towards noise scale, participants' knowledge about hearing damage, participants' PLD usage patterns, participants' attitudes to wearing hearing protection (some in general; some at discotheques) and frequency of discotheque attendance. A majority of the studies found a significant effect of change in knowledge or behaviour. No indication on the persistence of knowledge and behavioural change was given, though.

None of the studies included objectively measured outcomes or a measured change in noise level exposure; thus, the effectiveness of the interventions could not be assessed, and the quality of the evidence was not rated according to GRADE.

3.5.2.3 Consideration of additional contextual factors

Based on the quality of the available evidence discussed in the foregoing overview, the GDG set the strength of recommendation of leisure noise to conditional. As a second step, it qualitatively assessed contextual factors to explore whether other considerations could have a relevant impact on the recommendation strength. These considerations mainly concerned the balance of harms and benefits, values and preferences, and resource use and implementation.

When assessing the balance of benefits and harms, the GDG recognized that exposure to leisure noise is widespread and frequent. In particular, as many as 88–90% of teenagers and young adults report listening to music through PLDs earphones (Pellegrino et al., 2013; Vogel et al., 2011). In 2015 WHO estimated that 1.1 billion young people worldwide could be at risk of hearing loss due to unsafe listening practices (WHO, 2015a). Furthermore, among young people aged 12–35 years in middle- and high-income countries, nearly 50% listen to unsafe levels of sound through personal audio devices (mp3 players, smartphones and others), and around 40% are exposed to potentially damaging levels of sound at nightclubs, bars and sporting events. Noise-induced hearing loss can be prevented by following safe listening practices, so the GDG concluded that health benefits can be gained from markedly reducing population exposure to leisure noise, including through actions to promote safe listening practices. A reduction of leisure noise is also assumed to reduce nuisance that can be caused to other people than those who enjoy leisure activities, such as neighbours. Furthermore, specifically for PLDs, it can reasonably be expected that a reduction of noise exposure could also lead to a reduction in accidents, injuries and other potential safety risks. In relation to possible harms and burdens, the GDG could not identify any harms (except economic costs, which are addressed in the paragraph on resource use and implementation) arising from implementation of the recommended guideline values.

Considering values and preferences, the GDG recognized that listening to music with the help of a PLD, going to concerts and attending sport events are activities regarded as enjoyable and therefore assumed to be valued by the overall population. Furthermore, it is expected that values and preferences might vary in particular with respect to the use of PLDs and embracing leisure activities

involving loud noise, like concerts, and that some population groups – especially younger individuals – might voluntarily expose themselves to high levels of sound during these activities. Despite this, the GDG was confident that recommendations to lower noise levels for the prevention of hearing damage from leisure noise would be welcome by a majority of the population. Recommendations are expected to be particularly welcome when it comes to protecting the hearing of young children and teenagers, as these vulnerable groups often do not have control over their environment and the noise levels to which they are exposed, such as from noisy toys or at school.

With resource use and implementation, the GDG noted that interventions exist to reduce exposure to leisure noise from PLDs, attendance at music venues and participation in recreational activities, as aggregated by the systematic review on environmental noise interventions and their associated impacts (Brown & van Kamp, 2017). As most of these relate to implementation of a behaviour change, the reduction of exposure to leisure noise is expected to be technically feasible and cheap. None of the empirical investigations objectively measured outcomes or a measured change in noise level exposure, so the effectiveness of such measures cannot be assessed. Nevertheless, it is important to note that there is ample evidence from the occupational health field that high noise levels cause hearing damage, and that occupational interventions to reduce noise exposure are effective at lowering the risk of hearing problems or hearing damage (EC, 2003; Garcia et al., 2018; ISO, 2013; Maassen et al., 2001). In conclusion, resources needed to reduce exposure to leisure noise are not expected to be intensive, but implementation and long-term success of measures might be challenging, owing to cultural factors, as changes in behaviour are expected to be tricky to implement.

In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation remains conditional.

Additional considerations or uncertainties

The GDG considers the noise levels selected for this recommendation to be reasonable precautionary measures, in view of the rating of very low quality for the available evidence on an effect of leisure noise on permanent hearing impairment and tinnitus identified in the systematic review.

Extensive literature shows hearing impairment in populations exposed to specific types of nonoccupational environments, although these exposures are generally not well characterized. There are no studies with objective measurement of exposure to any other type of leisure noise (except PLDs) and permanent hearing impairment or tinnitus. Nevertheless, this recommendation generally applies to all leisure noise exposures, such as events in public venues (concerts halls, sports events, bars and discotheques) and educational facilities, and use of PLDs. The recommendation also applies to exposure to impulse sounds, such as those in shooting facilities or from the use of toys and firecrackers.

Hearing loss is the resultant value of combined exposures to different sources of leisure noise including, but not limited to, PLDs. Therefore, the recommendations apply to the combined noise levels from all sources.

Noise-induced hearing loss develops very slowly over years of exposure, giving rise to challenges in the assessment of the health impacts from prolonged use of PLDs and exposure to leisure noise. The induction period for the development of hearing impairment and tinnitus is long, and varying

exposure conditions and changing lifestyle habits (including confounding noise sources), particularly among young people, will have an impact. Therefore, recommendations regarding leisure noise have often been inferred from the occupational field, where exposure conditions are more stable over time.

Indeed, long-term exposure to noise, objectively assessed and at levels measured in occupational settings for various professions, can lead to permanent hearing loss and tinnitus. This evidence, while not reviewed systematically as part of the work related to these guidelines, can be used as supportive evidence and justification for the need to develop a recommendation for leisure noise, given that many people could be at risk of developing hearing loss and/or tinnitus from exposure to lower levels of environmental noise. Similar otobiological mechanisms must also be considered for environmental noise.

To date, no commonly accepted method for assessing the risk of hearing loss due to environmental exposure to noise has been developed. One of the main challenges is to conduct a long-term objective exposure assessment of environmental noise and relate this to the development of permanent hearing impairment and tinnitus. The GDG underlined the strong need for research to develop a comprehensive methodology. In the absence of a method, and as long as no other tools are available, the equal energy principle outlined in the ISO standard for the estimation of noise-induced hearing loss (WHO, 1999) can be used as a practical tool for protecting public health from exposure to leisure noise. As a result, the relationship between leisure noise exposure and auditory effects can be quantified for a variety of exposure levels, duration and frequency.

Several organizations have established regulations for the protection of workers from risks to their health and safety arising from exposure to noise, and in particular risk to hearing. Of particular relevance is EU Directive 2003/10/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise) (EC, 2003). Based on the ISO 1999 standard (ISO, 2013), the Directive sets limits of exposure depending on equivalent noise level for an eight-hour working day and obliges the employer to take suitable steps if the limits are exceeded. It recommends three action levels for occupational settings, setting the lowest, most conservative value at $L_{ex,8hr}$ = 80 dB. According to the Directive, no consequences of exposure to occupational noise are expected at this level. While exposure patterns and certain characteristics of occupational and leisure noise exist, knowledge of the hearing impairment risks and preventive interventions can be used to assess health risks associated with leisure noise (Neitzel & Fligor, 2017).

The CNG recommend a limit of $L_{Aeq,24h}$ = 70 dB(A) for preventing hearing loss from industrial, commercial shopping and traffic areas, indoors and outdoors (WHO, 1999). Health and safety regulations are usually based on an exposure profile of a typical worker (eight hours per day, five days per week). Using the existing knowledge from the ISO standard and established health and safety regulations, it is possible to use the equal energy principle to derive the resulting noise exposure level for an exposure profile more appropriately suited for leisure noise. Converting 40 hours at 80 dB to a continuous exposure to noise (24 hours per day, seven days per week), this leads to a yearly average exposure of 71 dB for lifelong exposure.[21] This is the same value as the WHO recommendation of

[21] 71 dB = 80 dB (derived from ISO standard) – 6.2 dB (conversion of yearly average of 40 working hours divided by continuous exposure to noise: (10 log (2080hrs/8760 hrs)) – 3 dB (extrapolation of 40 working years to lifelong exposure).

70 dB (WHO, 1999). Table 49 presents the noise levels per hour for various time averages in order to keep within the recommended yearly average exposure, and assuming that exposure to other noise sources generally does not contribute significantly. For example, for specific events taking place for one-, two- or four-hour averages, once a week (such as visiting a discotheque or watching a loud movie), an hourly noise level of 85 dB would lead to an average yearly exposure of 63 dB, 66 dB and 69 dB, respectively. However, the same hourly exposure of 85 dB for an activity taking place for 14 hours per week (two hours per day, seven days a week) would lead to a yearly exposure of 74 dB, which exceeds the recommendations.

Table 49. Combination of hourly exposure and number of hours per week to arrive at a yearly average L_{Aeq}

Hours of exposure per week	One-hour exposure level (L_{Aeq})						
	70	75	80	85	90	95	100
1	48	53	58	63	68	73	78
2	51	56	61	66	71	76	81
4	54	59	64	69	74	79	84
14 (2 hours per day, 7 days per week)	59	64	69	74	79	84	89
28 (4 hours per day, 7 days per week)	62	67	72	77	82	87	92
40 (8 hours per day, 5 days per week)	64	69	74	79	84	89	94
168 (24 hours per day, 7 days per week)	70	75	80	85	90	95	100

Note: green = combinations of exposure/duration below current guideline level; red = combinations of exposure/duration above current guideline level; blue = input parameters.

The equal energy principle cannot be used to derive single-event limits because at high levels the ear starts to respond with nonlinear behaviour. The CNG provides several values, in different units: $L_{AF,max}$ = 110 dB for industrial noises (no distance stated), $L_{peak,lin}$ = 140 dB for adults and $L_{peak,lin}$ = 120 dB for children (measured at 100 mm) (WHO, 1999). EU Directive 2003/10/EC on the minimum health and safety requirements regarding the exposure of workers recommends a lower action level of $L_{peak,C}$ = 135 dB (at 100 mm). In a recent overview Hohmann (2015) provided an ERF for hearing damage caused by shooting noise, from which it appears that a safe level of L_E = 120 dB can be derived.

Although it is clear that high noise levels cause acute hearing damage, there is no agreement on a safe level. Further research is highly recommended. In the mean time, existing guidelines should be applied.

3.5.3 Summary of the assessment of the strength of recommendation

Table 50 provides a comprehensive summary of the different dimensions for the assessment of the strength of the leisure noise recommendations.

Table 50. Summary of the assessment of the strength of the recommendation

Factors influencing the strength of recommendation	Decision
Quality of evidence	**Average exposure ($L_{Aeq,24h}$)** *Health effects* • Evidence of an effect from PLDs on hearing impairment and tinnitus, in the absence of evidence for other health outcomes and absence of evidence on hearing impairment and tinnitus from other types of leisure noise besides PLDs, was rated **very low quality.** *Interventions* • No evidence was available on the effectiveness of interventions to reduce noise exposure and/or health outcomes from leisure noise.
Balance of benefits versus harms and burdens	The general benefit from reduction of leisure noise outweighs any potential harms.
Values and preferences	There is variability in the values and preferences of the general population.
Resource implications	The resources needed to reduce exposure to leisure noise are not expected to be intensive, but implementation and the long-term success of measures may be challenging, mainly due to cultural factors.
Decision on strength of recommendation	• **Conditional** for guideline level for average noise exposure ($L_{Aeq,24h}$) • **Conditional** for single-event and impulse noise • **Strong** for interventions to reduce noise exposure

3.6 Interim targets

An interim target was proposed in the NNG (WHO Regional Office for Europe, 2009), "recommended in situations where the achievement of NNG is not feasible in the short run for various reasons". The NNG emphasized that an interim target is "not a health-based limit value by itself. Vulnerable groups cannot be protected at this level".

The GDG discussed whether to propose interim targets as part of the current guidelines, and if so, what process would be needed to derive those values. The current recommendations are health-based and already provide guideline values per noise source (for both L_{den} and L_{night}). They also include information on exposure–response relationships for various health outcomes, which can be used by policy-makers or other stakeholders to inform the selection of different values, if needed. Further, interim targets may work differently in different countries and for different noise sources, and it may not be optimal to propose them Europe-wide. As a result, there was consensus among members of the GDG not to provide interim targets.

4. Implications for research

The development of these environmental noise guidelines for the WHO European Region has made evident some key knowledge gaps and research needs. The main ones specific to the guideline recommendations are presented as implications for research in the sections that follow.

4.1 Implications for research on health impacts from transportation noise

For the assessment of health effects from the main sources of transportation noise (road traffic, railways and aircraft), the various evidence reviews show the following knowledge gap: there is a need for longitudinal studies on the health impacts from exposure to environmental noise, to inform future recommendations properly (Table 51).

Table 51. Implications for research on health impacts from transportation noise (air, rail, road)

Current state of the evidence	Limited evidence is available on health impacts from transportation noise from large-scale cohort and case-control studies, with objective measurement of both noise exposure and health outcomes.
Population of interest	Research is needed into effects of exposure on children and adults exposed to environmental noise from transportation sources.
Exposure of interest	Objective measurement or calculation of transportation noise exposure is required; in particular, from studies of health effects related to combined exposure to different noise sources.
Comparison of interest	The data should be compared to the effects of lower levels of transportation noise.
Outcomes of interest	Measures of the following health outcomes is required, assessed objectively and harmonized where possible – for example, according to common protocols: • annoyance • effects on sleep • cardiovascular and metabolic effects • adverse birth outcomes • cognitive impairment • mental health, quality of life and well-being • hearing impairment and tinnitus • any other relevant health outcome.
Time stamp	The systematic review included studies between October 2014 and December 2016.

4.1.1 Specific implications for annoyance

To predict absolute %HA at the full range of levels (and the corresponding CIs), an integrated analysis of the original raw data from all of individual studies would be necessary. The evidence review conducted as part of the guidelines focused only on secondary data handling and therefore does not replace a full meta-analysis of all individual data. The development of a generic exposure–response relationship (from a full meta-analysis based on all individual data) is suggested as a priority research recommendation (see Table 52).

Table 52. Recommendation for research addressing the exposure–response relationship

Current state of the evidence	The evidence review on annoyance conducted as part of the guidelines does not provide a generalized ERF but points to significant differences compared to the curves used in the past. It shows that the available generalized ERFs are in need of adjustment, preferably as a result of undertaking a full meta-analysis. This is especially the case for the sources aircraft and railway noise, which new data show are more annoying than previously documented.
Population of interest	Research is needed into effects of exposure on children and adults exposed to air, rail and/or road traffic noise.
Exposure of interest	Objective measurement of transportation noise exposure is required.
Comparison of interest	The data should be compared to the effects of lower levels of transportation noise.
Outcomes of interest	Measures of health outcomes are required, assessed objectively according to common protocols (such as the International Commission on Biological Effects of Noise (ICBEN) scale for annoyance).
Time stamp	The systematic review included studies up to October 2014.

4.2 Implications for research on health impacts from wind turbine noise

Further research into the health impacts from wind turbine noise is needed so that better-quality evidence can inform any future public health recommendations properly. For the assessment of health effects from wind turbines, the evidence was either unavailable or rated low/very low quality. Recommendations for research addressing this priority are proposed in Table 53.

Table 53. Implications for research on health impacts from wind turbine noise

Current state of the evidence	The current evidence on health outcomes related to wind turbine noise is unavailable or of low/very low quality and mainly comes from cross-sectional studies. Methodologically robust longitudinal studies with large samples investigating the quantitative relationship between noise from wind turbines and health effects are needed.
Population of interest	Research is needed into effects of exposure on children and adults exposed and living near sources of wind turbine noise. Studies should assess subgroup differences in effects for vulnerable groups such as children, elderly people and those with existing poor physical and mental health.
Exposure of interest	Exposure to noise at a wide range of levels and frequencies (including low-frequency noise), with information on noise levels measured outdoors and indoors (particularly relevant for effects on sleep) at the residence is needed. The noise exposure should be measured objectively and common protocols for exposure to wind turbine noise should be established, considering a variety of noise characteristics specific to wind turbine noise.
Comparison of interest	The data should be compared to the effects in similar areas without wind turbines. Pre/post studies of new wind turbine installations are needed, especially if “before measures” unbiased by the stress and knowledge of potential wind turbine farm development need to be developed.
Outcomes of interest	Measures of health outcomes are required, assessed objectively – for example, according to common protocols (ICBEN scale for annoyance and self-reported sleep disturbance). The studies should include the most important situational and personal confounding variables, such as negative attitudes towards wind turbines, visual impact, economic gain and other socioeconomic factors.
Time stamp	The systematic review included studies between October 2014 (review on annoyance) and December 2016 (review on cardiovascular disease).

Alongside the defined needs for research on wind turbine noise it should be noted that research regarding industrial noise in general is required. More specifically, there is a need to investigate stationary sources (including heat, ventilation and acclimatization devices) and their impacts on health. Studies on hearing disorders from impulse and/or intermittent sounds are also needed; these would enable assessment of adverse effects created by one or several sounds of short duration with a high maximum sound level or impulse sound level.

4.3 Implications for research on health impacts from leisure noise

For the assessment of effects from leisure noise, the evidence to make a recommendation on the ERF to use for health risk assessment, or of a threshold for effects, was either unavailable or rated very low quality. This is a research gap: longitudinal studies with longer follow-up are needed; these should measure noise objectively, not only from PLDs but also from other types of leisure noise.

There is uncertainty in the measurement of early hearing disorders among young people using the tonal audiometry commonly applied. Precise methods to identify early hearing impairment and other hearing disorders are needed. Owing to long induction periods, however, adequate research may be difficult to perform, particularly among young people who change their exposure in terms of sound level and frequency as they age (for example, changing their music listening habits and venue visits). As a result, the recommendations refer to the results derived from stationary noise sources in the occupational field, in conjunction with the equal energy principle (see Table 54).

Table 54. Implications for research on health impacts from leisure noise

Current state of the evidence	Currently, no evidence is available on hearing impairment and tinnitus from large-scale cohort and case-control studies, with objective measurement of noise exposure and using a suitable method to assess hearing impairment in young people.
Population of interest	Research is needed into effects of exposure on children and adults exposed to environmental noise from different sources and in different settings.
Exposure of interest	Objective measurement of leisure noise exposure is required.
Comparison of interest	The data should be compared to the effects of no leisure noise exposure from these sources.
Outcomes of interest	The primary outcomes identified are: • hearing loss measured by audiometry; • specific threshold analyses focused on stratifying the risk of permanent hearing loss according to clearly defined levels of exposure to leisure noise, such as music through PLDs; • concise methods to identify early hearing impairment and other hearing disorders; • temporary threshold shift after exposure to leisure noise, as it may be reasonably predictive of future permanent threshold shift; • age-related hearing loss progression depending on early-age exposure to leisure noise, such as to loud music; and • tinnitus, measured objectively and subjectively.
Time stamp	The systematic review included studies up to June 2015.

4.4 Implications for research on effectiveness of interventions to reduce exposure and/or improve public health

The quality of the evidence on the effectiveness of interventions to reduce exposure to and health outcomes from environmental noise was variable. Further studies directly linking noise interventions to health outcomes are required, particularly for sources other than road traffic noise, and for human health outcomes other than annoyance.

Most studies involved road traffic noise (63%), followed by aircraft noise (13%) and railway noise (6%). The remaining interventions were for leisure noise (13%) and noise in hospital settings (4%). No interventions were identified that either addressed wind turbine noise or focused on educational settings.

Exposure-related interventions were mainly associated with a reduction in environmental noise exposure. However, in five studies (four road traffic noise studies and one aircraft noise study) some or all of the participants experienced noise exposure increases.

There is no clear evidence with respect to thresholds, which are defined as:

- the smallest change in exposure levels that results in a change in outcome; and
- the minimum before-level, regarding changes in health outcomes as a result of interventions.

The limited evidence base on the health effects of environmental noise interventions is thinly spread across different noise source types, outcomes and intervention types. Diversity exists between studies even within intervention types in terms of study designs, methods of analysis, exposure levels and changes in exposure experienced as a result of the interventions. For these reasons, carrying out a meta-analysis across studies examining the association between changes in level and changes in outcome was not possible.

To remedy this main research gap, longitudinal studies assessing noise exposure and health outcomes objectively should be developed, taking into account the most relevant confounders. The establishment of common protocols for future research is warranted (see Table 55).

Authorities should include significant funding for the design and implementation of studies to evaluate the effectiveness of interventions to reduce noise and their impact on health.

Table 55. Implications for research on effectiveness of interventions to reduce exposure and/or improve public health

Current state of the evidence	The current evidence on effectiveness of interventions to reduce health outcomes is limited and of varying quality. Few longitudinal studies have been done that take into account the most relevant confounders and measure the noise exposure and the outcomes objectively.
Population of interest	Research is needed into effects of interventions on defined populations exposed to and/or living near sources of environmental noise.
Intervention of interest	Research into any noise intervention at various points along the system pathway between source and outcome, for a variety of noise sources, is required.
Comparison of interest	The data should be compared to: • a steady-state control group, in similar areas with various exposure gradients from environmental noise sources; • the noise exposure in the same population, through a series of sequential measurements assessing the change before and after the intervention, preferably with multiple after measurements.
Outcomes of interest	Future intervention studies should use validated and, where possible, harmonized measures of exposure and outcome, as well as of moderators and confounders. The studies should use measures of exposure including noise exposure at a wide range of levels and frequencies (including low-frequency noise), with information on noise levels outdoors and indoors (particularly relevant for effects on sleep). They should also use measures of health outcomes, including the following outcomes assessed objectively – for example, according to common protocols (ICBEN scale for annoyance) – with consideration that the change in human response for some health outcomes from a step change in exposure may have a different time course to that of the change in exposure: • annoyance • effects on sleep • cardiovascular and metabolic diseases • adverse birth outcomes • cognitive impairment • mental health, quality of life and well-being • hearing impairment and tinnitus • any other relevant health outcome. Further, they should use measures of moderators and confounders, including repeated measurements of situational and personal variables such as activity interference, potential confounders such as noise sensitivity, coping strategies and a range of other attitudinal variables.
Time stamp	The systematic review included studies up to October 2014.

5. Implementation of the guidelines

5.1 Introduction

These guidelines focus on the WHO European Region and provide guidance to Member States that is compatible with the noise indicators used in the EU's END (EC, 2002a). They provide information on the exposure–response relationships between exposure to environmental noise from different noise sources and the proportion of people affected by certain health outcomes, as well as interventions that are considered efficient in reducing exposure to environmental noise and related health outcomes.

The WHO guideline values are evidence-based public health-oriented recommendations. As such, they are recommended to serve as the basis for a policy-making process in which policy options are considered. In the policy decisions on reference values, such as noise limits for a possible standard or legislation, additional considerations – such as feasibility, costs, preferences and so on – feature in and can influence the ultimate value chosen as a noise limit. WHO acknowledges that implementing the guideline recommendations will require coordinated effort from ministries, public and private sectors and nongovernmental organizations, as well as possible input from international development and finance organizations. WHO will work with Member States and support the implementation process through its regional and country offices.

5.2 Guiding principles

Four guiding principles provide generic advice and support when incorporating the recommendations into a policy framework, and apply to the implementation of all the recommendations.

The **first principle** is to reduce exposure to noise, while conserving quiet areas. The recommendations focus on reduction of population exposure to environmental noise from a variety of sources, in different settings. The general population can be exposed regularly to more than one source of noise simultaneously (including, in some cases, occupational noise), as well as to other nonacoustic factors that can modify the response to noise (such as vibration from railways, air pollution from traffic or visual aspects of wind turbines). Thus, overall reduction of exposure from all sources should be promoted. Furthermore, noise exposure reduction in one area should not come at the expense of an increase in noise elsewhere; existing large quiet outdoor areas should be preserved.

The **second principle** is to promote interventions to reduce exposure to noise and improve health. The evidence from epidemiological studies on adverse health effects at certain noise levels, used as a basis to derive the guideline values proposed in the recommendations, supports the promotion of noise interventions. The potential health impacts from environmental noise are significant, especially when considering the widespread exposure to environmental noise across the population and the high baseline rates for various health outcomes associated with environmental noise.

There are challenges in assessment of the effectiveness of interventions to reduce noise exposure and/or improve health, as there is often a significant time lag between the intervention and a measurable change in exposure and related health benefits. The lack of – or limited direct evidence

for – quantifiable health benefits of some specific interventions does not imply that measures to achieve population exposure according to the proposed guidelines should be ignored.

Given the different factors that determine noise exposure, a single measure alone may not be sufficient to reduce exposure and/or improve health significantly, and a combination of methods may be warranted. Nevertheless, it is widely acknowledged that the most effective actions to reduce exposure tend to be those that reduce noise at the source. Such actions have the biggest potential, whereas other measures can be less effective or sustained over time, especially when they depend on behaviour change or noise reductions inside houses.

The **third principle** is to coordinate approaches to control noise sources and other environmental health risks. Considering the common transport-related sources of environmental noise and air pollution, and in particular the evidence of independent effects on the cardiovascular system, a coordinated approach to policy development in the sectors related to urban planning, transport, climate and energy should be adopted for policies with an impact on environmental noise, air quality and/or climate. Such an approach should yield multiple benefits through increased commitment and financial resources; increased attention to securing health considerations in all policies; and use of policy to control noise and other environmental risks such as air pollutants, including short-lived climate pollutants. There is wide consensus on the value of pursuing coordinated policies that can deliver health and other benefits, such as those associated with the local environment and economic development. Furthermore, coordinated policy-making is potentially cost-saving.

The **fourth principle** is to inform and involve communities that may be affected by a change in noise exposure. In planning new urban and/or rural developments (transport schemes, new infrastructures in less densely populated areas, noise abatement and mitigation strategies), bringing together planners, environmental professionals and public health experts with policy-makers and citizens is key to public acceptability and involvement and to the successful guidance of the decision-making proces. Potential health effects from environmental noise should be included as part of health impact assessments of future policies, plans and projects, and the communities potentially affected by a positive or negative change in noise exposure should be well informed and engaged from the outset to maximize potential benefits to health. Introducing measures incrementally may help with acceptance.

5.3 Assessment of national needs and capacity-building

National needs, including the need for capacity-building, differ between Member States in the WHO European Region. They depend on the existence and level of implementation of national and/or European and international noise policies; these are more likely to be implemented fully in EU countries thanks to the legally binding provisions of the EU's END (EC, 2002a). In most countries in the Region noise is perceived as a major and growing environmental health and public health problem. Noise mapping and action plans are carried out in accordance with the END in EU Member States, and in south-eastern European countries noise legislation has mainly been harmonized with the END. Nevertheless, significant differences still exist in the completeness and regular updating of noise exposure assessment between countries. Noise exposure assessment is a required input for noise health impact assessments, along with exposure–response relationships and population baseline data.

WHO has identified some common needs for knowledge transfer and capacity-building for health risk assessment of environment noise in the Member States that joined the EU after 2003, the newly independent states and south-eastern European countries (WHO Regional Office for Europe, 2012):

- implementation of the END and its annexes, especially in the preparation of strategic noise mapping and action plans;
- human resources development through education and training in health risk assessment and burden of diseases stemming from environmental noise;
- methodological guidance for health risk assessment of environmental noise.

These guidelines mostly recommend exposure–response relationships related to the exposure indicators L_{den} and L_{night}. They are therefore of particular relevance to EU countries and those applying the END. In countries that do not use these indicators, users of the guidelines need to convert their noise indicators into L_{den} and L_{night} before being able to apply the recommendations. Conversion between indicators is possible, using a certain set of assumptions (Brink et al., 2018).

5.4 Usefulness of guidelines for target audiences

The provision of guideline values as a practical tool for guiding exposure reduction and the design of effective measures and policies is widely seen as useful. The WHO guidelines equip policy-makers and other end-users with a range of different needs with the necessary evidence base to inform their decisions. As indicated in section 1.4, these guidelines serve as a reference for several target audiences, and for each group they can be useful in different ways.

- For technical experts and decision-makers, the guidelines can be used to provide exposure–response relationships that give insight into the consequences of certain regulations or standards on the associated health effects. They also can be useful at the national and international level when developing noise limits or standards, as they provide the scientific basis to identify the levels at which environmental noise causes a significant health impact. Based on these recommendations, national governments and international organizations can be better informed when introducing noise limits, to ensure protection of people's health.
- For health impact assessment and environmental impact assessment practitioners and researchers, these guidelines provide exposure–response relationships that give insight into the expected health effects at observed or expected noise exposure levels. They offer recommendations on the maximum admissible noise levels for some sources and provide important input to assit in deriving the health burden from noise; in that sense, they can be used when producing studies such as noise maps and action plans to obtain an evaluation of the magnitude of the health problem. The systematic reviews developed in support of these guidelines allow practitioners to raise awareness of the credibility of the issue of noise as a public health problem and to use the recommended exposure–response relationships uniformly. Researchers will also benefit from the guidelines as they clearly identify critical data gaps that need to be filled in the future to better protect the population from the harmful effects of noise.
- The guideline recommendations provide a useful tool for national and local authorities when deciding about noise reduction measures, as they provide data to estimate the health burden on the population and therefore allow comparison among different policy options. These options

can include measures to reduce the noise emitted by the sources, measures aimed at impeding the transmission of noise from the sources to people and measures aimed at better planning the location of houses (urban planning).

- The guideline recommendations can also be used by civil society, patients and other advocacy groups to raise awareness and encourage actions to protect the population, including vulnerable groups, from exposure to noise.

Regarding noise abatement and mitigation of noise sources, practical exposure–response relationships for various noise sources are useful quantitative input to determine the impact of noise on health. They can be valuable information to use in cost–effectiveness and cost–benefit analyses of various policies for noise abatement. In this respect, the guideline recommendations can be an integral part of the policy process for noise reduction by various institutions; they are of great value for communicating the health risks and potential cost-effective solutions to reduce noise.

National and local authorities and nongovernmental organizations responsible for risk communication and general awareness-raising can use these guidelines for promotion campaigns and appropriate risk communication. The guidelines provide scientific evidence on a range of health effects associated with noise and facilitate appropriate risk communication to specific vulnerable groups. They therefore need to be promoted broadly to citizens, national and local authorities and nongovernmental organizations responsible for risk communication.

5.5 Methodological guidance for health risk assessment of environmental noise

A health risk assessment is the scientific evaluation of potential adverse health effects resulting from human exposure to a particular hazard – in this case, environmental noise. The main purpose of the assessment is to estimate and communicate the health impact of exposure to noise or changes in noise in different socioeconomic, environmental and policy circumstances.

The guideline recommendations, along with the detailed information contained in the systematic evidence reviews, can be used to assess health impacts in order to answer a variety of policy questions on:

- the public health burden associated with current or projected levels of noise;
- the human health benefits associated with changing a noise policy or applying a more stringent noise standard;
- the impacts on human health of emissions from specific sources of noise for selected economic sectors (and the benefits of policies related to them); and
- the human health impacts of current policy or implemented action.

The results from a health risk assessment are usually reported as the number of attributable deaths, number of cases, years of life lost, years lost due to disability or DALYs.

The quantification of the impacts for one combination of noise source, noise exposure indicator and health outcome may to some extent include effects attributable to another. Consequently, for any particular set of combinations, consideration should be given to potential double counting.

It is also important to note the uncertainties in quantification of the health impacts. One set of uncertainties relates to the CIs associated with the recommended ERFs; these quantify the random

error and variability attributed to heterogeneity in the epidemiological studies used for health risk assessment. Other types of uncertainty include modelling/calculation of noise exposure, estimates of population background rates for morbidity and mortality, and transferability of ERFs from locations where studies were carried out or data were otherwise gathered to another location. This is especially true for noise annoyance, for which there is often considerable heterogeneity in effect sizes of studies because estimates vary between noise sources and are to some degree dependent on the situation and context. Furthermore, cultural differences around what is considered annoying are significant, even within Europe. It is therefore not possible to determine the "exact value" of %HA for each exposure level in any generalized situation. Instead, data and exposure–response curves derived in a local context should be applied whenever possible to assess the specific relationship between noise and annoyance in a given situation. If, however, local data are not available, general exposure–response relationships can be applied, assuming that the local annoyance follows the generalized average annoyance. Despite the challenges in applying a "generalized" ERF to specific local situations, the GDG believes that the percentage of high annoyance defined in section 2.4.3 is an acceptable estimate of the "average" %HA at a certain noise level – for example, in Europe.

When performing a health risk assessment of environmental noise, it is important to note several considerations. The selection of particular noise source(s), noise exposure indicator(s) and health outcome combinations to be used for estimation of the health impacts depends on the particular policies and/or measures being assessed. These guidelines propose recommendations for four types of noise source using noise indicators L_{den} and/or L_{night} (road traffic, railway noise, aircraft noise and wind turbine noise) and one recommendation using $L_{Aeq,24h}$ (leisure noise). Any population may be exposed to different noise sources associated with the same health outcome. Estimated impacts should not be added together without recognizing that addition will, in most practical circumstances, lead to some overestimation of the true impact. Impacts estimated for only one combination will, on the other hand, underestimate the true impact of the noise mixture, if other sources of noise also affect that same health outcome.

The scientific evidence reviewed and summarized in these guidelines implies that the following health outcomes can be quantified in a health risk assessment, and that their effects are cumulative:

- from road traffic noise – incidence of IHD, annoyance and sleep disturbance, and potentially incidence of stroke and diabetes;
- from railway noise – annoyance and sleep disturbance;
- from aircraft noise – annoyance, reading and oral comprehension in children, sleep disturbance and potentially change in waist circumference and incidence of IHD;
- from wind turbine noise: annoyance.

The DWs suggested in section 2.4.3 can be used to calculate DALYs.

Data on incidence and prevalence of some health outcomes related to noise (mainly cardiovascular disease) can be found at a national level in online databases available on the WHO Regional Office for Europe website (WHO Regional Office for Europe, 2017).

General principles of relevance for environmental factors when conducting health risk assessments and quantifying the burden of disease can be found elsewhere (European Centre for Health Policy, 1999; Murray, 1994; Murray & Acharya, 1997; Murray & Lopez, 2013; Quigley et al., 2006; WHO,

2014a; 2014b; WHO Regional Office for Europe, 2016). In particular, the WHO Regional Office for Europe and JRC jointly published the first estimates of the burden of disease from environmental noise in 2011 (WHO Regional Office for Europe & JRC, 2011). The publication includes guidance on the procedure for the health risk assessment of environmental noise, exemplary estimates of the burden of the health impacts of environmental noise and a discussion of the uncertainties and limitations of the procedure to calculate the environmental burden of disease. The reader is referred to this publication for more detailed explanations on quantitative risk assessment methods for environmental noise.

5.6 Route to implementation: policy, collaboration and the role of the health sector

Preventing noise and related health impacts relies on effective action across different sectors: health, environment, transport, urban planning and so on. The health sector needs to be engaged effectively in different sectors' policy processes at national, regional and international levels. It needs to provide authoritative advice about the health impacts of noise and policy options that will bring the greatest benefits to health.

In most countries in the WHO European Region, the commitment of the health sector to engage in action to address environmental noise issues needs to be improved and better coordinated. A more coherent overall response is needed, taking into account relevant linkages with existing health priorities and concerns. Thus, some actions can be seen as aspects of the role of the health sector:

- engaging in proper communication with relevant sectors about noise exposure from different sectors and sources (environmental, urban development, transport and so on) to ensure that health issues are adequately addressed as part of international, regional, national and/or local efforts to address environmental noise – the implementation approach may differ across sectors, depending on the level of awareness of noise as a public health problem;
- promoting the guideline recommendations to policy-makers from different sectors and organizing information campaigns and awareness-raising activities in collaboration with national health authorities and WHO country offices to inform citizens and health practitioners about the health risks of environmental noise;
- using decision support instruments such as health impact and health risk assessments to quantify health risks and potential benefits associated with policies and interventions aimed at addressing environmental noise, including presenting information about the severity of the health effects (for example, with cardiovascular disease) to convey the serious impacts of noise and to try to change attitudes and behaviours of policy-makers and the general public;
- promoting the guidelines to health practitioners and physicians, especially at the community level (through associations of physicians, cardiologists and so on as part of the stakeholder group);
- supporting the establishment of national health institutions capable of initiating and developing health promotion measures, and conducting research, monitoring and reporting on health impacts from environmental noise and its different sources;

- organizing capacity-building workshops and training to increase knowledge of the guidelines as well as creating tools, skills and resources for health risk assessment and developing intersectoral collaboration, particularly in non-EU countries;
- promoting relevant research initiatives and shaping the research agenda, in part based on critical research recommendations and gaps identified in the guidelines, as well as on the impact and effectiveness of interventions and experience with their implementation;
- developing and updating guidelines and policies that influence national, regional and international benchmarks and targets related to environmental noise, as well as advocating the inclusion of the guidelines in development and shaping of national, regional and international noise policies and standards;
- working with other sectors to strengthen noise level monitoring and evaluation, particularly in non-EU countries, to ensure proper conducting of health risk assessments of environmental noise.

5.7 Monitoring and evaluation: assessing the impact of the guidelines

Exposure–response relationships and other recommendations provided by these guidelines should be incorporated into national health policies and the main related policy documents. They should be used for health impact and health risk assessments to identify health risks and potential benefits associated with policies and interventions related to environmental noise.

Population noise exposure should be monitored and assessed at a national scale, at least in urban areas. Furthermore, information on trends in occurrence of noise-related health outcomes considered in these guidelines, such as annoyance or sleep disturbance, should be gathered. These monitoring activities should be performed on a regular basis to ensure proper health risk assessments of noise.

5.8 Updating the guidelines

The progress and pace of noise and health research has intensified over the last 10 years, including new studies published after the completion of the systematic reviews done for these guidelines. This is partly related to the growing car fleet and resulting traffic, the density of urbanization, demographic changes and shifts towards renewable energy, including wind turbines, which have caused an increase in public perception and political awareness of the environmental noise problem. Noise exposure assessment has also improved, due partly to European legislation, and this has provided useful data for epidemiological studies on the health effects of environmental noise. Considering this, the recommendations proposed in these guidelines are expected to remain valid for a period of about 10 years. WHO will monitor the development of the scientific advancements on noise and health research in order to inform any updated guidance on environmental noise.

References

Alonso-Coello P, Oxman AD, Moberg J, Brignardello-Petersen R, Akl EA, Davoli M et al. (2016a). GRADE Evidence to Decision (EtD) frameworks: a systematic and transparent approach to making well informed healthcare choices. 2: Clinical practice guidelines. BMJ. 353:i2089. doi: 10.1136/bmj.i2089.

Alonso-Coello P, Schünemann HJ, Moberg J, Brignardello-Petersen R, Akl EA, Davoli M et al. (2016b). GRADE Evidence to Decision (EtD) frameworks: a systematic and transparent approach to making well informed healthcare choices. 1: Introduction. BMJ. 353: i2016. doi: 10.1136/bmj.i2016.

Amundsen AH, Klaeboe R, Aasvang GM (2011). The Norwegian facade insulation study: the efficacy of facade insulation in reducing noise annoyance due to road traffic. J Acoust Soc Am. 129(3):1381–9.

Amundsen AH, Klaeboe R, Aasvang GM (2013). Long-term effects of noise reduction measures on noise annoyance and sleep disturbance: the Norwegian facade insulation study. J Acoust Soc Am. 133(6):3921–8.

Ancona C, Forastiere F, Mataloni F, Badaloni C, Fabozzi T, Perucci CA, on behalf of the SERA Study Team (2010). Aircraft noise exposure and blood pressure among people living near Ciampino airport in Rome. In: Proceedings. 39th International Congress on Noise Control Engineering 2010 (INTER-NOISE 2010), Lisbon, Portugal, 13–16 June 2010. Lisbon: Sociedade Portuguesa de Acustica.

Asensio C, Recuero M, Pavón I (2014). Citizens' perception of the efficacy of airport noise insulation programmes in Spain. Appl Acoust. 84:107–15.

Babisch W (2004). The NaRoMI-Study: executive summary – traffic noise. In: Federal Environmental Agency, editor. Chronic noise as a risk factor for myocardial infarction, The NaRoMI study. Berlin: Umweltbundesamt:1–16.

Babisch W (2014). Updated exposure–response relationship between road traffic noise and coronary heart diseases: a meta-analysis. Noise Health. 16(68):1–9.

Babisch W, Beule B, Schust M, Kersten N, Ising H (2005a). Traffic noise and risk of myocardial infarction. Epidemiology. 16(1):33–40.

Babisch W, Gallacher JE (1990). Traffic noise, blood pressure and other risk factors: the Caerphilly and Speedwell Collaborative Heart Disease Studies. In: Proceedings. 5th International Congress on Noise as a Public Health Problem, Stockholm, Sweden, 21–28 August 1988. Stockholm: Swedish Council for Building Research.

Babisch W, Gallacher JE, Elwood PC, Ising H (1988). Traffic noise and cardiovascular risk. The Caerphilly Study, first phase. Outdoor noise levels and risk factors. Arch Environ Health. 43(6):407–14.

Babisch W, Houthuijs D, Kwekkeboom J, Swart W, Pershagen G, Bluhm G et al. (2005b). HYENA – hypertension and exposure to noise near airports: a European study on health effects of aircraft noise. In: Proceedings. 34th International Congress on Noise Control Engineering 2005 (INTER-NOISE 2005), Rio de Janeiro, Brazil, 7–10 August 2005. Washington DC: Institute of Noise Control Engineering of the USA.

Babisch W, Houthuijs D, Pershagen G, Cadum E, Katsouyanni K, Velonakis M et al. (2009). Annoyance due to aircraft noise has increased over the years – results of the HYENA study. Environ Int. 35:1169–76.

Babisch W, Houthuijs D, Pershagen G, Katsouyanni K, Velonakis M, Cadum E et al. (2008). Associations between road traffic noise level, road traffic noise annoyance and high blood pressure in the HYENA study. J Acoust Soc Am. 123:3448. doi: 10.1121/1.2934267.

Babisch W, Ising H, Elwood PC, Sharp DS, Bainton D (1993a). Traffic noise and cardiovascular risk: the Caerphilly and Speedwell studies, second phase. Risk estimation, prevalence, and incidence of ischemic heart disease. Arch Environ Health. 48(6):406–13.

Babisch W, Ising H, Gallacher JE (2003). Health status as a potential effect modifier of the relation between noise annoyance and incidence of ischaemic heart disease. Occup Environ Med. 60(10):739–45.

Babisch W, Ising H, Gallacher JE, Sharp DS, Baker I (1993b). Traffic noise and cardiovascular risk: the Speedwell study, first phase. Outdoor noise level and risk factors. Arch Environ Health. 48(6):401–5.

Babisch W, Ising H, Gallacher JEJ, Sweetnam PM, Elwood PC (1999). Traffic noise and cardiovascular risk: the Caerphilly and Speedwell studies, third phase – 10-year follow up. Arch Environ Health. 54(3):210–16.

Babisch W, Ising H, Kruppa B, Wiens D (1992). Verkehrslärm und Herzinfarkt, Ergebnisse zweier Fall-Kontroll-Studien in Berlin [Transport noise and myocardial infarction. Results of two case studies from Berlin]. In WoBoLu-Hefte 2/92. Insitut für Wasser, Boden und Lufthygiene. Berlin: Umweltbundeamt].

Babisch W, Ising H, Kruppa B, Wiens D (1994). The incidence of myocardial infarction and its relation to road traffic noise – the Berlin case-control studies. Environ Int. 20(4):469–74.

Babisch W, Pershagen G, Selander J, Houthuijs D, Breugelmans O, Cadum E et al. (2013a). Noise annoyance – a modifier of the association between noise level and cardiovascular health? Sci Total Environ. 452–53:50–7.

Babisch W, Swart W, Houthuijs D, Selander J, Bluhm G, Pershagen G et al. (2012). Exposure modifiers of the relationships of transportation noise with high blood pressure and noise annoyance. J Acoust Soc Am. 132(6):3788–808.

Babisch W, Wolf K, Petz M, Heinrich J, Cyrys J, Peters A (2013b). Road traffic noise, air pollution and (isolated systolic) hypertension: cross-sectional results from the KORA study. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Babisch W, Wolf K, Petz M, Heinrich J, Cyrys J, Peters A (2014c). Associations between traffic noise, particulat air pollution, hypertension, and isolated systolic hypertension in adults: the KORA study. Environ Health Perspect. 122(5):492–8.

Babisch W, Wolke G, Heinrich J, Straff W (2014a). Road traffic noise and hypertension – accounting for the location of rooms. Environ Res. 133:380–7.

Babisch W, Wolke G, Heinrich J, Straff W (2014b). Road traffic, location of rooms and hypertension. J Civil Environ Eng. 4(5):162.

Bakker RH, Pedersen E, van den Berg GP, Stewart RE, Lok W, Bouma J (2012). Impact of wind turbine sound on annoyance, self-reported sleep disturbance and psychological distress. Sci Total Environ. 425:42–51.

Barregard L, Bonde E, Ohrstrom E (2009). Risk of hypertension from exposure to road traffic noise in a population-based sample. Occup Environ Med. 66(6):410–15.

Bartels S, Müller U, Vogt J (2013). Predictors of aircraft noise annoyance: results of a telephone study. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Basner M, Babisch W, Davis A, Brink M, Clark C, Janssen S et al. (2014). Auditory and non-auditory effects of noise on health. Lancet. 383(9925): 1325–32.

Basner M, Isermann U, Samel A (2006). Aircraft noise effects on sleep: application of the results of a large polysomnographic field study. J Acoust Soc Am. 119(5):2772–84.

Basner M, McGuire S (2018). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and effects on sleep. Int J Environ Res Public Health. 15(3):pii: E519 (http://www.mdpi.com/1660-4601/15/3/519/htm, accessed 27 June 2018).

Basner M, Müller U, Elmenhorst EM (2011). Single and combined effects of air, road, and rail traffic noise on sleep and recuperation. Sleep. 34(1):11–23.

Baughan C, Huddart L (1993). Effects of traffic noise changes on residents' nuisance ratings. In: Proceedings. 6th International Congress on Noise as a Public Health Problem. Nice, France, 5–9 July 1993. Lyon: Institut National de Recherche sur les Transports et leur Sécurité.

Beelen R, Hoek G, Houthuijs D, van den Brandt PA, Goldbohm RA, Fischer Pet al. (2009). The joint association of air pollution and noise from road traffic with cardiovascular mortality in a cohort study. Occup Environ Med. 66(4):243–50.

Belojevic G, Evans GW (2011). Traffic noise and blood pressure in North-American urban schoolchildren C3. In: Proceedings. 10th International Congress on Noise as a Public Health Problem 2011 (ICBEN 2011), London, United Kingdom, 24–28 July 2011. London: Institute of Acoustics.

Belojevic G, Evans GW (2012). Traffic noise and blood pressure in low-socioeconomic status, African-American urban schoolchildren. J Acoust Soc Am. 132(3):1403–6.

Bendtsen H, Michelsen L, Christensen EC (2011). Noise annoyance before and after enlarging Danish highway. In: Proceedings. Forum Acusticum: 6th European Congress on Acoustics, Aalborg, Denmark, 27 June – 1 July 2011. Stuttgart: Hirzel.

Berry B, Sanchez D (2014). The economic and social value of aircraft noise effects: A critical review of the state of the art. In: Proceedings. 11th International Congress on Noise as a Public Health Problem 2014 (ICBEN 2014), Nara, Japan, 1–5 June 2014. Tokyo: Institute of Noise Control Engineering of Japan.

Bilenko N, van Rossem L, Brunekreef B, Beelen R, Eeftens M, Hoek G et al. (2013). Traffic-related air pollution and noise and children's blood pressure: results from the PIAMA birth cohort study. Eur J Prev Cardiol. 22(1):4–12.

Bjork J, Ardo J, Stroh E, Lovkvist H, Ostergren PO, Albin M (2006). Road traffic noise in southern Sweden and its relation to annoyance, disturbance of daily activities and health. Scand J Work Environ Health. 32:392–401.

Blanes N, Fons J, Houthuijs D, Swart W, Sáinzde la Maza M, Ramos MJ et al. (2017). Noise in Europe 2017: updated assessment. Bilthoven: European Topic Centre on Air Pollution and Climate Change Mitigation (ETC/ACM Technical Paper 2016/13; http://acm.eionet.europa.eu/reports/ETCACM_TP_2016_13_NoiseInEurope2017, accessed 17 June 2017).

Bluhm G, Berglind N, Nordling E, Rosenlund M (2007). Road traffic noise and hypertension. Occup Environ Med. 64(2):122–6.

Bluhm G, Eriksson C, Hilding A, Ostenson CG (2004). Aircraft noise exposure and cardiovascular risk on men. First results from a study around Stockholm Arlanda airport. In: Proceedings. 33rd International Congress and Exhibition on Noise Control Engineering, Prague, Czechia, 22–25 August 2004. Prague: Czech Acoustical Society.

Bluhm G, Eriksson C, Pershagen G, Hilding A, Östenson CG (2009). Aircraft noise and incidence of hypertension: a study around Stockholm Arlanda airport. In: Proceedings. 8th European Conference on Noise Control 2009 (EURONOISE 2009), Edinburgh, United Kingdom, 26–28 October 2009. Edinburgh: Institute of Acoustics.

Bodin T, Albin M, Ardo J, Stroh E, Ostergren PO, Bjork E (2009). Road traffic noise and hypertension: results from a cross-sectional public health survey in southern Sweden. Environ Health. 8(38).

Bodin T, Björk J, Ardö J, Albin M (2015). Annoyance, sleep and concentration problems due to combined traffic noise and the benefit of quiet side. Int J Environ Res Public Health. 12(2): 1612–28.

Borsky, PN (1979). Sociopsychological factors affecting the human response to noise exposure. Otolaryngol Clin North Am. 12(3):521–35.

Breugelmans O, Houthuijs D, van Kamp I, Stellato R, van Wiechen C, Doornbos G (2007). Longitudinal effects of a sudden change in aircraft noise exposure on annoyance and sleep disturbance around Amsterdam airport. In: Proceedings. 19th International Congress on Acoustics (ICA 2007), Madrid, Spain, 2–7 September 2007. Madrid: Sociedad Espanola de Acustica.

Breugelmans ORP, van Wiechen CMAG, van Kamp I, Heisterkamp SH, Houthuijs DJM (2004). Gezondheid en beleving van de omgevingskwaliteit in de regio Schiphol 2002 [Health and quality of life near Amsterdam Schiphol airport: 2002]. Interim report 630100001 [in Dutch]. Bilthoven: National Institute for Public Health and the Environment.

Brink M (2011). Parameters of well-being and subjective health and their relationship with residential traffic noise exposure – a representative evaluation in Switzerland. Environ Int. 37:723–33.

Brink M (2013). Annoyance assessment in postal surveys using the 5-point and 11-point ICBEN scales: effects of sale and question arrangement. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Brink M, Schäffer B Pieren, R, Wunderli JM (2018). Conversion between noise exposure indicators L_{eq24h}, L_{Day}, $L_{Evening}$, L_{Night}, L_{dn} and L_{den}: principles and practical guidance. Int J Hyg Environ Health. 221(1):54–63. doi: 10.1016/j.ijheh.2017.10.003.

Brink M, Schreckenberg D, Vienneau D, Cajochen C, Wunderli JM, Probst-Hensch N et al. (2016). Effects of scale, question location, order of response alternatives, and season on self-reported noise annoyance using ICBEN scales: a field experiment. Int J Environ Res Public Health. 13(11). doi: 10.3390/ijerph13111163.

Brink M, Wirth KE, Schierz C, Thomann G, Bauer G (2008). Annoyance responses to stable and changing aircraft noise exposure. J Acoust Soc Am. 124(5):2930–41.

Bristow AL, Wardman M, Chintakayala VPK (2014). International meta-analysis of stated preference studies of transportation noise nuisance. Transportation. 42(1):71–100.

Bronzaft AL (1981). The effect of a noise abatement program on reading ability. J Environ Psychol. 1:215–22.

Bronzaft AL, McCarthy DP (1975). The effects of elevated train noise on reading ability. Environ Behav. 7(4):517–27.

Brown AL (1987). Responses to an increase in road traffic noise. J Sound Vib. 117(1):69–79.

Brown AL (2015). Longitudinal annoyance responses to a road traffic noise management strategy that reduced heavy vehicles at night. J Acoust Soc Am. 137(1):165–76.

Brown AL, Hall A, Kyle-Little J (1985). Response to a reduction in traffic noise exposure. J Sound Vib. 98(2):235–46.

Brown AL, Lam KC, van Kamp I (2015). Quantification of the exposure and effects of road traffic noise in a dense Asian city: a comparison with Western cities. Environ Health. 14–22. doi: 10.1186/s12940-015-0009-8.

Brown AL, Lam KC, van Kamp I, Yeung MKL (2014). Urban road traffic noise: exposure and human response in a dense, high-rise city in Asia. In: Proceedings. 11th International Congress on Noise as a Public Health Problem 2014 (ICBEN 2014), Nara, Japan, 1–5 June 2014. Tokyo: Institute of Noise Control Engineering of Japan.

Brown AL, van Kamp I (2009). Response to a change in transport noise exposure: a review of evidence of a change effect. J Acoust Soc Am. 125(5):3018–29.

Brown AL, van Kamp I (2017). WHO environmental noise guidelines for the European Region: a systematic review of transport noise interventions and their impacts on health. Int J Environ Res Public Health. 14(8). pii: E873 (http://www.mdpi.com/1660-4601/14/8/873/htm, accessed 27 June 2018).

Caerphilly and Speedwell Collaborative Group (1984). Caerphilly and Speedwell collaborative heart disease studies. J Epidemiol Community Health. 38:259–62.

Centraal Bureau voor de Statistiek (2012). Milieuhinder, milieugedrag en milieubesef van personen [Environmental nuisance, environmental behaviour and environmental awareness of indivuals] [in Dutch]. The Hague: Centraal Bureau voor de Statistiek (http://statline.cbs.nl/Statweb/publication/?VW=T&DM=SLNL&PA=03783&D1=18-26&D2=0&D3=a&HD=161128-0938&HDR=T&STB=G1,G2, accessed 27 November 2016).

Champelovier P, Cremezi-Charlet C, Lambert J (2003). Evaluation de la gêne due à l'exposition combinée aux bruits routier et ferroviaire [Assessement of annoyance from combined exposure to road and rail traffic noises] (Research Report 242). Lyon: Institut National de Recherche sur les Transports et leur Sécurité.

Chang TY, Beelen R, Li SF, Chen TI, Lin YJ, Bao BY et al. (2014). Road traffic noise frequency and prevalent hypertension in Taichung, Taiwan: a cross-sectional study. Environ Health. 13(1):37.

Chang TY, Liu CS, Bao BY, Li SF, Chen TI, Lin YJ (2011). Characterization of road traffic noise exposure and prevalence of hypertension in central Taiwan. Sci Total Environ. 409(6):1053–7.

Clark C, Crombie R, Head J, van Kamp I, van Kempen E, Stansfeld SA (2012). Does traffic-related air pollution explain associations of aircraft and road traffic noise exposure on children's health and cognition? A secondary analysis of the United Kingdom sample from the RANCH project. Am J Epidemiol. 176:327–37.

Clark C, Head J, Stansfeld SA (2013). Longitudinal effects of aircraft noise exposure on children's health and cognition: a six-year follow-up of the United Kingdom RANCH cohort. J Environ Psychol. 35:1–9.

Clark C, Martin R, van Kempen E, Alfred T, Head J, Davies HW et al. (2006). Exposure-effect relations between aircraft and road traffic noise exposure at school and reading comprehension – the RANCH project. Am J Epidemiol. 163:27–37.

Clark C, Paunovic K (2018). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and cognition. Int J Environ Res Public Health. 15(2). pii: E285 (http://www.mdpi.com/1660-4601/15/2/285/htm, accessed 27 June 2018).

Clark C, Paunovic K (in press). WHO Environmental noise guidelines for the European Region: a systematic review on environmental noise and quality of life, wellbeing and mental health. Int J Environ Res Public Health.

Cohen S, Glass DC, Singer JE (1973). Apartment noise, auditory discrimination, and reading ability in children. J Exp Soc Psychol. 9(5):407–22.

Correia AW, Peters JL, Levy JI, Melly S, Dominici F (2013). Residential exposure to aircraft noise and hospital admissions for cardiovascular diseases: multi-airport retrospective study. BMJ. 347:f5561.

Council of Canadian Academies (2015). Understanding the evidence: wind turbine noise. Ottawa: Council of Canadian Academies (http://www.scienceadvice.ca/en/assessments/completed/wind-turbine-noise.aspx, accessed 6 July 2018).

CSES, Accon, AECOM (2016). Evaluation of Directive 2002/49/EC relating to the assessment and management of environmental noise. Luxembourg: Publications Office of the European Union (https://publications.europa.eu/en/publication-detail/-/publication/7febde6d-9a89-11e6-9bca-01aa75ed71a1/language-en, accessed 10 July 2018).

de Kluizenaar Y, Gansevoort RT, Jong PE de, Miedema HME (2007a). Cardiovascular effects of road traffic noise with adjustment for air pollution. In: Proceedings. 36th International Congress and Exhibition on Noise Control Engineering 2007 (INTER-NOISE 2007), Istanbul, Turkey, 28–31 August 2007. Istanbul: Turkish Acoustical Society.

de Kluizenaar Y, Gansevoort RT, Miedema HM, Jong PE de (2007b). Hypertension and road traffic noise exposure. Occup Environ Med. 49(5):484–92.

de Kluizenaar Y, Janssen SA, Vos H, Salomons EM, Zhou H, van den Berg F (2013). Road traffic noise and annoyance: a quantification of the effect of quiet side exposure at dwellings. Int J Environ Res Public Health. 10(6):2258–70.

de Kluizenaar Y, Salomons EM, Janssen SA, van Lenthe FJ, Vos H, Zhou H et al. (2011). Urban road traffic noise and annoyance: the effect of a quiet facade. J Acoust Soc Am. 130(4):1936–42.

Dell SM, Holmes AE (2012). The effect of a hearing conservation program on adolescents' attitudes towards noise. Noise Health. 14(56):39–44.

Dratva J, Phuleria HC, Foraster M, Gaspoz JM, Keidel D, Kunzli N et al. (2012). Transportation noise and blood pressure in a population-based sample of adults. Environ Health Perspect. 120(1):50–5.

Eagan ME, Anderson G, Nicholas B, Horonjeff R, Tivnan T (2004). Relation between aircraft noise reduction in schools and standardized test scores. In: Proceedings. 9th International Congress on Noise as a Public Health Problem 2008 (ICBEN 2008), Foxwoods, USA, 21–25 July 2008. Zurich: International Commission on Biological Effects of Noise.

EASA, EEA, Eurocontrol (2016). European Aviation Environmental Report 2016. Cologne: European Aviation Safety Agency (https://ec.europa.eu/transport/sites/transport/files/european-aviation-environmental-report-2016-72dpi.pdf, accessed 24 January 2018).

EC (1993). Towards sustainability: a European Community programme of policy and action in relation to the environment and sustainable development. OJ C 138/10, 17.5.93 (http://ec.europa.eu/environment/archives/action-programme/5th.htm, accessed 27 November 2016).

EC (1996). Future noise policy: European Commission Green Paper. Luxembourg: Office for Official Publications of the European Communities (COM(96) 540 final; https://publications.europa.eu/en/publication-detail/-/publication/8d243fb5-ec92-4eee-aac0-0ab194b9d4f3/language-en, accessed 28 November 2016).

EC (2000). Position paper on EU noise indicators. Luxembourg: Office for Official Publications of the European Communities (https://publications.europa.eu/en/publication-detail/-/publication/10d75ba4-7279-4df2-aa50-3ed7fdf656a8/language-en, accessed 27 November 2016).

EC (2002a). Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise. OJ L 189, 18.7.2002:12–25 (https://eur-lex.europa.eu/eli/dir/2002/49/oj, accessed 13 December 2016).

EC (2002b). Decision No 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme. OJ L 242, 6th EAP, 1–15 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002D1600&from=EN, accessed 28 November 2016).

EC (2003). Directive 2003/10/EC of the European Parliament and of the Council of 6 February 2003 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise) (Seventeenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC). OJ L 42, 15.2.2003:38–44 (https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32003L0010, accessed 24 January 2018).

EC (2008a). Attitudes of European citizens towards the environment. Luxembourg: Office for Official Publications of the European Communities (Special Eurobarometer 295; http://ec.europa.eu/environment/eurobarometers_en.htm, accessed 28 November 2016).

EC (2008b). Potential health risks of exposure to noise from personal music players and mobile phones including a music playing function. Luxembourg: Office for Official Publications of the European Communities (http://ec.europa.eu/health/scientific_committees/emerging/opinions/scenihr_opinions_en.htm, accessed 28 November 2016).

EC (2010). Electromagnetic Fields. Luxembourg: Publications Office of the European Union (Special Eurobarometer 347; http://ec.europa.eu/commfrontoffice/publicopinion/archives/eb_special_359_340_en.htm, accessed 27 November 2016).

EC (2014). Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 “Living well, within the limits of our planet”. OJ L 354, 28.12.2013:171–200 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013D1386, accessed 28 November 2016).

EC (2014b). Attitudes of European citizens towards the environment. Luxembourg: Publications Office of the European Union (Special Eurobarometer 416; http://ec.europa.eu/environment/eurobarometers_en.htm, accessed 28 November 2016).

EC (2015). Commission Directive (EU) 2015/996 of 19 May 2015 establishing common noise assessment methods according to Directive 2002/49/EC of the European Parliament and of the Council. OJ L 168/1, 1.7.2015: 1–823 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:JOL_2015_168_R_0001, accessed 28 November 2016).

EC (2016a). Links between noise and air pollution and socioeconomic status. Luxembourg: Publications Office of the European Union (Science for Environmenta Policy In-depth Report 13; http://ec.europa.eu/science-environment-policy, accessed 24 January 2018).

EC (2016b). EU reference scenario 2016 — Energy, transport and GHG emissions: trends to 2050. Luxembourg: Publications Office of the European Union (https://publications.europa.eu/en/publication-detail/-/publication/aed45f8e-63e3-47fb-9440-a0a14370f243/language-en, accessed 4 July 2018).

EEA (2010). Good practice guide on noise exposure and potential health effects. Copenhagen: European Environment Agency (Technical report No 11/2010; http://www.eea.europa.eu/publications/good-practice-guide-on-noise, accessed 27 November 2016).

EEA (2014). Noise in Europe 2014. Copenhagen: European Environment Agency (EEA Report No 10/2014; http://www.eea.europa.eu/publications/noise-in-europe-2014, accessed 28 November 2016).

EEA (2016a). Transitions towards a more sustainable mobility system. TERM 2016: Transport indicators tracking progress towards environmental targets in Europe. Luxembourg: Publications Office of the European Union (EEA Report No 34/2016; https://publications.europa.eu/en/publication-detail/-/publication/c276880f-9c1a-11e7-b92d-01aa75ed71a1/language-en, accessed 4 July 2018).

EEA (2016b). Environmental indicator report 2016. Luxembourg: Publications Office of the European Union (EEA Report No 30/2016; https://www.eea.europa.eu/publications/environmental-indicator-report-2016, accessed 15 March 2017).

EEA (2017a). Managing exposure to noise in Europe. Copenhagen: European Environment Agency (Briefing No 1/2017; https://www.eea.europa.eu/publications/managing-exposure-to-noise-in-europe/, accessed 24 January 2018).

EEA (2017b). TERM 12 — passenger transport volume and modal split. In: European Environment Agency: Indicators [website]. Copenhagen: European Environment Agency (https://www.eea.europa.eu/data-and-maps/indicators/passenger-transport-demand-version-2/assessment-9, accessed 30 January 2018).

EEA (2018). Noise Observation and Information Service for Europe [website]. Copenhagen: European Environment Agency (http://noise.eionet.europa.eu/, accessed 28 November 2016).

Elmenhorst EM, Pennig S, Rolny V, Quehl J, Mueller U, Maaß H et al. (2012). Examining nocturnal railway noise and aircraft noise in the field: sleep, psychomotor performance, and annoyance. Sci Total Environ. 424:48–56.

Eriksson C, Bluhm G, Hilding A, Ostenson CG, Pershagen G (2010). Aircraft noise and incidence of hypertension: gender specific effects. Environ Res. 110(8):764–72.

Eriksson C, Hilding A, Pyko A, Bluhm G, Pershagen G, Östenson CG (2014). Long-term aircraft noise exposure and body mass index, waist circumference, and type 2 diabetes: a prospective study. Environ Health Perspect. 122:687–94.

Eriksson C, Nilsson ME, Willers SM, Gidhagen L, Bellander T, Pershagen G (2012). Traffic noise and cardiovascular health in Sweden: the roadside study. Noise Health. 14(59):140–7.

Eriksson C, Pershagen G, Nilsson M (2018). Biological mechanisms related to cardiovascular and metabolic effects by environmental noise. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/biological-mechanisms-related-to-cardiovascular-and-metabolic-effects-by-environmental-noise, accessed 8 August 2018).

Eriksson C, Rosenlund M, Pershagen G, Hilding A, Ostenson CG, Bluhm G (2007). Aircraft noise and incidence of hypertension. Epidemiology. 18(6):716–21.

Eurofound (2017). European Quality of Life Survey 2016: quality of life, quality of public services, and quality of society. Luxembourg: Publications Office of the European Union.

European Centre for Health Policy (1999). Health impact assessment: main concepts and suggested approach. Brussels: WHO Regional Office for Europe (Gothenburg consensus paper; http://www.healthedpartners.org/ceu/hia/hia01/01_02_gothenburg_paper_on_hia_1999.pdf).

Eurostat (2016). Urban Europe—Statistics on cities, towns and suburbs. Luxembourg: Eurostat (http://ec.europa.eu/eurostat/statistics-explained/index.php/Urban_Europe_%E2%80%94_statistics_on_cities,_towns_and_suburbs, accessed 13 March 2017).

Evans G, Maxwell L (1997). Chronic noise exposure and reading deficits: The mediating effects of language acquisition. Environ Behav. 29:638–56.

Evrard AS, Bouaoun L, Champelovier P, Lambert J, Laumon B (2015). Does exposure to aircraft noise increase the mortality from cardiovascular disease in the population living in the vicinity of airports? Results of an ecological study in France. Noise Health. 17:328–36.

Evrard AS, Khati I, Champelovier P, Lambert J, Laumon B (2013). Cardiovascular effects of aircraft noise near Paris-Charles de Gaulle airport: results from the pilot study of the DEBATS research program. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Feder K, Marro L, Keith SE, Michaud DS (2013). Audiometric thresholds and portable digital audio player user listening habits. Int J Audiol. 52(9):606–16.

FICAN (2007). Findings of the FICAN pilot study on the relationship between aircraft noise reduction and changes in standardised test scores. Washington DC: Federal Interagency Committee on Aviation Noise.

Fidell S, Silvati L, Haboly E (2002). Social survey of community response to a step change in aircraft noise exposure. J Acoust Soc Am. 111(1 Pt 1):200–9.

Floud S, Blangiardo M, Clark C, Hoogh K de, Babisch W, Houthuijs D, et al. (2013a). Exposure to aircraft and road traffic noise and associations with heart disease and stroke in six European countries: a cross-sectional study. Environ Health. 12:89.

Floud S, Blangiardo M, Clark C, Hoogh K de, Babisch W, Houthuijs D, et al. (2013b). Heart disease and stroke in relation to aircraft noise and road traffic noise – The HYENA study. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Floud S, Vigna-Taglianti F, Hansell A, Blangiardo M, Houthuijs D, Breugelmans O et al. (2011). Medication use in relation to noise from aircraft and road traffic in six European countries: results of the HYENA study. Occup Environ Med. 68:518–24.

Foraster M, Basagaña X, Aguilera I, Agis D, Bouso L, Phuleria H et al. (2012). Transportation noise (in particular railway noise) and blood pressure in REGICOR compared to SAPALDIA. In: Proceedings. 41st International Congress and Exposition on Noise Control Engineering 2012 (INTER-NOISE 2012), New York, USA, 19–22 August 2012. Washington DC: Institute of Noise Control Engineering of the USA.

Foraster M, Basagaña X, Aguilera I, Rivera M, Agis D, Bouso L et al. (2011). Cross-sectional association between road traffic noise and hypertension in a population-based sample in Girona, Spain (REGICOR-AIR project). In: Proceedings. 10th International Congress on Noise as a Public Health Problem 2011 (ICBEN 2011), London, United Kingdom, 24–28 July 2011. London: Institute of Acoustics.

Foraster M, Basagaña X, Aguilera I, Rivera M, Agis D, Bouso L et al. (2013). Disentangling the effects of traffic-related noise and air pollution on blood pressure: Indoor noise levels and protections. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Foraster M, Basagaña X, Aguilera I, Rivera M, Agis D, Bouso L et al. (2014a). Association of long-term exposure to traffic-related air pollution with blood pressure and hypertension in an adult population-based cohort in Spain (the REGICOR study). Environ Health Perspect. 122(4):404–11.

Foraster M, Kunzli N, Aguilera I, Rivera M, Agis D, Vila J et al. (2014b). High blood pressure and long-term exposure to indoor noise and air pollution from road traffic. Environ Health Perspect. 122(11):1193–200.

Frei P, Mohler E, Roeoesli M (2014). Effect of nocturnal road traffic noise exposure and annoyance on objective and subjective sleep quality. Int J Hyg Environ Health. 217(2–3):188–95.

Fuks K, Moebus S, Hertel S, Viehmann A, Nonnemacher M, Dragano N et al. (2011). Long-term urban particulate air pollution, traffic noise, and arterial blood pressure. Environ Health Perspect. 119(12):1706–11.

Gan WQ, Davies HW, Koehoorn M, Brauer M (2012). Association of long-term exposure to community noise and traffic-related air pollution with coronary heart disease mortality. Am J Epidemiol. 175(9):898–906.

Garcia SL, Smith KJ, Palmer C. (2018). Cost–effectiveness analysis of a military hearing conservation program. Mil Med. doi: 10.1093/milmed/usx112.

Gelderblom FB, Gjestland TT, Granoien ILN, Taraldsen G (2014). The impact of civil versus military aircraft noise on noise annoyance. In: Proceedings. 43rd International Congress on Noise Control Engineering 2014 (INTER-NOISE 2014), Melbourne, Australia, 16–19 November 2014. Melbourne: Australian Acoustical Society.

Gidloef-Gunnarsson A, Oegren M, Jerson T, Oehrstroem E (2012). Railway noise annoyance and the importance of number of trains, ground vibration, and building situational factors. Noise Health. 14(59):190–201.

Gidloef-Gunnarsson A, Oehrstroem E (2010). Attractive "quiet" courtyards: a potential modifier of urban residents' responses to road traffic noise? Int J Environ Res Public Health. 7(9):3359–75.

Gidloef-Gunnarsson A, Oehrstroem E (2007). Noise and well-being in urban residential environments: the potential role of perceived availability to nearby green areas. Landsc Urban Plan. 83(2–3):115–26.

Gidloef-Gunnarsson A, Oehrstroem E, Kihlman T (2010). A full-scale intervention example of the "quiet side concept" in a residential area exposed to road traffic noise: effects on the perceived sound environment and general noise annoyance. In: Proceedings. 39th International Congress on Noise Control Engineering 2010 (INTER-NOISE 2010), Lisbon, Portugal, 13–16 June 2010. Lisbon: Sociedade Portuguesa de Acustica.

Gidloef-Gunnarsson A, Svensson H, Oehrstroem E (2013). Noise reduction by traffic diversion and a tunnel construction: effects on health and well-being after opening of the Southern Link. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Gilles A, Van de Heyning P (2014). Effectiveness of a preventive campaign for noise-induced hearing damage in adolescents. Int J Pediatr Otorhinolaryngol. 78(4):604–9.

Grazuleviciene R, Lekaviciute J, Mozgeris G, Merkevicius S, Deikus J (2004). Traffic noise emissions and myocardial infarction risk. Pol J Enviro Stud. 13:737–41.

Green KB, Pasternack BS, Shore RE (1982). Effects of aircraft noise on reading ability of school-age children. Arch Environ Health. 37(1): 24–31.

Griefahn B, Schuemer-Kohrs A, Schuemer R, Mohler U, Mehnert P (2000). Physiological, subjective, and behavioural responses to noise from rail and road traffic. Noise Health. 3(9):59–71.

Griffiths ID, Raw GJ (1987). Community and individual response to changes in traffic noise exposure. Dev Toxicol Environ Sci. 15:333–43.

Griffiths ID, Raw GJ (1989). Adaptation to changes in traffic noise exposure. J Sound Vib. 132(2):331–6.

Guski R (1999). Personal and social variables as co-determinants of noise annoyance. Noise Health. 3:45–56.

Guski R, Schreckenberg D, Schuemer R (2017). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and annoyance. Int J Environ Res Public Health. 14(12). pii:1539 (http://www.mdpi.com/1660-4601/14/12/1539/htm, accessed 27 June 2018).

Guyatt GH, Oxman AD, Vist GE, Kunz R, Falck-Ytter Y, Alonso-Coello P et al. (2008). GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. BMJ. 336(7650):924–6.

Hänninen O, Knol AB, Jantunen M, Lim TA, Conrad A, Rappolder M et al. (2014). Environmental burden of disease in Europe: assessing nine risk factors in six countries. Environ Health Perspect. 122(5):439–46.

Haines MM, Stansfeld SA, Brentnall S, Head J, Berry B, Jiggins M et al. (2001a). The West London Schools Study: the effects of chronic aircraft noise exposure on child health. Psychol Med. 31:1385–96.

Haines MM, Stansfeld SA, Job RF, Berglund B, Head J (2001b). Chronic aircraft noise exposure, stress responses, mental health and cognitive performance in school children. Psychol Med. 31:265–77.

Haines MM, Stansfeld SA, Job RF, Berglund B, Head J (2001c). A follow-up study of effects of chronic aircraft noise exposure on child stress responses and cognition. Int J Epidemiol. 30:839–45.

Halonen JI, Vahtera J, Stansfeld S, Yli-Tuomi T, Salo P, Pentti J et al. (2012). Associations between nighttime traffic noise and sleep: the Finnish public sector study. Environ Health Perspect. 120(10): 1391–6.

Hansell AL, Blangiardo M, Fortunato L, Floud S, Hoogh K de, Fecht D et al. (2013). Aircraft noise and cardiovascular disease near Heathrow airport in London: small area study. BMJ. 347:f5432.

Heimann D, de Franceschi M, Emeis S, Lercher P, Seibert P, editors (2007). Air pollution, traffic noise and related health effects in the Alpine space: a guide for authorities and consulters. ALPNAP comprehensive report. Trento: Universita degli Studi di Trento, Dipartimento di Ingegneria Civile e Ambientale.

Hense HW, Herbold M, Honig K (1989). Risikofaktor Lärm in Felderhebungen zu Herz-Kreislauferkrankungen [Noise as a risk factor in field studies on cardiovascular disease]. Berlin: Umweltforschungsplan des Bundesministers für Umwelt, Naturschutz und Reaktorsicherheit.

Herbold M, Hense HW, Keil U (1989). Effects of road traffic noise on prevalence of hypertension in men: results of the Lübeck blood pressure study. Soz Praeventivmed. 34:19–23.

Héroux ME, Verbeek J (2018a). Results from the search for available systematic reviews and meta-analyses on environmental noise. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/results-search-for-available-systematic-reviews-environmental-noise, accessed 8 August 2018).

Héroux ME, Verbeek J (2018b). Methodology for systematic evidence reviews for the WHO environmental noise guidelines for the European Region. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/methodology-systematic-evidence-reviews-who-environmental-guidelines-for-the-european-region, accessed 8 August 2018).

Hohmann B (2015). Assessment of impulse noise regarding harmfulness to hearing. In: Proceedings. 10th European Conference on Noise Control 2015 (EURONOISE 2015), Maastricht, Netherlands, 31 May–3 June 2015. Maastricht: Institute of Acoustics.

Hong J, Kim J, Lim C, Kim K, Lee S (2010). The effects of long-term exposure to railway and road traffic noise on subjective sleep disturbance. J Acoust Soc Am. 128(5):2829–35.

Hong J, Lim C, Kim J, Lee S (2006). Assessment of sleep disturbance on night-time railway noise from the field survey. In: Proceedings. 35th International Congress and Exposition on Noise Control Engineering 2006 (INTER-NOISE 2006), Honolulu, USA, 3–6 December 2006. Washington DC: Institute of Noise Control Engineering of the USA.

Houthuijs DJM, van Wiechen CMAG (2006). Monitoring of health and perceptions around Schiphol Airport [in Dutch]. Bilthoven: National Institute for Public Health and the Environment.

Huang X, Lin J, Demner-Fushman D (2006). Evaluation of PICO as a knowledge representation for clinical questions. AMIA Annu Symp Proc. 359–63.

Huss A, Spoerri A, Egger M, Roeoesli M, for the Swiss National Cohort Study Group (2010). Aircraft noise, air pollution, and mortality from myocardial infarction. Epidemiology. 21(6):829–36.

Hygge S, Evans GW, Bullinger M (2002). A prospective study of some effects of aircraft noise on cognitive performance in schoolchildren. Psychol Sci. 13(5):469–74.

ISO (2013). ISO 1999:2013. Acoustics – estimation of noise-induced hearing loss. Geneva: International Organization for Standardization (https://www.iso.org/standard/45103.html, accessed 28 November 2016).

ISO (2016). ISO 1996-1:2016: Acoustics – Description, measurement and assessment of environmental noise – Part 1: basic quantities and assessment. Geneva: International Organization for Standardization (https://www.iso.org/standard/59765.html, accessed 15 March 2017).

Ising H, Ising M (2002). Chronic cortisol increases in the first half of the night caused by road traffic noise. Noise Health. 4(16):13–21.

Janssen SA, Vos H (2009). A comparison of recent surveys to aircraft noise exposure–response relationships. Delft: TNO (Report No: 034-DTM-2009-01799).

Janssen SA, Vos H, Eisses AR, Pedersen E (2011). A comparison between exposure–response relationships for wind turbine annoyance and annoyance due to other noise sources. J Acoust Soc Am. 130(6):3746–53.

Jarup L, Babisch W, Houthuijs D, Pershagen G, Katsouyannie K, Cadum E et al. (2008). Hypertension and exposure to noise near airports: the HYENA study. Environ Health Perspect. 116(3):329–33.

Jarup L, Dudley ML, Babisch W, Houthuijs D, Swart W, Pershagen G et al. (2005). Hypertension and exposure to noise near airports (HYENA): study design and noise exposure assessment. Environ Health Perspect. 113(11):1473–8.

Karpati A, Galea S, Awerbuch T, Levins R (2002). Variability and vulnerability at the ecological level: implications for understanding the social determinants of health. Am J Public Health. 92(11):1768–72.

Kastka J (1981). Effects of traffic-silencing measures on noise nuisance. Zeitschrift fur Larmbekampfung. 28(1):25–30.

Kastka J, Buchta E, Ritterstaedt U, Paulsen R, Mau U (1995). The long-term effect of noise protection barriers on the annoyance response of residents. J Sound Vib. 184(5):823–52.

Klatte M, Bergström K, Spilski M, Mayerl J, Meis M (2014). NORAH Noise-related annoyance, cognition, and health: Wirkungen chronischer Fluglärmbelastung auf kognitive Leistungen und Lebensqualität bei Grundschulkindern [Effects of long-term aircraft exposure on the cognitive performance of elementary school children]. Kaiserslautern: Technische Universität Kaiserslautern.

Knipschild P, Meijer H, Salle H (1984). Transportation noise, psychological issues and hypertension. Results of a survey of Amsterdam residents [in Dutch]. Tijdsc Soc Gezondheid. 62:758–65.

Knopper L, Ollson C (2011). Health effects and wind turbines: a review of the literature. Environ Health. 10:78–87

Kotowski MR, Smith SW, Johnstone PM, Pritt E (2011). Using the Extended Parallel Process Model to create and evaluate the effectiveness of brochures to reduce the risk for noise-induced hearing loss in college students. Noise Health. 13(53):261–71.

Kuwano S, Yano T, Kageyama T, Sueoka S, Tachibanae H (2014). Social survey on wind turbine noise in Japan. Noise Control Eng J. 62(6):503–20.

Lam KC, Au WH (2008). Human annoyance response to a step change in noise exposure following the opening of a new railway extension in Hong Kong. In: Proceedings. 9th International Congress on Noise as a Public Health Problem 2008 (ICBEN 2008), Foxwoods, USA, 21–25 July 2008. Zurich: International Commission on Biological Effects of Noise.

Lambert J, Philipps-Bertin C (2008). Perception and attitudes to transportation noise in France: a national survey. In: Proceedings. 9th International Congress on Noise as a Public Health Problem 2008 (ICBEN 2008), Foxwoods, USA, 21–25 July 2008. Zurich: International Commission on Biological Effects of Noise.

Langdon FJ, Griffiths ID (1982). Subjective effects of traffic noise exposure. II: Comparisons of noise indices, response scales, and the effects of changes in noise levels. J Sound Vib. 83(2):171–80.

Lekaviciute J (2007). Traffic noise in Kaunas city and its influence on myocardial infarction risk [PhD thesis]. Kaunus: Vytautas Magnus University.

Lercher P, Botteldooren D, de Greve B, Dekoninck L, Ruedisser J (2007). The effects of noise from combined traffic sources on annoyance: the case of interactions between rail and road noise. In: Proceedings. 36th International Congress and Exhibition on Noise Control Engineering 2007 (INTER-NOISE 2007), Istanbul, Turkey, 28–31 August 2007. Istanbul: Turkish Acoustical Society.

Lercher P, Botteldooren D, Widmann U, Uhrner U, Kammeringer E (2011). Cardiovascular effects of environmental noise: research in Austria. Noise Health. 13(52):234–50.

Lercher P, Brink M, Rudisser J, et al. (2010). The effects of railway noise on sleep medication intake: results from the ALPNAP-study. Noise Health. 12(47):110–19.

Lercher P, Greve B de, Botteldooren D, Dekoninck L, Oettl D, Uhrner U et al. (2008). Health effects and major co-determinants associated with rail and road noise exposure along transalpine traffic corridors. In: Proceedings. 9th International Congress on Noise as a Public Health Problem 2008 (ICBEN 2008), Foxwoods, USA, 21–25 July 2008. Zurich: International Commission on Biological Effects of Noise.

Lercher P, Eisenmann A, Dekonick L, Botteldooren D (2013). The relation between disturbed sleep in children and traffic noise exposure in alpine valleys. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Lercher P, Evans GW, Meis M (2003). Ambient noise and cognitive processes among primary school children. Environ Behav. 35:725–35.

Levesque B, Fiset R, Isabelle L, Gauvin D, Baril J, Larocque R et al. (2010). Exposure of high school students to noise from personal music players in Québec City, Canada. Int J Child Adolescent Health. 3(30):413–20.

Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJ, editors (2006). Global burden of disease and risk factors. Washington DC: World Bank and New York: Oxford University Press.

Liu C, Fuertes E, Tiesler CM, Birk M, Babisch W, Bauer CP et al. (2014). The associations between traffic-related air pollution and noise with blood pressure in children: results from the GINIplus and LISAplus studies. Int J Hyg Environ Health. 217(4–5):499–505.

Liu C, Fuertes E, Tiesler CM, Birk M, Babisch W, Bauer CP et al. (2013). The association between road traffic noise exposure and blood pressure among children in Germany: the GINIplus and LISAplus studies. Noise Health. 15(64):165–72.

Locher B, Piquerez A, Habermacher M, Ragettli M, Röösli M, Brink M et al. (2018). Differences between outdoor and indoor sound levels for open, tilted, and closed windows. Int J Environ Res Public Health. 15(1): 149.

Lukas JS, DuPreeRB, Swing JW (1981). Report of a study on the effects of freeway noise on academic achievement of elementary school children, and a recommendation for a criterion level for a school noise abatement program. Sacramento, CA: California Department of Health Services.

Maassen M, Babisch W, Bachmann K D, Ising H, Lehnert G, Plath P et al. (2001). Ear damage caused by leisure noise. Noise Health. 4:1–16.

Martin WH, Griest SE, Sobel JL, Howarth LC (2013). Randomized trial of four noise-induced hearing loss and tinnitus prevention interventions for children. Int J Audiol. 52(Suppl 1):S41–9.

Maschke C (2003). Epidemiological research on stress caused by traffic noise and its effects on high blood pressure and psychic disturbances. In: Proceedings. 8th International Congress on Noise as a Public Health Problem 2003 (ICBEN 2003), Rotterdam, Netherlands, 29 June – 3 July 2003. Zurich: International Commission on Biological Effects of Noise.

Maschke C, Hecht K (2005). Pathogenesis mechanism by noise-induced clinical pictures – Lessons from the Spandau Health-Survey. Umweltmedizin in Forschung und Praxis. 10(2):77–88.

Maschke C, Wolf U, Leitmann T (2003). Epidemiological examinations of the influence of noise stress on the immune system and the emergence of arteriosclerosis [in German]. Berlin: Umweltbundesambt.

Mathers CD, Bernard C, Iburg KM, Inoue M, Fat DM, Shibuya K et al. (2003). Global burden of disease in 2002: data sources, methods and results. Geneva: World Health Organization (Global Programme on Evidence for Health Policy Discussion Paper No. 54; http://www.portal.pmnch.org/healthinfo/global_burden_disease/data_sources_methods/en/index1.html, accessed 2 July 2018).

Mathers C, Vos T, Stevenson C (1999). The burden of disease and injury in Australia. Canberra: Australian Institute of Health and Welfare cat. no. PHE 17. (https://www.aihw.gov.au/reports/burden-of-disease/the-burden-of-disease-injury-in-australia-1996/contents/table-of-contents, accessed 28 November 2016).

Matheson M, Clark C, Martin R, van Kempen E, Haines M, Barrio IL et al. (2010). The effects of road traffic and aircraft noise exposure on children's episodic memory: the RANCH project. Noise Health. 12:244–54.

Matsui T (2013). Psychosomatic disorder due to aircraft noise and its causal pathway. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Matsui T, Stansfeld S, Haines M, Head J (2004). Children's cognition and aircraft noise exposure at home – the West London Schools Study. Noise Health. 7:49–58.

Matsui T, Uehara T, Miyakita T, Hiramatsu K, Osada Y, Yamamoto T (2001). Association between blood pressure and aircraft noise exposure around Kadena airfield in Okinawa. In: Proceedings. 30th International Congress and Exhibition on Noise Control Engineering 2001 (INTER-NOISE 2001), The Hague, Netherlands, 27–30 August 2001. The Hague: Nederlands Akoestisch Genootschap.

Matsui T, Uehara T, Miyakita T, Hiramatsu K, Osada Y, Yamamoto T (2004). The Okinawa study: effects of chronic aircraft noise on blood pressure and some other psychological indices. J Sound Vib. 277(3):469–70.

McCunney R J, Mundt KA, Colby WD, Dobie R, Kaliski K, Blais M (2014). Wind turbines and health: a critical review of the scientific literature. J Occup Environ Med. 56(11):e108–30.

Medizinische Universitaet Innsbruck (2008). Galleria di Base del Brennero – Brenner Baistunnel – Sozioökonomie (public health) – Zusammenfassender Bericht [Social economics (public health) – final report]. Innsbruck: Medizinische Universität Innsbruck.

Michaud D (2015). Self-reported and objectively measured outcomes assessed in the Health Canada Wind Turbine Noise and Health Study: results support an increase in community annoyance. In: Proceedings. 44th International Congress and Exposition on Noise Control Engineering 2015 (INTER-NOISE 2015), San Francisco, USA, 9–12 August 2015. Washington DC: Institute of Noise Control Engineering of the USA.

Miedema HM, Oudshoorn CG (2001). Annoyance from transportation noise: relationships with exposure Metrics DNL and DENL and their CIs. Environ Health Perspect. 109:409–16.

Moehler U, Hegner A, Schuemer R, Schuemer-Kohrs A (1997). Effects of railway-noise reduction on annoyance after rail-grinding. In: Proceedings. 26th International Congress and Exposition on Noise Control Engineering (INTER-NOISE 1997), Budapest, Hungary, 25–27 August 1997. Budapest: OPAKFI.

Morgan RL, Thayer KA, Bero L, Bruce N, Falck-Ytter Y, Ghersi D et al. (2016). GRADE: Assessing the quality of evidence in environmental and occupational health. Environ Int. 2016;92-93:611–6. doi:10.1016/j.envint.2016.01.004.

Morrell S, Taylor R, Carter N, Job S, Peploe P (1998). Cross-sectional relationship between blood pressure of schoolchildren and aircraft noise. In: Proceedings. 7th International Congress on Noise as a Public Health Problem 1998 (ICBEN 1998), Sydney, Australia, 22–26 November 1998. Sydney: National Capital Printing ACT.

Morrell S, Taylor R, Carter N, Peploe P, Job S (2000). Cross-sectional and longitudinal results of a follow-up examination of child blood pressure and aircraft noise: the inner Sydney child blood pressure study. In: Proceedings. 29th International Congress on Noise Control Engineering 2000 (INTER-NOISE 2000), Nice, France, 27–31 August 2000. Paris: Societe Francaise D'acoustique.

Murray CJ (1994). Quantifying the burden of disease: the technical basis for disability-adjusted life-years. Bull World Health Organ. 72(3):429–45.

Murray CJ, Acharya AK (1997). Understanding DALYs (disability-adjusted life-years). J Health Econ. 16:703–30.

Murray CJ, Lopez AD (2013) Measuring the global burden of disease. N Engl J Med. 369(5): 448–57.

Neitzel R, Fligor B (2017). Determination of risk of noise-induced hearing loss due to recreational sound: review. Geneva: World Health Organization (http://www.who.int/pbd/deafness/Monograph_on_determination_of_risk_of_HL_due_to_exposure_to_recreational_sounds.pdf, accessed 30 January 2018).

Nguyen LT, Nguyen TL, Yano T, et al. (2015). Social surveys around Noi Bai Airport before and after the opening of a new terminal building. In: Proceedings. 44th International Congress and Exposition on Noise Control Engineering 2015 (INTER-NOISE 2015), San Francisco, USA, 9–12 August 2015. Washington DC: Institute of Noise Control Engineering of the USA.

Nguyen TL, Nguyen HQ, Yano T, Nishimura T, Sato T, Morihara T, Hashimoto Y (2012a). Comparison of models to predict annoyance from combined noise in Ho Chi Minh City and Hanoi. Appl Acoust. 73(9):952–59.

Nguyen TL, Yano T, Nguyen HQ, et al. (2010). Community response to aircraft and combined noises in Hanoi. In: Proceedings. 39th International Congress on Noise Control Engineering 2010 (INTER-NOISE 2010), Lisbon, Portugal, 13–16 June 2010. Lisbon: Sociedade Portuguesa de Acustica.

Nguyen TL, Yano T, Nguyen HQ, Nishimura T, Fukushima H, Sato T et al. (2011). Community response to aircraft noise in Ho Chi Minh City and Hanoi. Appl Acoust. 72(11):814–22.

Nguyen T, Yano T, Nguyen H, Nishimura T, Sato T, Morihara T (2012b). Community response to aircraft noise around three airports in Vietnam. In: Proceedings. Acoustics 2012 Hong Kong Conference, 13–18 May 2012. Hong Kong: Institute of Acoustics.

Nguyen TL, Yano T, Nguyen HQ, et al. (2012c). Aircraft and road traffic noise annoyance in Da Nang City, Vietnam. In: Proceedings. 41st International Congress and Exposition on Noise Control Engineering 2012 (INTER-NOISE 2012), New York, USA, 19–22 August 2012. Washington DC: Institute of Noise Control Engineering of the USA.

Nguyen TL, Yano T, Nishimura T, Sato T (2009). Social survey on community response to aircraft noise in Ho Chi Minh City. In: Proceedings. 38th International Congress and Exposition on Noise Control Engineering 2009 (INTER-NOISE 2009), Ottawa, Canada, 23–26 August 2009. Washington DC: Institute of Noise Control Engineering of the USA.

Nieuwenhuijsen MJ, Ristovska G, Dadvand P (2017). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and adverse birth outcomes. Int J Environ Res Public Health. 14(10). pii: E1252 (http://www.mdpi.com/1660-4601/14/10/1252/htm, accessed 27 June 2018).

Nilsson ME, Berglund B (2006). Noise annoyance and activity disturbance before and after the erection of a roadside noise barrier. J Acoust Soc Am. 119(4):2178–88.

Notley H, Grimwood C, Raw G, Clark C, Zepidou G, Van de Kerchhove R et al. (2014). National Noise Attitude Survey 2012 (NNAS2012): summary report. London: Department for Environment and Rural Affairs (http://randd.defra.gov.uk/Document.aspx?Document=12378_SummaryReportV1.0.pdf,

Oehrstroem E (2004). Longitudinal surveys on effects of changes in road traffic noise-annoyance, activity disturbances, and psycho-social well-being. J Acoust Soc Am. 115(2):719–29.

Oehrstroem E, Hadzibajramovic E, Holmes M, Svensson H (2006a). Effects of road traffic noise on sleep: studies on children and adults. J Environ Psychol. 26(2):116–26.

Oehrstroem E, Skanberg A (2000). Adverse health effects in relation to noise mitigation – a longitudinal study in the city of Göteborg. In: Proceedings. 29th International Congress on Noise Control Engineering 2000 (INTER-NOISE 2000), Nice, France, 27–31 August 2000. Paris: Societe Francaise D'acoustique.

Oehrstroem E, Skanberg A (2004). Longitudinal surveys on effects of road traffic noise substudy on sleep assessed by wrist actigraphs and sleep logs. J Sound Vib. 272:1097–109.

Oehrstroem E, Skanberg A, Svensson H, Gidloef-Gunnarsson A (2006b). Effects of road traffic noise and the benefit of access to quietness. J Sound Vib. 295:40–59.

Oftedal B, Krog NH, Graff-Iversen S, Haugen M, Schwarze P, Aasvang GM (2014). Traffic noise and markers of obesity: a population-based study. In: Proceedings. 11th International Congress on Noise as a Public Health Problem 2014 (ICBEN 2014), Nara, Japan, 1–5 June 2014. Tokyo: Institute of Noise Control Engineering of Japan.

Oftedal B, Nafstad P, Schwarze P, Aasvang GM (2011). Road traffic noise, air pollution and blood pressure in Oslo, Norway. In: Proceedings. 10th International Congress on Noise as a Public Health Problem 2011 (ICBEN 2011), London, United Kingdom, 24–28 July 2011. London: Institute of Acoustics.

Ohiduzzaman M, Sirin O, Kassem E, Rochat JL (2016). State-of-the-art review on sustainable design and construction of quieter pavements—Part 1: traffic noise measurement and abatement techniques. Sustainability. 8(8):742.

Omlin S, Bauer GF, Brink M. (2011). Effects of noise from non-traffic-related ambient sources on sleep: Review of the literature of 1999–2010. Noise Health. 13(53):299–309.

Ouis D (2001). Annoyance from road traffic noise: a review. J Environ Psychol. 21:101–20.

Passchier-Vermeer W, Vos H, Janssen SA, Miedema HM (2007). Sleep and traffic noise, summary report. Delft: TNO (Report No: 2007-D-R0012/A; https://www.tno.nl/en/focus-areas/circular-economy-environment/roadmaps/environment-sustainability/noise/field-study-of-sleep-and-traffic/, accessed 4 July 2018).

Passchier-Vermeer W, Vos H, Steenbekkers J, van der Ploeg F, Groothuis-Oudshoorn K (2002). Sleep disturbance and aircraft noise exposure: exposure-effect relationships. Delft: TNO (Report No: 2002.027; http://www2.vlieghinder.nl/knipsels_pmach/pdfs/0110xx_TNO_Sleep_disturbance_and_aircraft_noise_exposure_effect_rapport3.pdf, accessed 28 November 2016).

Paunovic K, Belojevic G, Jakovljevic B (2013). Blood pressure of urban school children in relation to road-traffic noise, traffic density and presence of public transport. Noise Health. 15(65):253–60.

Pawlaczyk-Luszczynska M, Dudarewicz A, Zaborowski K, Zamojska-Daniszewska M, Waszkowska M (2014). Evaluation of annoyance from the wind turbine noise: a pilot study. Int J Occup Med Environ Health. 27(3):364–88.

Pedersen E (2011). Health aspects associated with wind turbine noise: results from three field studies. Noise Control Eng J. 59(1):47–53.

Pedersen E, Larsman P (2008). The impact of visual factors on noise annoyance among people living in the vicinity of wind turbines. J Environ Psychol. 28(4):379–89.

Pedersen E, Perrson Waye K (2004). Perception and annoyance due to wind turbine noise – a dose-response relationship. J Acoust Soc Am. 116(6):3460–70.

Pedersen E, Persson Waye K (2007). Wind turbine noise, annoyance and self-reported health and well-being in different living environments. Occup Environ Med. 64(7):480–6.

Pedersen T, Le Ray G, Bendtsen H, Kragh J (2013). Community response to noise reducing road pavements. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Pedersen T, Le Ray G, DELTA SenseLab, Bendtsen H, Kragh J, Danish Road Directorate (2014). Community response to noise reducing road pavements. Copenhagen: Vejdirektoratet. (http://vejdirektoratet.dk/DA/viden_og_data/publikationer/sider/publikation.aspx?pubid=1182366409, accessed 28 November 2016).

Pellegrino E, Lorini C, Allodi G, Buonamici C, Garofalo G, Bonaccorsi G (2013). Music-listening habits with MP3 player in a group of adolescents: a descriptive survey. Ann Ig. 25(5):367–76.

Phan HYT, Yano T, Phan HAT, Nishimura T, Sato T, Hashimoto Y (2010). Community responses to road traffic noise in Hanoi and Ho Chi Minh City. Appl Acoust. 71(2):107–14.

Pierette M, Marquis-Favre C, Morel J, Rioux L, Vallet M, Viollon S et al. (2012). Noise annoyance from industrial and road traffic combined noises: a survey and a total annoyance model comparison. J Environ Psychol. 32(2):178–86.

Pirrera S, De Valck E, Cluydts R (2014). Field study on the impact of nocturnal road traffic noise on sleep: the importance of in- and outdoor noise assessment, the bedroom location and nighttime noise disturbances. Sci Total Environ. 500–1:84–90.

Pujol S, Levain JP, Houot H, Petit R, Berthillier M, Defrance J et al. (2014). Association between ambient noise exposure and school performance of children living in an urban area: a cross-sectional population-based study. J Urban Health. 91(2):256–71.

Pyko A, Eriksson C, Lind T, Mitkovskaya N, Wallas A, Ögren M et al. (2017). Long-term exposure to transportation noise in relation to development of obesity – a cohort study Environ Health Perspect. 125(11):117 005.

Pyko A, Eriksson C, Oftedal B, Hilding A, Östenson CG, Krog NH et al. (2015). Exposure to traffic noise and markers of obesity. Occup Environ Med. 72(8):594–601.

Quigley R, den Broeder L, Furu P, Bond A, Cave B, Bos R (2006). Health impact assessment: international best practice principles. Fargo, ND: International Association for Impact Assessment (Special Publication Series No. 5; http://www.iaia.org/best-practice.php, accessed 10 July 2018).

Regecova V, Kellerova E (1995). Effects of urban noise pollution on blood pressure and heart rate in preschool children. J Hypertens. 13(4):405–12.

Ristovska G, Gjorgjev D, Stikova E, Petrova V, Cakar MD (2009). Noise-induced sleep disturbance in adult population: cross-sectional study in Skopje urban centre. Maced J Med Sci. 2(3):255–60.

Rosenlund M, Berglind N, Pershagen G, Jarup L, Bluhm G (2001). Increased prevalence of hypertension in a population exposed to aircraft noise. Occup Environ Med. 58(12):769–73.

Sato T, Yano T (2011). Effects of airplane and helicopter noise on people living around a small airport in Sapporo, Japan. In: Proceedings. 10th International Congress on Noise as a Public Health Problem 2011 (ICBEN 2011), London, United Kingdom, 24–28 July 2011. London: Institute of Acoustics.

Sato T, Yano T, Björkman M, Rylander R (2002). Comparison of community response to road traffic noise in Japan and Sweden – Part I: outline of surveys and dose-response relationships. J Sound Vib. 250:161–7.

Sato T, Yano T, Morihara T (2004). Community response to noise from Shinkansen in comparison with ordinary railways: a survey in Kyushu, Japan. In: Proceedings. 18th International Congress on Acoustics (ICA 2004), Kyoto, Japan, 4–9 April. Kyoto: Acoustical Society of Japan.

Schäffer B, Schlittmeier SJ, Pieren R, Heutschi K, Brink M, Graf R et al. (2016). Short-term annoyance reactions to stationary and time-varying wind turbine and road traffic noise: a laboratory study. J Acoust Soc Am. 139(5):2949–63.

Schreckenberg D (2013). Exposure-response relationship for railway noise annoyance in the Middle Rhine Valley. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Schreckenberg D, Faulbaum F, Guski R, Ninke L, Peschel C, Spilski J et al. (2015). Wirkungen von Verkehrslärm auf die Belästigung und Lebensqualität [Effects of transportation noise on noise annoyance and quality of life]. In: Gemeinütziges Umwelthaus gGmbH, editor, NORAH (Noise related annoyance cognition and health): Verkehrslärmwirkungen im Flughafenumfeld [Effect of transportation noise in the area of an airport] (vol. 3). Kelsterbach: Umwelthaus gGmbH (https://www.norah-studie.de//en/publications.html, accessed 4 July 2018).

Schreckenberg D, Heudorf U, Eikmann T, Meis M (2009). Aircraft noise and health of residents living in the vicinity of Frankfurt airport. In: Proceedings. 8th European Conference on Noise Control 2009 (EURONOISE 2009), Edinburgh, United Kingdom, 26–28 October 2009. Edinburgh: Institute of Acoustics.

Schreckenberg D, Meis M (2007). Lärmbelästigung und Lebensqualität in der Bevölkerung am Frankfurter Flughafen [Noise annoyance and quality of life of the residents around Frankfurt Airport]. Lärmbekämpfung [Noise Abatement]. 2(6):225–33.

Schreckenberg D, Benz S, Belke C, Möhler U, Guski R (2017). The relationship between aircraft sound levels, noise annoyance and mental well-being: an analysis of moderated mediation. In: Proceedings. 12th International Congress on Noise as a Public Health Problem 2017 (ICBEN 2017), Zurich, Switzerland, 18–22 June 2017. Zurich: International Commission on Biological Effects of Noise.

Schreckenberg D, Moehler U, Liepert M, Schuemer R (2013). The impact of railway grinding on noise levels and residents' noise responses – Part II: the role of information. In: Proceedings. 42nd International Congress and Exposition on Noise Control Engineering 2013 (INTER-NOISE 2013), Innsbruck, Austria, 15–18 September 2013. Innsbruck: Austrian Noise Abatement Association.

Schuemer R, Schuemer-Kohrs A (1991). The nuisance of rail traffic noise in comparison with other sources of noise, comments on research results. Zeitschrift für Lärmbekämpfung [Magazine for Combating Noise]. 38:1–9.

Seabi J, Cockcroft K, Goldschagg P, GreylingM (2012). The impact of aircraft noise exposure on South African children's reading comprehension: the moderating effect of home language. Noise Health. 14:244–52.

Seabi J, Cockcroft K, Goldschagg P, Greyling M (2013). A prospective follow-up study of the effects of chronic aircraft noise exposure on learners' reading comprehension in South Africa. J Expo Sci Environ Epidemiol. 25(1):84–8.

Selander J, Nilsson ME, Bluhm G, Rosenlund M, Lindqvist M, Nise G et al. (2009). Long-term exposure to road traffic noise and myocardial infarction. Epidemiology. 20(2):272–9.

Shea BJ, Grimshaw JM, Wells GA, Boers M, Andersson N, Hamel C et al. (2007). Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. BMC Med Res Methodol. 7:10. PMID: 17302989.

Sharp B, Connor TL, McLaughlin D, Clark C, Stansfeld SA, Hervey J (2014). Assessing aircraft noise conditions affecting student learning, volume 1: final report. Washingtdon DC: Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine (http://www.trb.org/Publications/Blurbs/170328.aspx, accessed 5 July 2018).

Shepherd D, Welch D, Dirks KN, McBride D (2013). Do quiet areas afford greater health related quality of life than noisy areas? Int J Environ Res Public Health. 10(4):1284–303.

Shield BM, Dockrell JE (2008). The effects of environmental and classroom noise on the academic attainments of primary schoolchildren. J Acoust Soc Am. 123:133–44.

Shimoyama K, Nguyen TL, Yano T, Morihara T (2014). Social surveys on community response to road traffic in five cities in Vietnam. In: Proceedings. In: Proceedings. 43rd International Congress on Noise Control Engineering 2014 (INTER-NOISE 2014), Melbourne, Australia, 16–19 November 2014. Melbourne: Australian Acoustical Society.

Sirin O (2016). State-of-the-art review on sustainable design and construction of quieter pavements—Part 2: factors affecting tyre-pavement noise and prediction models. Sustainability. 8(7):692.

Śliwińska-Kowalska M, Zaborowski K (2017). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and permanent hearing loss and tinnitus. Int J Environ Res Public Health. 14(10). pii: E1139 (http://www.mdpi.com/1660-4601/14/10/1139/htm, accessed 27 June 2018).

Sobotova L, Jurkovicova J, Stefanikova Z, Sevcikova L, Aghova L (2006). Community noise annoyance assessment in an urban agglomeration. Bratisl Lek Listy. 107(5):214–16.

Sörensen M, Andersen ZJ, Nordsborg RB, Jensen SS, Lillelund KG, Beelen R et al. (2012a). Road traffic noise and incident myocardial infarction: a prospective cohort study. PLoS One. 7(6):e39283.

Sörensen M, Andersen ZJ, Nordsborg RB, Tjonneland A, Raaschou-Nielsen O, Lillelund KG et al. (2012b). Road traffic noise and risk for stroke and myocardial infarction. In: Proceedings. 41st International Congress and Exposition on Noise Control Engineering 2012 (INTER-NOISE 2012), New York, USA, 19–22 August 2012. Washington DC: Institute of Noise Control Engineering of the USA.

Sörensen M, Hoffmann B, Hvidberg M, Ketzel M, Jensen SS, Andersen ZJ et al. (2012c). Long-term exposure to traffic-related air pollution associated with blood pressure and self-reported hypertension in a Danish cohort. Environ Health Perspect. 120(3):418–24.

Sörensen M, Hvidberg M, Hoffmann B, Andersen ZJ, Nordsborg RB, Lillelund KG et al. (2011). Exposure to road traffic and railway noise and associations with blood pressure and self-reported hypertension: a cohort study. Environ Health. 10(92).

Sörensen M, Luhdorf P, Ketzel M, Andersen ZJ, Tjonneland A, Overvad K, Raaschou-Nielsen O (2014). Combined effects of road traffic noise and ambient air pollution in relation to risk for stroke? Environ Res. 133:49–55.

Sörensen M, Wendelboe Nielsen O, Sajadieh A, Ketzel M, Tjonneland A, Overvad K et al. (2017). Long-Term Exposure to Road Traffic Noise and Nitrogen Dioxide and Risk of Heart Failure: A Cohort Study. Environ Health Perspect. 125(9):097021.

Stansfeld SA, Berglund B, Clark C, Lopez-Barrio I, Fischer P, Ohrstrom E, et al. (2005). Aircraft and road traffic noise and children's cognition and health: a cross-national study. Lancet. 365:1942–9.

Stansfeld SA, Haines MM, Berry B, Burr M (2009b). Reduction of road traffic noise and mental health: an intervention study. Noise Health. 11(44):169–75.

Stansfeld SA, Hygge S, Clark C, Alfred T (2010). Night-time aircraft noise exposure and children's cognitive performance. Noise Health. 12:255–62.

Sulaiman AH, Husain R, Seluakumaran K (2014). Evaluation of early hearing damage in personal listening device users using extended high-frequency audiometry and otoacoustic emissions. Eur Arch Otorhinolaryngol. 271(6):1463–70.

Sulaiman AH, Seluakumaran K, Husain R (2013). Hearing risk associated with the usage of personal listening devices among urban high school students in Malaysia. Public Health. 127(8):710–15.

Taljaard DS, Leishman NF, Eikelboom RH (2013). Personal listening devices and the prevention of noise-induced hearing loss in children: the Cheers for Ears Pilot Program. Noise Health. 15(65):261–8.

Tiesler CM, Birk M, Thiering E, Kohlbock G, Koletzko S, Bauer CP et al. (2013). Exposure to road traffic noise and children's behavioural problems and sleep disturbance: results from the GINIplus and LISAplus studies. Environ Res. 123:1–8.

Umweltbundesamt (2015). Umweltbewusstsein in Deutchland 2014: Ergebnisse einer repräsentativen Bevölkerungsumfrage [Environmental Consciousness in Germany in 2014: results of a representative survey of the population] [in German]. Berlin: Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (https://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/umweltbewusstsein_in_deutschland_2014.pdf, accessed 24 January 2018).

Umweltbundesamt (2017). Umweltbewusstsein in Deutchland 2016: Ergebnisse einer repräsentativen Bevölkerungsumfrage [Environmental Consciousness in Germany in 2016: results of a representative survey of the population] [in German]. Berlin: Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (https://www.umweltbundesamt.de/sites/default/files/medien/376/publikationen/umweltbewusstsein_deutschland_2016_bf.pdf, accessed 5 July 2018).

van den Berg F, Pedersen E, Bouma J, Bakker R (2008). Project WINDFARMperception. Visual and acoustic impact of wind turbine farms on residents. Groningen: University of Groningen (FP6-2005-Science-and-Society-20 Specific Support Action Project no. 044628; https://www.rug.nl/research/portal/publications/project-windfarmperception-visual-and-acoustic-impact-of-wind-turbine-farms-on-residents(b8745281-02e7-4761-bd06-86363e2be78b).html, accessed 27 November 2016).

van Kamp I, Houthuijs D, Van Wiechen C, Breugelmans O (2006). Environmental noise and cardiovascular diseases: results from a monitoring programme on aircraft noise C3 – Institute of Noise Control Engineering of the USA. In: Proceedings. 35th International Congress and Exposition on Noise Control Engineering 2006 (INTER-NOISE 2006), Honolulu, USA, 3–6 December 2006.Washington DC: Institute of Noise Control Engineering of the USA.

van Kempen E, Casas M, Pershagen G, Foraster M (2018). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and cardiovascular and metabolic effects: a summary. Int J Environ Res Public Health. 15(2). pii: E379 (http://www.mdpi.com/1660-4601/15/2/379/htm, accessed 27 June 2018).

van Kempen E, Fischer P, Janssen N, Houthuijs D, van Kamp I, Stansfeld S et al. (2012). Neurobehavioral effects of exposure to traffic-related air pollution and transportation noise in primary schoolchildren. Environ Res. 115:18–25.

van Kempen E, van Kamp I, Fischer P, Davies H, Houthuijs D, Stellato R et al. (2006). Noise exposure and children's blood pressure and heart rate: The RANCH project. Occup Environ Med. 63(9):632–9.

van Kempen E, van Kamp I, Lebret E, Lammers J, Emmen H, Stansfeld S (2010). Neurobehavioral effects of transportation noise in primary schoolchildren: a cross-sectional study. Environ Health. 9: 25.

van Poll H, Breugelmans O, Devilee J (2011). Hinder, bezorgdheid en woontevredenheid in Nederland: inventarisatie verstoringen 2008 [Annoyance, concern and residential satisfaction in the Netherlands: Annoyance inventory 2008]. Bilthoven: Rijksinstituut voor Volksgezondheid en Milieu (RIVM Rapport 630741001/2011; http://www.rivm.nl/dsresource?objectid=50e5cd0f-3de8-40ca-b3e5-7b31dbfaa93b&type=org&disposition=inline, accessed 27 November 2016).

van Poll R, Ameling C, Breugelmans O, Houthuis D, van Kempen E, Marra M et al. (2014). Gezondheidsonderzoek Vliegbasis Geilenkirchen (Desk Research) I. Hoofdrapportage: samenvatting, conclusies en aanbevelingen Gezondheidsonderzoek Vliegbasis Geilenkirchen [Health study at the military airport Geilenkirchen (desk research) I. Main report: summary, conclusions and recommendations of the health study at the military airport Geilenkirchen]. Bilthoven: National Institute for Public Health and the Environment (https://zoek.officielebekendmakingen.nl/blg-378125.pdf, accessed 15 March 2017).

van Renterghem T, Botteldooren D (2012). Focused study on the quiet side effect in dwellings highly exposed to road traffic noise. Int J Environ Res Public Health. 9(12):4292–310.

Vasconcellos AP, Kyle ME, Gilani S, Shin JJ (2014). Personally modifiable risk factors associated with pediatric hearing loss: a systematic review. Otolaryngol Head Neck Surg. 151(1):14–28.

Vincent B, Champelovier P (1993). Changes in the acoustic environment: need for an extensive evaluation of annoyance. In: Proceedings. 6th International Congress on Noise as a Public Health Problem 1993 (ICBEN 1993). Nice, France, 5–9 July 1993. Lyon: Institut National de Recherche sur les Transports et leur Sécurité.

Vogel I, Brug J, van der Ploeg CP, Raat H (2011). Adolescents risky MP3-player listening and its psychosocial correlates. Health Educ Res. 26(2):254–64.

Vogel I, van de Looij-Jansen PM, Mieloo CL, Burdorf A, de Waart F (2014). Risky music listening, permanent tinnitus and depression, anxiety, thoughts about suicide and adverse general health. PloS One. 9(6): e98912.

Weichbold V, Zorowka P (2003). Effects of a hearing protection campaign on the discotheque attendance habits of high-school students. Int J Audiol. 42(8):489–93.

Weichbold V, Zorowka P (2007). Can a hearing education campaign for adolescents change their music listening behavior? Int J Audiol. 46(3):128–33.

WHO (1946). Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19–22 June 1946; signed on 22 July 1946 by the representatives of 61 States and entered into force on 7 April 1948. Geneva: World Health Organization (http://www.who.int/about/mission/en/, accessed 27 June 2018).

WHO (1999). Guidelines for community noise. Geneva: World Health Organization (http://apps.who.int/iris/handle/10665/66217?show=full, accessed 28 November 2016).

WHO (2006). Air quality guidelines – global update 2005. Geneva: World Health Organization (http://www.who.int/phe/health_topics/outdoorair/outdoorair_aqg/en/, accessed 27 July 2018).

WHO (2013). WHO methods and data sources for global burden of disease estimates 2000–2011. Geneva: World Health Organization (Global Health Estimates Technical Paper WHO/HIS/HSI/GHE/2013.4; http://www.who.int/healthinfo/global_burden_disease/data_sources_methods/en/, accessed 28 November 2016).

WHO (2014a). Metrics: disability-adjusted life-year (DALY). In: World Health Organization: Health statistics and information systems [website]. Geneva: World Health Organization (http://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/, accessed 27 June 2018).

WHO (2014b). Burden of disease from ambient air pollution for 2012. Geneva: World Health Organization (http://www.who.int/phe/health_topics/outdoorair/databases/AAP_BoD_results_March2014.pdf, accessed 27 June 2018).

WHO (2014c). WHO handbook for guideline development, second edition. Geneva: World Health Organization (http://apps.who.int/iris/handle/10665/145714, accessed 27 June 2018).

WHO (2015a). Hearing loss due to recreational exposure to loud sounds: a review. Geneva: World Health Organization (http://apps.who.int/iris/handle/10665/154589, accessed 27 November 2016).

WHO Regional Office for Europe (2009). Night noise guidelines for Europe. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2009/night-noise-guidelines-for-europe, accessed 28 November 2016).

WHO Regional Office for Europe (2010). Parma Declaration on Environment and Health. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/publications/policy-documents/parma-declaration-on-environment-and-health, accessed 28 November 2016).

WHO Regional Office for Europe (2012). Assessment of need for capacity-building for health risk assessment for environmental noise: case studies. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2012/assessment-of-needs-for-capacity-building-for-health-risk-assessment-of-environmental-noise-case-studies, accessed 28 November 2016).

WHO Regional Office for Europe (2016). Health risk assessment of air pollution: general principles. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/publications/abstracts/health-risk-assessment-of-air-pollution.-general-principles-2016, accessed 12 January 2017).

WHO Regional Office for Europe (2017). Databases. In: WHO Regional Office for Europe: Data and evidence [website]. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/data-and-evidence/databases, accessed 13 March 2017).

WHO Regional Office for Europe, JRC (2011). Burden of disease from environmental noise: quantification of healthy life years lost in Europe. Copenhagen: WHO Regional Office for Europe (http://www.who.int/quantifying_ehimpacts/publications/e94888/en/, accessed 27 November 2016).

Wiens D (1995). Verkehrslärm und kardiovaskuläres Risiko. Eine Fall-Kontroll-Studie in Berlin (West) [Transportation noise and risk for cardiovascular disease. A case study in (West) Berlin] In: Dissertation aus dem Institut für Wasser-, Boden- und Lufthygiene des Bundesgesundheitsamtes [Doctoral thesis for the Institute for Water, Ground and Air hygiene of the Federal Ministry of Health]. Berlin: Bundesgesundheitsamt.

Wilson SB, Lonigan, CJ (2010). Identifying preschool children at risk of later reading difficulties: evaluation of two emergent literacy screening tools. J Lern Disabil. 43(1):62–76.

Yano T, Morihara T, Sato T (2005). Community response to Shinkansen noise and vibration: a survey in areas along the Sanyo Shinkansen Line. In: Proceedings. Forum Acusticum: 4th European Congress on Acoustics, Budapest, Hungary, 29 August – 2 September 2005. Stuttgart: Hirzel.

Yano T, Nguyen TL, Nguyen TL, Takata M, Yamadal., Morinaga M et al. (2015). Community response to a step change in aircraft noise exposure: the first socio-acoustic survey around Noi Bai Airport in Hanoi. In: Proceedings. 22nd International Congress on Sound and Vibration (ICSV22) 2015, Florence, Italy, 12–16 July 2015. Ferrara: Acoustical Society of Italy.

Yokoshima S, Morihara T, Ota A, Tamura A (2008). Reanalysis of response curves of Shinkansen railway noise. In: Proceedings. 9th International Congress on Noise as a Public Health Problem 2008 (ICBEN 2008), Foxwoods, USA, 21–25 July 2008. Zurich: International Commission on Biological Effects of Noise.

Yoshida T, Kawaguchi T, Hoshiyama Y, Yoshida K, Yamamoto K (1997). Effects of road traffic noise on inhabitants of Tokyo. J Sound Vib. 205(4):517–22.

Annexes

Annex 1. Steering, advisory and external review groups

Tables A1.1–A1.5 give details of the various teams involved in the development of the WHO environmental noise guidelines for the European Region.

Table A1.1 WHO Steering Group

Name	Role	Affiliation
Shelly Chadha	Technical Officer, Office for Hearing Impairment	WHO headquarters, Geneva, Switzerland
Carlos Dora	Coordinator	WHO headquarters, Department of Public Health and Environment, Geneva, Switzerland
Marie-Eve Héroux	Technical Officer, Air Quality and Noise	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Dorota Jarosinska	Programme Manager, Living and Working Environments	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Rokho Kim	Environmental Health Specialist, Team Leader	WHO Regional Office for the Western Pacific, Division of Noncommunicable Diseases and Health through the Life-Course, Manila, Philippines
Jurgita Lekaviciute	Consultant, Noise	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Srdan Matic	Coordinator, Environment and Health	WHO Regional Office for Europe, Copenhagen, Denmark
Julia Nowacki	Technical Officer, Health Impact Assessment	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Elizabet Paunovic	Head of Office	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Poonum Wilkhu	Consultant, Noise	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany
Jördis Wothge	Consultant, Noise	WHO Regional Office for Europe, European Centre for Environment and Health, Bonn, Germany

Table A1.2. Guideline Development Group

Area of expertise	Reference	Area of expertise	Reference
Noise sources and their measurement	1	Annoyance	6
Biological mechanisms of effects	2	Cognitive impairment, quality of life, mental health and well-being	7
Cardiovascular and metabolic diseases	3	Adverse birth outcomes	8
Sleep disturbance	4	Environmental noise interventions	9
Hearing impairment/tinnitus	5	Methodology and guideline development	10

Name	Position and affiliation	Area of expertise sought for guideline development (see reference numbers above)									
		1	2	3	4	5	6	7	8	9	10
Wolfgang Babisch	Senior Scientific Officer (retired) Federal Environment Agency Germany		X	X		X					
Goran Belojevic	Professor Institute of Hygiene and Medical Ecology Faculty of Medicine University of Belgrade Serbia			X			X				
Mark Brink	Senior Scientist Federal Office for the Environment Switzerland	X			X		X				
Sabine Janssen	Senior Scientist Department of Sustainable Urban Mobility and Safety Netherlands Organisation for Applied Scientific Research (TNO) Netherlands				X		X				
Peter Lercher (2013–2014)	Professor Medical University of Innsbruck Austria							X	X		
Marco Paviotti	Policy Officer Directorate-General for Environment European Commission Belgium	X								X	
Göran Pershagen	Professor Institute of Environmental Medicine Karolinska Institute Sweden		X	X					X		

Table A1.2. contd

Area of expertise	Reference	Area of expertise	Reference
Noise sources and their measurement	1	Annoyance	6
Biological mechanisms of effects	2	Cognitive impairment, quality of life, mental health and well-being	7
Cardiovascular and metabolic diseases	3	Adverse birth outcomes	8
Sleep disturbance	4	Environmental noise interventions	9
Hearing impairment/tinnitus	5	Methodology and guideline development	10

Name	Position and affiliation	Area of expertise sought for guideline development (see reference numbers above)									
		1	2	3	4	5	6	7	8	9	10
Kerstin Persson Waye	Professor Occupational and Environmental Medicine The Sahlgrenska Academy University of Gothenburg Sweden	X			X		X				
Anna Preis	Professor Institute of Acoustics Adam Michiewicz University Poland					X	X				
Stephen Stansfeld (Chair)	Professor/Head of the Centre for Psychiatry Barts and Queen Mary University of London United Kingdom							X			
Martin van den Berg	Senior Noise Expert Ministry of Infrastructure and Environment Netherlands	X									
GRADE methodologist											
Jos Verbeek	Senior Researcher Finnish Institute of Occupational Health Finland	X									

Table A1.3. Systematic Review Team

Systematic review topics	Experts involved	Affiliation
Cardiovascular and metabolic diseases	Elise van Kempen	National Institute of Public Health and the Environment (RIVM), Netherlands
	Göran Pershagen	Institute of Environmental Medicine, Karolinska Institute, Sweden
	Maribel Casas Sanahuja	Institute for Global Health (ISGlobal), Spain
	Maria Foraster	Barcelona Institute for Global Health (ISGlobal), Spain and Swiss Tropical and Public Health Institute, Switzerland
Sleep disturbance	Mathias Basner	Department of Psychiatry, Perelman School of Medicine at the University of Pennsylvania, United States of America
	Sarah McGuire	Department of Psychiatry, Perelman School of Medicine at the University of Pennsylvania, United States of America
Hearing impairment and tinnitus	Mariola Sliwinska-Kowalska	Nofer Institute of Occupational Medicine, Poland
	Kamil Rafal Zaborowski	Nofer Institute of Occupational Medicine, Poland
Annoyance	Rainer Guski	Department of Psychology, Ruhr-University, Germany
	Dirk Schreckenberg	ZEUS GmbH, Centre for Applied Psychology, Environmental and Social Research, Germany
	Rudolf Schuemer	Consultant for ZEUS GmbH, Centre for Applied Psychology, Environmental and Social Research, Germany
Cognitive impairment, mental health and well-being	Charlotte Clark	Ove Arup & Partners, United Kingdom
	Katarina Paunovic	Institute of Hygiene and Medical Ecology, Faculty of Medicine, University of Belgrade, Serbia
Adverse birth outcomes	Mark Nieuwenhuijsen	Institute for Global Health (ISGlobal), Spain
	Gordana Ristovska	Institute of Public Health of Republic of Macedonia, the former Yugoslav Republic of Macedonia
	Payam Dadvand	Institute for Global Health (ISGlobal), Spain
Interventions	Lex Brown	Griffith School of Environment/Urban Research Program, Griffith University, Australia
	Irene Van Kamp	National Institute of Public Health and the Environment (RIVM), Netherlands

Table A1.4. External Review Group

Area of expertise	Reference	Area of expertise	Reference
Cardiovascular and metabolic diseases	1	Cognitive impairment, mental health and well-being	5
Sleep disturbance	2	Adverse birth outcomes	6
Hearing impairment/ Tinnitus	3	Environmental noise interventions	7
Annoyance	4	Recommendations and implementation guidance	8

Name	Affiliation	Area of expertise sought for guideline development (see reference numbers above)							
		1	2	3	4	5	6	7	8
Gunn Marit Aasvang	Norwegian Institute of Public Health, Norway		X						
Bernard Berry	Berry Environmental Limited, United Kingdom							X	
Dick Botteldooren	Department of Information Technology, Ghent University, Belgium				X				
Stephen Conaty	South Western Sydney Local Health District, Australia								X
Ulrike Gehring	Institute for Risk Assessment Sciences, Utrecht University, Netherlands						X		
Truls Gjestland	SINTEF, Department of Acoustics, Norway				X				
Mireille Guay	Healthy Environments and Consumer Safety Branch, Health Canada/Government of Canada, Canada		X		X				
Ayse Güven	Audiology Department, Faculty of Heath Sciences, Baskent University, Turkey			X					
Anna Hansell	Centre for Environmental Health & Sustainability, George Davies Centre, University of Leicester, United Kingdom	X							X
Stylianos Kephalopoulos	European Commission, DG Joint Research Centre, Italy							X	X
Yvonne de Kluizenaar	The Netherlands Organization for applied scientific research (TNO), Netherlands							X	
David S. Michaud	Healthy Environments and Consumer Safety Branch, Health Canada/Government of Canada, Canada		X		X				
Arnaud Norena	Université Aix-Marseille, Fédération de Recherche, Laboratoire Cognitive Neuroscience, France			X					
Enembe Okokon	National Institute for Health and Welfare, Finland								X
Dieter Schwela	Stockholm Environment Institute, University of York, United Kingdom								X
Daniel Shepherd	AUT University, Auckland, New Zealand					X			
Mette Sörensen	Danish Cancer Society Research Centre, Denmark	X							X
Rupert Thornley-Taylor	Rupert Taylor Ltd, Noise and Vibration Consultants							X	X
David Welch	School of Population Health, Faculty of Medical and Health Sciences, University of Auckland, New Zealand			X				X	

Table A1.5. Stakeholders and end users that participated in the stakeholder consultation

Area of expertise/interest	Reference	Area of expertise	Reference
Implementation of recommendations on railway noise	1	Implementation of recommendations on wind turbine noise	4
Implementation of recommendations on aircraft noise	2	Implementation of recommendations on leisure noise	5
Implementation of recommendations on road traffic noise	3	Implementation of overall recommendations	6

Organization	Area of expertise specifically sought for Guidelines (see reference number above)					
	1	2	3	4	5	6
Airlines for Europe		X				
Airports Council International Europe (ACI)		X				
Anderson Acoustics		X				
Bundesverband der Deutschen Luftverkehrswirtschaft e.V.		X				
European Automobile Manufacturers' Association (ACEA)			X			
European Aviation Safety Agency		X				
European Express Association	X					
European Noise Barrier Federation						X
Flughafenverband (ADV)		X				
International Air Transport Association (IATA)		X				
International Civil Aviation Organization (ICAO)		X				
International Union of Railways	X					
Landesamt fuer Natur, Umwelt und Verbraucherschutz Nordrhein-Westfalen						X
Public Health Agency of Sweden						X
Stephen Turner Acoustics					X	X
Union Européenne Contre les Nuisances Aeriennes		X				
Vie en.ro.se.						X

Note: in total 53 organizations and institutions had been approached to participate in the stakeholder consultation.

Annex 2. Systematic reviews and background documents used in preparation of the guidelines

Annex 2 provides a detailed list of all the supplementary documents accompanying the WHO environmental noise guidelines for the European Region.[22]

Systematic reviews

- Basner M, McGuire S (2018). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and effects on sleep. Int J Environ Res Public Health. 15(3):pii: E519 (http://www.mdpi.com/1660-4601/15/3/519/htm).
- Brown AL, van Kamp I (2017). WHO environmental noise guidelines for the European Region: a systematic review of transport noise interventions and their impacts on health. Int J Environ Res Public Health. 14(8). pii: E873 (http://www.mdpi.com/1660-4601/14/8/873/htm).
- Clark C, Paunovic K (2018). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and cognition. Int J Environ Res Public Health. 15(2). pii: E285 (http://www.mdpi.com/1660-4601/15/2/285/htm).
- Clark C, Paunovic K (in press). WHO Environmental noise guidelines for the European Region: a systematic review on environmental noise and quality of life, wellbeing and mental health. Int J Environ Res Public Health.
- Guski R, Schreckenberg D, Schuemer R (2017). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and annoyance. Int J Environ Res Public Health. 14(12). pii:1539 (http://www.mdpi.com/1660-4601/14/12/1539/htm).
- Nieuwenhuijsen MJ, Ristovska G, Dadvand P (2017). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and adverse birth outcomes. Int J Environ Res Public Health. 14(10). pii: E1252 (http://www.mdpi.com/1660-4601/14/10/1252/htm).
- Śliwińska-Kowalska M, Zaborowski K (2017). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and permanent hearing loss and tinnitus. Int J Environ Res Public Health. 14(10). pii: E1139 (http://www.mdpi.com/1660-4601/14/10/1139/htm).
- van Kempen E, Casas M, Pershagen G, Foraster M (2018). WHO environmental noise guidelines for the European Region: a systematic review on environmental noise and cardiovascular and metabolic effects: a summary. Int J Environ Res Public Health. 15(2). pii: E379 (http://www.mdpi.com/1660-4601/15/2/379/htm).

[22] All references were accessed on 27 June 2018.

Background documents

- Eriksson C, Pershagen G, Nilsson M (2018). Biological mechanisms related to cardiovascular and metabolic effects by environmental noise. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/biological-mechanisms-related-to-cardiovascular-and-metabolic-effects-by-environmental-noise).
- Héroux ME, Verbeek J (2018a). Results from the search for available systematic reviews and meta-analyses on environmental noise. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/results-search-for-available-systematic-reviews-environmental-noise).
- Héroux ME, Verbeek J (2018b). Methodology for systematic evidence reviews for the WHO environmental noise guidelines for the European Region. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/methodology-systematic-evidence-reviews-who-environmental-guidelines-for-the-european-region).

Annex 3. Summary of conflict of interest management

All external contributors to the guidelines, including members of the GDG, Systematic Review Team and External Review Group, completed WHO declaration of interest forms in accordance with WHO's policy for experts. Further, at the initial stage of the project WHO technical staff reviewed and accepted *curricula vitae* of the candidates for the GDG.

At the beginning of the GDG meetings, the participants declared any conflict of interest by submitting declaration of interest forms. Updated declarations of interest were also collected from the members of the GDG, Systematic Review Team and External Review Group at the final stage of the project.

The conflict of interest assessment was done according to WHO procedures. If a conflict was declared, an initial review was undertaken by the WHO Secretariat to assess its relevance and significance. A declared conflict of interest is insignificant or minimal if it is unlikely to affect or to be reasonably perceived to affect the expert's judgment. Insignificant or minimal interests are: unrelated or only tangentially related to the subject of the activity or work and its outcome; nominal in amount or inconsequential in importance; or expired and unlikely to affect current behaviour.

The WHO Secretariat reviewed and assessed the declarations. In one case the legal unit was consulted for advice; in another the potential conflict was reported in the updated declaration of interest at the final stage of the process and assessed unlikely to affect expert's performance; in a further case a member of the GDG was also a co-author of a systematic review owing to the need to support systematic review authors with additional expertise, but there was no remuneration for this activity.

No member of the GDG or the Systematic Review Team was excluded from his or her role in the guideline development process. The declared conflicts of interest of the External Review Group members were considered when interpreting comments during the external review process.

Annex 4. Detailed overview of the evidence of important health outcomes

As a first step of the evidence retrieval process, the GDG defined two categories of health outcome associated with environmental noise: those considered (i) critical or (ii) important, but not critical for decision-making in the guideline development process.

The GDG relied on the critical health outcomes to inform its decisions on priority health outcomes, so only these were used to inform the recommendations. Nevertheless, as the relevance of some of important health outcomes was difficult to estimate *a priori,* systematic reviews were conducted for both critical and important health outcomes.

This annex provides a detailed overview of the evidence of the important health outcomes – namely adverse birth outcomes, quality of life, well-being and mental health and metabolic outcomes – for each of the noise sources. A comprehensive discussion of all the evidence considered (both critical and important) is available in the published systematic reviews (see section 2.3.2 and Annex 2 for details).

1. Road traffic noise

1.1 Adverse birth outcomes

In total, the systematic review found five studies (two with more or less the same population) on road traffic noise and birth outcomes and three related studies on total ambient noise, likely to be mostly road traffic noise. Too few studies for each of the various measures related to adverse birth outcomes were available to undertake a quantitative meta-analysis. There was evidence rated low quality for a relationship between road traffic noise and low birth weight (Dadvand et al., 2014; Gehring et al., 2014; Hjortebjerg et al., 2016; Wu et al., 1996); however, the estimates were imprecise and in some cases not statistically significant. Further, there was no clear relation between exposure to road traffic noise and pre-term delivery, but there was a positive association between road traffic noise and small for gestational age (OR = 1.09; 95% CI: 1.06–1.12 per 6 dB increase). The evidence for both measures of adverse birth outcomes comes from the same publications and this evidence was rated low quality (Gehring et al., 2014; Hystad et al., 2014).

This evidence was supported by one ecological time-series study published recently looking at total ambient noise and various measures related to adverse birth outcomes (Arroyo et al., 2016a; 2016b; Diaz et al., 2016).

1.2 Quality of life, well-being and mental health

Evidence rated moderate quality was found for an effect of road traffic noise on emotional and conduct disorders in childhood (Belojevic et al., 2012; Crombie et al., 2011; Hjortebjerg et al., 2015; Ristovska et al., 2004; Stansfeld et al., 2005; 2009a; Tiesler et al., 2013) and evidence rated moderate quality for an association of road traffic noise with hyperactivity in children (Hjortebjerg et al., 2015; Tiesler et al., 2013).

There was no clear relationship, however, between road traffic noise exposure and self-reported quality of life (evidence rated low quality) (Barcelo Perez & Piñeiro, 2008; Brink, 2011; Clark et al., 2012; Honold et al., 2012; Roswall et al., 2015; Schreckenberg et al., 2010b; Stansfeld et al., 2005; 2009b; van Kempen et al., 2010); medication intake for depression and anxiety (evidence rated very low quality) (Floud et al., 2011; Halonen et al., 2014); depression, anxiety and psychological distress (evidence rated very low quality) (Honold et al., 2012; Stansfeld et al., 2009b); and interview measures of depression and anxiety (evidence rated very low quality) (Stansfeld et al., 2009b).

1.3 Metabolic outcomes

1.3.1 Diabetes

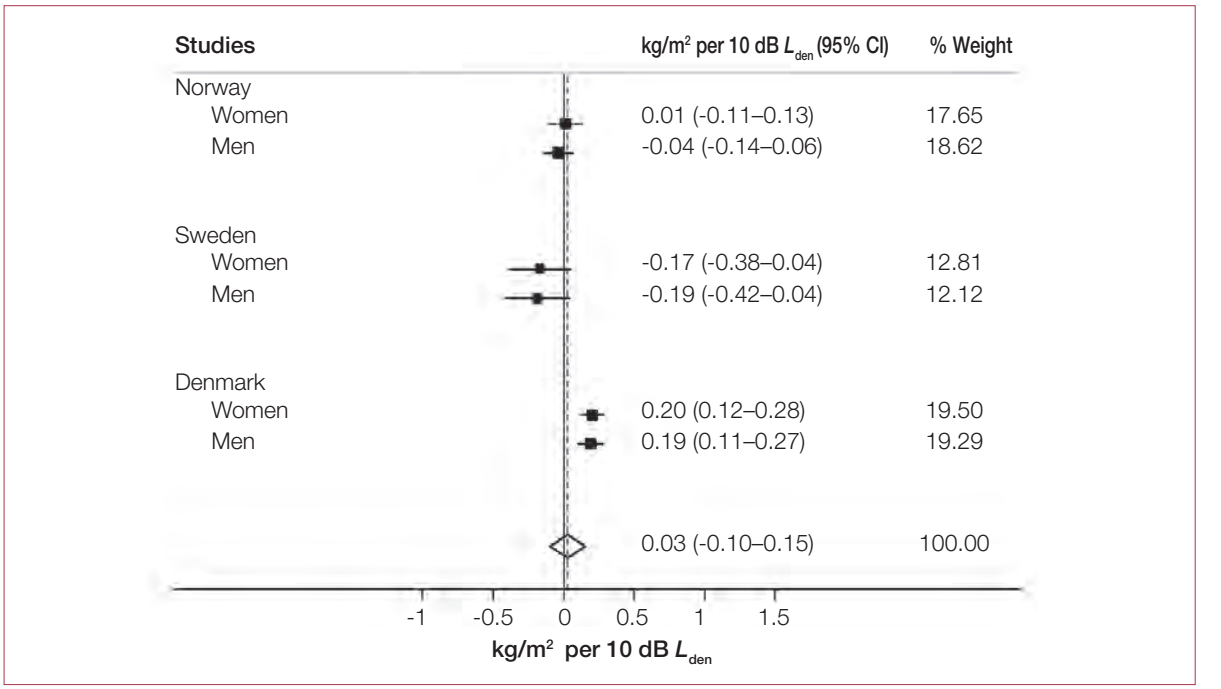
For the relationship between road traffic noise and the incidence of diabetes, one cohort study was identified, which included 57 053 participants and 2752 cases (Sörensen et al., 2013). The estimate of the effect was RR = 1.08 (95% CI: 1.02–1.14) per 10 dB L_{den} increase in noise across the range of 50–70 dB, and therefore the evidence was rated moderate quality.

Furthermore, two cross-sectional studies were identified that looked at the prevalence of diabetes (Selander et al., 2009; van Poll et al., 2014). The studies included 11 460 participants and 242 cases. Both studies reported a harmful effect of noise, and one showed a statistically significant association. However, the results were imprecise and with serious risk of bias, so the evidence was rated very low quality.

1.3.2 Obesity

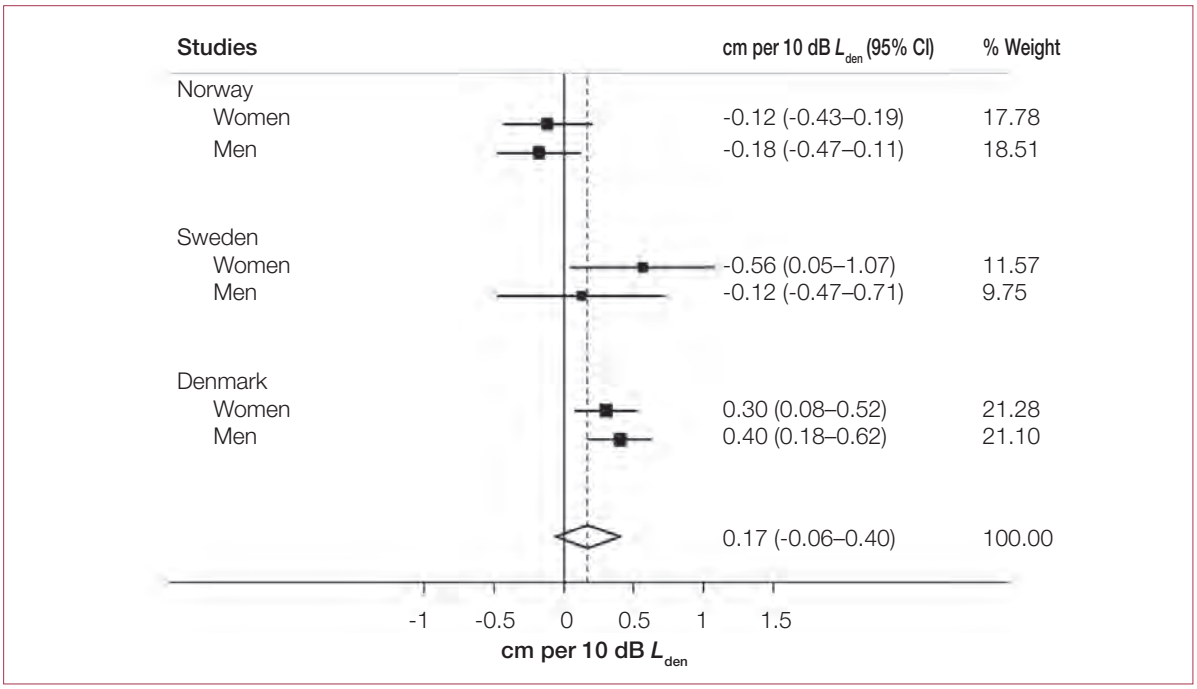
With regard to the association between road traffic noise and change in body mass index (BMI) and waist circumference, three cross-sectional studies were identified, with 71 431 participants (Christensen et al., 2016; Oftedal et al., 2014; 2015; Pyko et al., 2015). For each 10 dB increase in road traffic noise, there was a statistically nonsignificant increase in BMI of 0.03 kg/m^2 (95% CI: –0.10–0.15 kg/m^2) and in waist circumference of 0.17 cm (95% CI: –0.06–0.40 cm). There was inconsistency in the results between the studies; therefore, for both associations, the evidence was rated very low quality (Fig. A4.1 and Fig. A4.2).

Fig. A4.1 The association between exposure to road traffic noise (L_{den}) and BMI in three Nordic studies



Notes: The black vertical line corresponds to no effect of noise exposure. The black dots correspond to the estimated slope coefficients per 10 dB for each sex in each study, with 95% CIs. The diamond designates summary estimates and 95% CIs based on random effects models. The dashed red line corresponds to these summary estimates. Heterogeneity between studies: p = 0.000; heterogeneity between genders: p = 0.360; overall (I-squared = 84.4%, p = 0.000). Weights are from random effect analysis.

Fig. A4.2 The association between exposure to road traffic noise (L_{den}) and waist circumference in three Nordic studies



Notes: The black vertical line corresponds to no effect of noise exposure. The black dots correspond to the estimated slope coefficients per 10 dB for each sex in each study, with 95% CIs. The diamond designates summary estimates and 95% CIs based on random effects models. The dashed red line corresponds to these summary estimates. Heterogeneity between studies: p = 0.001; heterogeneity between genders: p = 0.842; overall (I-squared = 69.0%, p = 0.007). Weights are from random effect analysis.

2. Railway noise

2.1 Adverse birth outcomes

No studies were found, and therefore no evidence was available on the association between railway noise and adverse birth outcomes.

2.2 Quality of life, well-being and mental health

Evidence rated very low quality was found for a weak effect of railway noise exposure on self-reported quality of life or health, albeit from a limited number of studies (Roswall et al., 2015; Torre et al., 2007). There was evidence rated moderate quality for an effect of railway noise on emotional and conduct disorders in childhood (Hjortebjerg et al., 2015), but no clear relationship between railway noise and children's hyperactivity (Hjortebjerg et al., 2015); this evidence was rated moderate quality.

2.3 Metabolic outcomes

2.3.1 Diabetes

One cohort study was identified that looked at the relationship between railway noise and the incidence of diabetes (Sörensen et al., 2013). The cohort study of 57 053 participants, including 2752 cases, found evidence rated moderate quality that there was no considerable effect of railway noise on diabetes, with an RR of 0.97 (95% CI: 0.89–1.05) per 10 dB L_{den} increase in noise.

Furthermore, one cross-sectional study was identified that looked at the relationship between railway noise and the prevalence of diabetes (van Poll et al., 2014), including 9365 participants and 89 cases. An RR of 0.21 (95% CI: 0.05–0.82) per 10 dB L_{den} increase in noise was found, but the reasons for the beneficial effect were not immediately apparent. The evidence in the study was rated very low quality.

2.3.2 Obesity

Regarding the association between railway noise and change in BMI and waist circumference, two cross-sectional studies were identified, with 57 531 participants (Christensen et al., 2016; Pyko et al., 2015). Christensen and colleagues observed a statistically significant increase of 0.18 kg/m^2 (95% CI: 0.00–0.36 kg/m^2) per 10 dB for BMI and 0.62 cm (95% CI: 0.14–1.09 cm) per 10 dB for waist circumference in those exposed to railway noise, at levels above 60 dB L_{den}. Pyko and colleagues found a statistically significant increase in waist circumference of 0.92 cm (95% CI: 0.06–1.78 cm) per 10 dB L_{den}. The corresponding estimate for BMI was statistically nonsignificant, at 0.06 kg/m^2 (95% CI: –0.02–0.16 kg/m^2). The evidence was rated low/very low quality.

3. Aircraft noise

3.1 Adverse birth outcomes

Evidence rated very low quality was available for an association between aircraft noise and pre-term delivery, low birth weight and congenital anomalies, as evidenced by six studies included in the systematic review (Ando & Hattori, 1973; Edmonds et al., 1979; Jones & Tauscher, 1978; Knipschild et al., 1981; Matsui et al., 2003; Schell, 1981). The potential for risk of bias in these was high and the results tended to be inconsistent.

3.2 Quality of life, well-being and mental health

Evidence rated very low quality was available for an effect of aircraft noise on medication intake for depression and anxiety (Floud et al., 2011). There was evidence rated very low quality for an effect of aircraft noise exposure on interview measures of depression and anxiety (Hardoy et al., 2005) and rated low quality for an association of aircraft noise with hyperactivity in children (Clark et al., 2013; Crombie et al., 2011; Stansfeld et al., 2009a).

The evidence showed, however, no substantial effect of aircraft noise on self-reported quality of life or health (Clark et al., 2012; Schreckenberg et al., 2010a; 2010b; Stansfeld et al., 2005; van Kempen et al., 2010) or on emotional and conduct disorders in childhood (Clark et al., 2012; 2013; Crombie et al., 2011; Stansfeld et al., 2005; 2009a). This evidence was rated very low quality.

3.3 Metabolic outcomes

3.3.1 Diabetes

For the relationship between aircraft noise and incidence of diabetes one cohort study was identified, including 5156 participants and 1346 cases (Eriksson et al., 2014). The estimate of the effect was imprecise, with an RR of 0.99 (95% CI: 0.47–2.09) per 10 dB L_{den} increase in noise; the evidence was therefore rated very low quality.

Furthermore, one cross-sectional study was identified that looked at the prevalence of diabetes (van Poll et al., 2014), including 9365 participants and 89 cases. The RR was 1.01 (95% CI: 0.78–1.31) per 10 dB increase in aircraft noise. The evidence was rated very low quality.

3.3.2 Obesity

For the association between aircraft noise and change in BMI and waist circumference, one cohort study was identified, with 5156 participants (Eriksson et al., 2014). For each 10 dB increase in aircraft noise level, the increase in BMI was 0.14 kg/m^2 (95% CI: –0.18–0.45) (evidence rated low quality), and the increase in waist circumference was 3.46 cm (95% CI: 2.13–4.77) (evidence rated moderate quality). The range of noise levels in the study was 48–65 dB L_{den}. In the case of BMI, the change over the whole range in noise values was not statistically significant and was less than what could be considered clinically relevant (3–5% change in BMI); however, for waist circumference, the change was equivalent to an increase of 5.8 cm.

4. Wind turbine noise

4.1 Quality of life, well-being and mental health

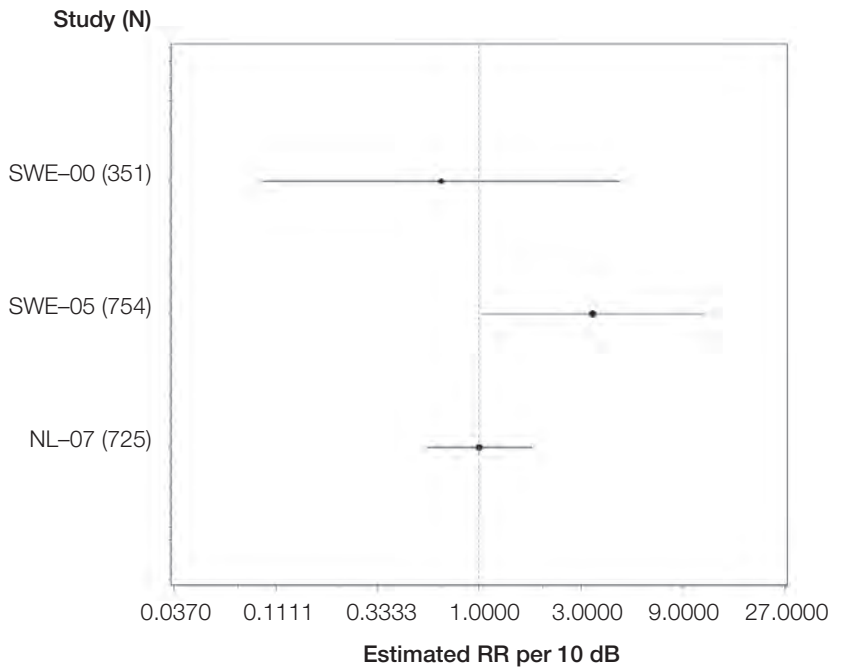
Five low-quality systematic reviews of wind turbine noise effects on mental health and well-being have been carried out (Ellenbogen et al., 2012; Kurpas et al., 2013; Merlin et al., 2013; Onakpoya et al., 2015; Schmidt & Klokker, 2014). These reviews differed in their conclusions and delivered inconsistent evidence that wind turbine noise exposure is associated with poorer quality of life, well-being and mental health. Therefore, the evidence for no substantial effect of wind turbine noise on quality of life, well-being or mental health was rated very low quality.

4.2 Metabolic outcomes

4.2.1 Diabetes

For the relationship between wind turbine noise and prevalence of diabetes, three cross-sectional studies were identified, with a total of 1830 participants (Bakker et al., 2012; Pedersen, 2011; Pedersen & Larsman, 2008; Pedersen & Persson Waye, 2004; 2007; Pedersen et al., 2009; van den Berg et al., 2008). The number of cases was not reported. The effect sizes varied across studies, and only one study found a positive association between exposure to wind turbine noise and the prevalence of diabetes; therefore, no meta-analysis was performed. Due to very serious risk of bias and imprecision in the results, this evidence was rated very low quality. As a result, there is no clear relationship between audible noise (greater than 20 Hz) from wind turbines or wind farms and prevalence of diabetes (Fig. A4.3).

Fig. A4.3 The association between exposure to wind turbine noise (sound pressure level) and self-reported diabetes



Note: The dotted vertical line corresponds to no effect of exposure to wind turbine noise. The black circles correspond to the estimated RR per 10 dB (sound pressure level) and 95% CI.
For further details on the studies included in the figure please refer to the systematic review on environmental noise and cardiovascular and metabolic effects (van Kempen et al., 2018).

5. Leisure noise

Owing to a lack of evidence meeting the critieria for systematic reviewing, no results for any of the important health outcomes can be given for exposure to leisure noise.

Annex 4 references

Ando Y, Hattori H (1973). Statistical studies on the effects of intense noise during human fetal life. J Sound Vibrat. 27:101–10.

Arroyo V, Diaz J, Carmona R, Ortiz C, Linares C (2016a). Impact of air pollution and temperature on adverse birth outcomes: Madrid, 2001–2009. Environ Poll. 218:1154–61.

Arroyo V, Diaz J, Ortiz C, Carmona R, Saez M, Linares C (2016b). Short term effect of air pollution, noise and heat waves on preterm births in Madrid (Spain). Environ Res. 145:162–8.

Bakker RH, Pedersen E, van den Berg GP, Stewart RE, Lok W, Bouma J (2012). Impact of wind turbine sound on annoyance, self-reported sleep disturbance and psychological distress. Sci Total Environ. 425:42–51.

Barcelo Perez C, Piñeiro RG (2008). Potential effect caused by urban noise in housewives from Havana City. Revista Cubana de Higiene y Epidemiologia. 46(2).

Belojevic G, Evans GW, Paunović K, Jakovljevic B (2012). Traffic noise and executive functioning in urban primary school children: the moderating role of gender. J Environ Psychol. 32:337–41.

Brink M (2011). Parameters of well-being and subjective health and their relationship with residential traffic noise exposure – a representative evaluation in Switzerland. Environ Int. 37:723–33.

Christensen JS, Raaschou-Nielsen O, Tjonneland A, Overvad K, Nordsborg RB, Ketzel M et al. (2016). Road traffic and railway noise exposures and adiposity in adults: a cross-sectional analysis of the Danish Diet, Cancer, and Health Cohort. Environ Health Perspect. 124(3):329–35.

Crombie R, Clark C, Stansfeld SA (2011). Environmental noise exposure, early biological risk and mental health in nine to ten year old children: a cross-sectional field study. Environ Health. 10:39.

Clark C, Crombie R, Head J, van Kamp I, van Kempen E, Stansfeld SA (2012). Does traffic-related air pollution explain associations of aircraft and road traffic noise exposure on children's health and cognition? A secondary analysis of the United Kingdom sample from the RANCH project. Am J Epidemiol. 176:327–37

Clark C, Head J, Stansfeld SA (2013). Longitudinal effects of aircraft noise exposure on children's health and cognition: a six-year follow-up of the United Kingdom RANCH cohort. J Environ Psychol. 35:1–9.

Dadvand P, Ostro B, Figueras F, Foraster M, Basagaña X, Valentín A et al. (2014). Residential proximity to major roads and term low birth weight: the roles of air pollution, heat, noise, and road-adjacent trees. Epidemiology. 25(4):518–25.

Diaz J, Arroyo V, Ortiz C, Carmona R, Linares C (2016). Effect of environmental factors on low weight in non-premature births: a time series analysis. PLoS One. 11(10):e0164741.

Edmonds LD, Layde PM, Erickson JD (1979). Airport noise and teratogenesis. Arch Environ Health. 34:243–7.

Ellenbogen J.M, Grace S, Heiger-Bernays WJ, Manwell JF, Mills DA, Sullivan KA, Weisskopf MG (2012). Wind Turbine Health Impact Study: Report of Independent Expert Panel. Massachusetts Department of Environmental Protection, Massachusetts Department of Public Health: Massachusetts, USA.

Eriksson C, Hilding A, Pyko A, Bluhm G, Pershagen G, Östenson CG (2014). Long-term aircraft noise exposure and body mass index, waist circumference, and type 2 diabetes: a prospective study. Environ Health Perspect. 122:687–94.

Floud S, Vigna-Taglianti F, Hansell A, Blangiardo M, Houthuijs D, Breugelmans O et al. (2011). Medication use in relation to noise from aircraft and road traffic in six European countries: results of the HYENA study. Occup Environ Med. 68:518–24.

Gehring U, Tamburic L, Sbihi H, Davies HW, Brauer M (2014). Impact of noise and air pollution on pregnancy outcomes. Epidemiology. 25:351–8.

Halonen JI, Lanki T, Yli-Tuomi T, Turunen AW, Pentti J, Kivimaki M et al. (2014). Associations of traffic noise with self-rated health and psychotropic medication use. Scand J Work Environ Health. 40:235–43.

Hardoy MC, Carta MG, Marci AR, Carbone F, Cadeddu M, Kovess V et al. (2005). Exposure to aircraft noise and risk of psychiatric disorders: the Elmas survey – aircraft noise and psychiatric disorders. Soc Psychiatry Psychiatr Epidemiol. 40:24–6.

Hjortebjerg D, Andersen AMN, Ketzel M, Pedersen M, Raaschou-Nielsen O, Sörensen M (2016). Associations between maternal exposure to air pollution and traffic noise and newborn's size at birth: A cohort study. Environ Int. 95:1–7.

Hjortebjerg D, Andersen AMN, Schultz Christensen J, Ketzel M, Raaschou-Nielsen O, Sunyer J, et al. (2015). Exposure to road traffic noise and behavioral problems in 7-year-old children: a cohort study. Environ Health Perspect. 124:228–34.

Honold J, Beyer R, Lakes T, van der Meer E (2012). Multiple environmental burdens and neighborhood-related health of city residents. J Environ Psychol. 32:305–17.

Hystad P, Davies HW, Frank L, Van Loon J, Gehring U, Tamburic L, Brauer M (2014). Residential greenness and birth outcomes: evaluating the influence of spatially correlated built-environment factors. Environ Health Perspect. 122(10):1095–102.

Jones FN, Tauscher J (1978). Residence under an airport landing pattern as a factor in teratism. Arch Environ Health. 33:10–12.

Knipschild P, Meijer H, Sallé H (1981). Aircraft noise and birthweight. Int Arch Occup Environ Health. 48:131–6.

Kurpas D, Mroczek B, Karakiewicz B, Kassolik K, Andrzejewski W (2013). Health impact of wind farms. Ann Agric Environ Med. 20(3):595–604.

Matsui T, Matsuno T, Ashimine K, Miyakita T, Hiramatsu K, Yamamoto T (2003). Association between the rates of low birth-weight and/or preterm infants and aircraft noise exposure. Nihon Eiseigaku Zasshi. 58:385–94.

Merlin T, Newton S, Ellery B, Milverton J, Farah C (2013). Systematic review of the human health effects of wind farms. Canberra: National Health and Medical Research Council (https://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/eh54_systematic_review_of_the_human_health_effects_of_wind_farms_december_2013.pdf, accessed 28 November 2016).

Oftedal B, Krog NH, Graff-Iversen S, Haugen M, Schwarze P, Aasvang GM (2014). Traffic noise and markers of obesity: a population-based study. In: Proceedings. 11th International Congress on Noise as a Public Health Problem 2014 (ICBEN 2014), Nara, Japan, 1–5 June 2014. Tokyo: Institute of Noise Control Engineering of Japan.

Oftedal B, Krog NH, Pyko A, Eriksson C, Graff-Iversen S, Haugen M et al. (2015). Road traffic noise and markers of obesity: a population-based study. Environ Res. 20(138):144–53.

Onakpoya IJ, O'Sullivan J, Thompson MJ, Heneghan CJ (2015). The effect of wind turbine noise on sleep and quality of life: a systematic review and meta-analysis of observational studies. Environ Int. 82:1–9.

Pedersen E (2011). Health aspects associated with wind turbine noise: results from three field studies. Noise Control Eng J. 59(1):47–53.

Pedersen E, Larsman P (2008). The impact of visual factors on noise annoyance among people living in the vicinity of wind turbines. J Environ Psychol. 28(4):379–89.

Pedersen E, Perrson Waye K (2004). Perception and annoyance due to wind turbine noise – a dose-response relationship. J Acoust Soc Am. 116(6):3460–70.

Pedersen E, Persson Waye K (2007). Wind turbine noise, annoyance and self-reported health and well-being in different living environments. Occup Environ Med. 64(7):480–6.

Pedersen E, van den Berg F, Bakker R, Bouma J (2009). Response to noise from modern wind farms in the Netherlands. J Acoust Soc Am. 126(2):634–43.

Pyko A, Eriksson C, Oftedal B, Hilding A, Östenson CG, Krog NH et al. (2015). Exposure to traffic noise and markers of obesity. Occup Environ Med. 72(8):594–601.

Ristovska G, Gjorgjev D, Jordanova NP (2004). Psychosocial effects of community noise: Cross sectional study of school children in urban center of Skopje, Macedonia. Croatian Medical Journal, 45, 473–6.

Roswall N, Hogh V, Envold-Bidstrup P, Raaschou-Nielsen O, Ketzel M, Overvad K et al. (2015). Residential exposure to traffic noise and health-related quality of life – a population-based study. PloS One. 13:e0120199.

Schell LM (1981). Environmental noise and human prenatal growth. Am J Phys Anthropol. 56:63–70.

Schmidt JH, Klokker M (2014). Health effects related to wind turbine noise exposure: a systematic review. PloS One. 9(12):e114183.

Schreckenberg D, Griefahn B, Meis M (2010a). The associations between noise sensitivity, reported physical and mental health, perceived environmental quality, and noise annoyance. Noise Health. 12:7–16.

Schreckenberg D, Meis M, Kahl C, Peschel C, Eikmann T (2010b). Aircraft noise and quality of life around Frankfurt Airport. Int J Environ Res Public Health. 7:3382–405.

Selander J, Nilsson ME, Bluhm G, Rosenlund M, Lindqvist M, Nise G et al. (2009). Long-term exposure to road traffic noise and myocardial infarction. Epidemiology. 20(2):272–9.

Sörensen M, Andersen ZJ, Nordsborg RB, Becker T, Tjonneland A, Overvad K et al. (2013). Long-term exposure to road traffic noise and incident diabetes: a cohort study. Environ Health Perspect. 121:217–22.

Stansfeld SA, Berglund B, Clark C, Lopez-Barrio I, Fischer P, Ohrstrom E, et al. (2005). Aircraft and road traffic noise and children's cognition and health: a cross-national study. Lancet. 365:1942–9.

Stansfeld SA, Clark C, Cameron RM, Alfred T, Head J, Haines MM et al. (2009a). Aircraft and road traffic noise exposure and children's mental health. J Environ Psychol. 29:203–7.

Stansfeld SA, Haines MM, Berry B, Burr M (2009b). Reduction of road traffic noise and mental health: an intervention study. Noise Health. 11(44):169–75.

Tiesler CM, Birk M, Thiering E, Kohlbock G, Koletzko S, Bauer CP et al. (2013). Exposure to road traffic noise and children's behavioural problems and sleep disturbance: results from the GINIplus and LISAplus studies. Environ Res. 123:1–8.

Torre GL, Moscato U, Torre FL, Ballini P, Marchi S, Ricciardi W (2007). Environmental noise exposure and population health: a cross-sectional study in the Province of Rome. J Public Health (Oxf). 15:339–44.

van den Berg F, Pedersen E, Bouma J, Bakker R (2008). Project WINDFARMperception. Visual and acoustic impact of wind turbine farms on residents. Groningen: University of Groningen (FP6-2005-Science-and-Society-20 Specific Support Action Project no. 044628; https://www.rug.nl/research/portal/publications/project-windfarmperception-visual-and-acoustic-impact-of-wind-turbine-farms-on-residents(b8745281-02e7-4761-bd06-86363e2be78b).html, accessed 27 November 2016).

van Kempen E, van Kamp I, Lebret E, Lammers J, Emmen H, Stansfeld S (2010). Neurobehavioral effects of transportation noise in primary schoolchildren: a cross-sectional study. Environ Health. 9:25.

van Poll R, Ameling C, Breugelmans O, Houthuis D, van Kempen E, Marra M et al. (2014). Gezondheidsonderzoek Vliegbasis Geilenkirchen (Desk Research) I. Hoofdrapportage: samenvatting, conclusies en aanbevelingen Gezondheidsonderzoek Vliegbasis Geilenkirchen [Health study at the military airport Geilenkirchen (desk research) I. Main report: summary, conclusions and recommendations of the health study at the military airport Geilenkirchen]. Bilthoven: National Institute for Public Health and the Environment (https://zoek.officielebekendmakingen.nl/blg-378125.pdf, accessed 15 March 2017).

Wu TN, Chen LJ, Lai JS, Ko GN, Shen CY, Chang PY (1996). Prospective study of noise exposure during pregnancy on birthweight. Am J Epidemiol. 143(8):792–6.

The WHO Regional Office for Europe

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Noise is an important public health issue. It has negative impacts on human health and well-being and is a growing concern. The WHO Regional Office for Europe has developed these guidelines, based on the growing understanding of these health impacts of exposure to environmental noise. The main purpose of these guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. They provide robust public health advice underpinned by evidence, which is essential to drive policy action that will protect communities from the adverse effects of noise. The guidelines are published by the WHO Regional Office for Europe. In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience.

World Health Organization Regional Office for Europe
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Appendix O-TL1

EXHIBIT 1

ROBERT W. CHERNY
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September 3, 2020

Law Offices of Thomas N. Lippe APC
201 Mission St., 12th Floor
San Francisco, CA 94105

Dear Mr. Lippe:

I'm attaching the evaluation of the Toland Hall murals by Bernard Zakheim, which I prepared at your request.

Let me know if there is anything else I can do. As I hope I have made clear, the murals are historic resources that are fully deserving of landmark status and should be preserved.

Sincerely,

Robert W. Cherny

Bernard Zakheim (1896-1985) and his Murals at Toland Hall, UCSF
by Robert W. Cherny

Bernard Zakheim was a prominent artist in northern California from the early 1930s until his death in 1985. During the 1930s, the era of the New Deal, when there was an immense outpouring of public art, including murals in public buildings, Zakheim contributed significantly to the rich collection of New Deal art in San Francisco. Federal, state, and local governments were all involved in administering the programs that created this treasure trove of public art, but the funding came primarily from federal programs. Unlike the classical themes that typified most previous art in federal buildings (e.g., the Federal Court of Appeals building in San Francisco), New Deal artists were told to paint "the American Scene," past or present. This gave latitude to some artists to include social commentary in their projects.

Federal arts programs in the 1930s were of two basic sorts: work relief for unemployed artists and competitive programs for commissions in federal buildings. The former category included two federal programs, the Public Works of Art Project (PWAP, 12/1933-4/1934) and the Fine Arts Project of the Works Progress Administration (FAP/WPA, 1935-1943). In California, the State Emergency Relief Administration (SERA), a state agency, dispensed federal funds for some work-relief art projects between the end of the PWAP and the beginning of the FAP/WPA. The Treasury Relief Art Project (TRAP, 1935-1939) used WPA funds for some commissions in federal buildings. Except for TRAP, work relief projects were locally administered and local governments provided some of the funding, especially for materials. Commissions for

permanent art in public buildings done through work-relief programs were often either competitive or otherwise limited to highly qualified artists.[1]

The Treasury Section of Painting and Sculpture, later the Treasury Section of Fine Arts (1934-1943), administered most commissions for art in federal buildings. Most of the murals in federal buildings, especially the many new post offices, were based on nation-wide competitions not limited to unemployed artists.

During the 1930s, Bernard Zakheim received commissions from all of these governmental agencies but TRAP. He was born in 1896 in Warsaw to Polish Jewish parents. His study of art was interrupted by World War I, and he came to the US in 1920. He briefly gave up his intent to become an artist and became a successful furniture manufacturer in San Francisco, continuing to paint when time permitted. In 1930, he visited Mexico to observe the work of Diego Rivera, who had a world-wide reputation for creating spectacular public murals. Zakheim then traveled to Europe to study art, including Paris, Italy, and Hungary, where he learned the technique of *buon fresco*, creating murals on wet plaster that then became part of the wall. He returned to the US in 1932, when the Great Depression bankrupted his furniture business.

Soon after his return, he was commissioned to do a *buon fresco* mural at the Jewish Community Center, then under construction. With the coming of the New Deal and its funding for public murals, Zakheim was selected for one of the murals at Coit Tower funded by PWAP, for murals at a city health center funded by SERA, for two multi-mural projects at what is now UCSF and funded initially by SERA and then by

1 For example, when Walter Heil, director of the De Young Museum and local PWAP administrator, selected Coit Tower as the site for fresco murals, he received fifty applications from established artists. Heil chose twenty-five as lead artists. For another example, Timothy Pflueger, the architect of George Washington High School, selected five artists for commissions there based on their previous work

FAP/WPA, and two post-office murals funded by the Treasury Section, making him one of the most productive artists of the period. That he received repeated significant commissions also speaks to his high reputation at the time. His public art in those years was not limited to commissions from federal or state agencies, as he was also selected to do a four-mural history of the San Francisco waterfront for a Recreation Center maintained by the city's waterfront unions; that building no longer exists, and it is uncertain whether those murals were ever completed. He also continued to create oil paintings and watercolors. In 1935, one of his watercolors was given first award at the annual exhibition of works by local artists at the San Francisco Museum of Art (now SFMOMA). After completing his last federal commissions, for the two post offices in Texas, he did a series of paintings of figures from the American Revolution.

The Holocaust was enormously influential for Zakheim, who lost three hundred relatives. He began creating works depicting Jewish life and the Holocaust. In 1961, he returned to Poland where the Jewish Social and Cultural Society commissioned to create a large fresco mural in a Jewish retirement home near Warsaw. In 1966, he used six of his sculptures to create a Holocaust memorial at Mount Sinai Cemetery, Los Angeles.

Zakheim's many murals under New Deal auspices mark him as one of the three leading New Deal muralists in San Francisco, a designation he shares with Victor Arnautoff and Lucien Labaudt. Each of the three is known for his work at Coit Tower and at federal post offices, and each was chosen for an unusually large and complex set of murals, Arnautoff at George Washington High School, Labaudt at the Beach Chalet, and Zakheim at UCSF. The Zakheim murals at Toland Hall are unusual in that

there are ten separate murals that make up the history of medicine in California. There are only a few other New Deal projects of this size and complexity in northern California.

In addition to being the work of a master muralist, Zakheim's murals at Toland Hall are also excellent examples of the public art produced by New Deal programs. They deal with "the American Scene," depicting the history of medicine in California. Zakheim did extensive research on this subject, and included in the murals scrolls or documents identifying the people or events he was depicting. Though many New Deal artists depicted historical events, few provided as much documentation and explanation as Zakheim did at Toland Hall. Unlike some New Deal muralists who depicted history as beginning with the arrival of white settlers or European conquerors, Zakheim began with a sympathetic depiction of the medicinal practices of Native Californians. Viewing his subject matter from the political perspective of the Left, Zakheim also included social commentary in several places, another typical feature of much New Deal art. Bruce Bustard, in his 1997 study of New Deal art programs, specified five themes typical of New Deal art, of which three can be found in the Toland Hall murals: a celebration of ordinary, often working-class, people (including Biddie Mason, a Black woman and former enslaved person); promotion of social change (including a celebration of Lucy M. F. Wanzer, the first woman to graduate from what became UCSF); and a rediscovery of American history.[2]

It also speaks to the historical significance of Zakheim that two of the buildings that house his work have been designated as landmarks and that the Toland Hall murals themselves are moving toward that designation.

[2] Bruce J. Bustard, *New Deal for the Arts* (Seattle: University of Washington Press, 1997). The two themes identified by Bustard not present in the Toland Hall murals are a celebration of the New Deal and a focus on the practicality and usefulness of the arts.

Coit Tower is San Francisco Landmark 165, approved by the Board of Supervisors in 1983. In 2008, it was added to the National Register of Historic Places, number 07001468. The supporting material was substantially amended in 2017, and Coit Tower is currently under consideration as a National Historic Landmark. These designations were based in major part on the significance of the art and the artists.

In 2016, the San Francisco Board of Supervisors designated 35-45 Onondaga Avenue, the former Alemany Emergency Hospital and Health Center, as San Francisco Landmark 272. The landmark designation case report specifies that Zakheim's murals are Character-Defining Features, and the attached documentation states, "Bernard Zakheim was an important artist who worked during a significant time in San Francisco's history. His legacy should be preserved . . . for the benefit of the City at large."

On August 19, 2020, the San Francisco Historic Preservation Commission voted unanimously to recommend the landmarking of the Toland Hall murals. The recommendation states, "The murals are significant for their association with the history of the Works Project Administration's Federal Art Project; and as an excellent example of the work of master artist and muralist, Bernard Zakheim, that display distinctive characteristics of New Deal-era progressive mural artwork."

The proposed alternative, high-resolution photographs of the murals, is unacceptable because a mural that takes up an entire wall has a presence and a power that cannot be captured in a photograph. Public murals were meant to be seen by many people; photographs that record such art are preserved in libraries, where they are consulted by specialists. The New Deal art projects were intended to create art for the people, art that would inspire, inform, and, yes, sometimes even irritate the public at

large. Dr. Leake and others wanted generations of students to experience this art. The proposed alternative denies that goal.

Although the murals are clearly the major focus of attention Toland Hall, it is important to recognize that another New Deal artist also contributed to the adornment of Toland Hall. Michael von Meyer, with funds from the Federal Art Project/WPA, created the elaborately carved wooden chalkboard surround and podium. Best known as a sculptor, his carved balustrade at the San Francisco Beach Chalet is among the features justifying that building's landmark status.

Over the decades since the 1930s, San Franciscans have not always proven good stewards of the rich collection of public art bequeathed to the city by New Deal art programs, as I have indicated in a recent journal article.[3] The largest projects have been especially subject to deterioration, vandalism, and political efforts to modify or destroy them. The past few decades have witnessed a revival of interest in and concern for these works of art. Most of the damaged art works have been conserved or restored. It would be most unfortunate if this pattern of renewed concern for conserving our artistic heritage should be reversed.

Zakheim's major works of public art

Jewish Wedding also called *Jewish Festival,* fresco mural, private commission, Jewish Community Center, San Francisco, 1933, relocated in the new JCC building in 2004.

Library, fresco mural, Coit Tower, PWAP, San Francisco, 1934. National Register of Historic Places, 07001468; San Francisco Landmark 165.

Community Spirit and *Growth,* two fresco murals, SERA, Alemany Emergency Hospital and Health Center, San Francisco, 1934. San Francisco Landmark 272.

Ancient Medicine and *Modern Medicine,* two fresco murals, SERA, Cole Hall, UCSF, San Francisco, 1935, relocated to Health Sciences West, 1966.

[3] Robert W. Cherny, "San Francisco's New-Deal Murals in Long-term Perspective: Controversy, Neglect, and Restoration," *California History* 97 (February 2020): 3-32.

The Story of California Medicine, ten fresco murals, FAP/WPA, Toland Hall, UCSF, San Francisco, 1938.

The Horse and Buggy Era Gives Way to Modern Transportation, oil on canvas mural, Treasury Section, Post Office, Mineola, Texas, 1938.

Agriculture and Industry, oil on canvas mural, Treasury Section, Post Office, Rusk, Texas, 1939.

Songs of the Polish Jews also called *The History of the Jews Through Song,* private commission, 1961, near Warsaw.

Memorial to the Six Million also called *Warsaw Ghetto Memorial,* six large wooden sculptures, private commission, Mount Sinai Memorial Park, Los Angeles, 1966.

Sources

"Bernard Boruch Zakheim: Biography and Works." *California Art Research,* ed. by Gene Hailey. San Francisco: WPA, 1936-1937, microfiche edition, 1987. Vol. 20, part 2, pp. 31-113. Supplementary bibliography by Ellen Schwartz.

Boone, M. Elizabeth. "'Something of his Own Soil': Jewish History, Mural Painting, and Bernard Zakheim in San Francisco." *American Jewish History* 90 (2002): 123-140.

Ferbrache, Lewis. Interview with Bernard Baruch. 1964. Archives of American Art.

Lee, Anthony W. *Painting on the Left: Diego Rivera, Radical Politics, and San Francisco's Public Murals.* Berkeley: University of California Press, 1999. Esp. pp. 95-99, 125-128, 130-132, 149-157, 175-182, 192-195, 205, 216-217

Petrin, Katherine, et al. National Register of Historic Places Registration Form. Esp. section 7, p. 8; section 8, page 16

Sherins, Robert S. *History of Medicine in California Articulated in Frescoes: The Story Behind the Murals of Toland Hall, UCSF: A Research Manuscript.* 2014. Online at http://robertssherinsmd.com/files/books/7-Toland%20Manuscript.4.pdf .

Smith, Margo. *The WPA Murals of Bernard Zakheim* (video). Berkeley: OffCenter Videos, 2010.

Veronico, Nicholas A., et al. *Depression-Era Murals of the Bay Area.* Charleston, SC: Arcadia Publishing, 2014. Esp. pp. 24, 88-89.

Zakheim, Masha. *Coit Tower, San Francisco: Its History and Art.* Rev. edn. Volcano, CA: Volcano Press, 2009. Esp. pp. 60-61.

Robert W. Cherny is professor *emeritus* of history at San Francisco State University. He has published extensively on the history of San Francisco, California, and the West.

His published works on the New Deal art of San Francisco include *Victor Arnautoff and the Politics of Art* (Urbana: University of Illinois Press, 2017); "San Francisco's New-Deal Murals in Long-term Perspective: Controversy, Neglect, and Restoration," *California History* 97 (February 2020): 3-32; and "The Controversy at Coit Tower, 1934," *The Argonaut* 28 (Summer 2017): 68-91. He has served as peer reviewer for the landmark nominations of Theodore Roosevelt Middle School, which includes New Deal works of art, and Sunshine School, an example of New Deal architecture, and for the San Francisco New Deal Historic Context Statement (in progress). He served for five years on the city's Landmarks Preservation Advisory Board and currently serves on the city's Historic Preservation Fund Committee.

EXHIBIT 2

Illustrated Guide

Toland Hall Frescos

UCSF School Of Medicine

Augmented by Original Commentaries and Publications

Robert S. Sherins, MD
Pacific Palisades, California
July 25, 2020

About The Author

Dr. Sherins graduated UCLA, AB Zoology, 1959 and attended the UCSF School of Medicine, receiving his Medical Degree in 1963. He completed his Internship at the Wadsworth Veterans Hospital in West Los Angeles in 1964 and served as a flight medical officer with the rank of Captain in the United States Air Force at the NATO airbase in Incirlik, Turkey, 1964 – 1966. Dr. Sherins completed his Ophthalmology residency at Wadsworth Veterans Hospital and the Jules Stein Eye Institute, UCLA School of Medicine, 1970. He was certified by the American Board of Ophthalmology in 1972 and served on the Clinical Attending Staff at the Jules Stein Eye Institute 1970 1984. He established a clinical practice of Ophthalmology in Santa Monica, California, and served on the medical staff of Saint John's Health Center; served as Chairman of the Ophthalmology Section of the Department of Surgery from 1980 to 1986; and served in the Southern California Lions Eye Institute at Saint John's Hospital from 1970 to 1997. He was president of the Bay Surgical Society, West Los Angeles, in 1985, and historian thereafter. Dr. Sherins is the founding chair and historian of the Saint John's Physicians Alumni Association since 1997.

Acknowledgment

I want to acknowledge the brilliant artistry of Bernard Baruch Zakheim, who was selected to paint the murals that we love and appreciate as the Toland Hall frescos of the University of California San Francisco. This manuscript includes his original comments regarding the murals and the description of the historical basis of the work by his assistant and later wife, Phyllis Wrightson. I wish to dedicate the manuscript to the people of the United States of America, who selected Bernard Zakheim as the artist and funded this splendid project.

Robert S. Sherins, MD
UCSF, School of Medicine, Class of 1963

UCSF Parnassus Campus

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Introduction

Assembled below in sequential order by date are copies of published articles about the history, topics and process of hiring Bernard Zakheim to create a visual record of the history of medicine in California onto frescos. His assistant, Phyllis Wrightson, later his wife, was tasked to assist him in the artful endeavors, while also engaging in the research of the data and history of the artist's subjects. Enabling colleagues, such as UCSF Dean of Pharmacy, Chauncey Leake, PhD, Isabella Perry, MD, among others, contributed to the final success of Zakheim and the magnificent frescos.

I wish to immortalize the history of medicine in California as displayed at UCSF in the Toland Hall frescos painted by New Deal artist, Bernard Zakheim, Circa 1937-1938. This volume contains within a single manuscript, copies of the original texts written by Bernard Zakheim, Phyllis Wrightson, Dean Chauncey Leake, PhD, Isabella Perry, MD, and Masha Zakheim Jewett, among many others.

-K- - -

Guide to the Collection of Bernard Zakheim Library Archives

Zakheim (Bernard) Collection:
https://oac.cdlib.org/findaid/ark:/13030/c88p63xh/ No online items [1]

University of California, San Francisco Archives & Special Collections 530 Parnassus Ave Room 524 San Francisco, CA 94143-0840 415-476-8112

Language of Material: English Contributing Institution: University of California, San Francisco Archives & Special Collections

Title: Bernard Zakheim collection creator: Zakheim, Bernard Baruch

[1] libraryarchives@ucsf.edu URL:
http://www.library.ucsf.edu/collections/archives;
https://oac.cdlib.org/findaid/ark:/13030/c88p63xh/entire_text/

creator: Zakheim, Masha creator: Wrightson, Phyllis; Leake, Chauncey Depew
Identifier/Call Number: MSS.2014.15

Abstract: This collection contains material regarding the life and work of artist Bernard Zakheim. Much of the collection relates to the creation and restoration of Zakheim's Toland Hall and Cole Hall murals at the University of California, San Francisco. Included are writings, biographical material, audiovisual material, correspondence, works of art, and printed material created by Zakheim and members of his family.

Language of Material: Material is predominantly in English. Some printed material and writings in Yiddish, Polish, and Spanish.

Biographical / Historical Bernard Baruch Zakheim (circa 1898-1985) was a Polish-born artist who worked in San Francisco, California as a sculptor and muralist. He fought in World War I and immigrated to San Francisco in 1920. He first worked as a

master upholsterer and later became a custom furniture manufacturer. Continuing the art studies, he had begun in Poland, Zakheim visited Diego Rivera in Mexico in 1930 and studied in France, Italy, and Hungary. During the Great Depression in the United States, ***Zakheim worked on federally funded art projects in San Francisco through the Works Progress Administration (WPA).***

He completed murals for the Jewish Community Center, the Alemany Health Center, and Coit Tower. In 1935, with the support of UCSF Pharm. Dean Chauncey Leake and Dr. Isabella Perry, Zakheim and his assistant Phyllis Wrightson began work on two frescoes at UCSF. Originally located in Cole Hall and Toland Hall, the murals depicted the history of medicine and major figures in UCSF's history. The university murals project, which was partially funded by the WPA Federal Art Project and also sponsored by the university, was a collaborative effort between Zakheim's team and UCSF faculty, including UCSF doctors George Lyman, Langley Porter, Salvatore P. Lucia, W. E. Carter, and F. W Lynch. These murals were wallpapered over in the 1950s

and eventually restored with the help of two of Zakheim's children, Masha Zakheim and Nathan Zakheim. During World War II, many of Zakheim's family members were killed during the Nazi Holocaust. This trauma influenced Zakheim's later work, including his Warsaw Ghetto Uprising project. Zakheim married Eda Spiegelman in 1920 and Phyllis Wrightson in 1940. Two of Zakheim's children, Masha and Nathan Zakheim, helped preserve the legacy of Zakheim's work through restoration efforts. Masha Zakheim (1931-2014) was an art historian who published work on Bernard Zakheim, New Deal art, and Diego Rivera. Nathan Zakheim became an art conservator and helped manage his father's art collection.

Scope and Contents The collection contains material regarding the life and work of artist Bernard Zakheim. Much of the collection relates to the creation and restoration of Zakheim's Toland Hall and Cole Hall murals at the University of California, San Francisco. The collection includes biographical material, writings, works of art, and correspondence created by Zakheim, his daughter Masha Zakheim, his assistant and second wife Phyllis Wrightson, and Chauncey Leake.

BERNARD ZAKHEIM[2]
(American, 1896-1985)
Web archive

The History of Medicine in California is the title for the murals by Bernard Zakheim in Toland Hall. Illustrating facets of medicine in San Francisco, these frescos portray with emotional swirl and color the contrast between the long tradition of superstition, wishful thinking, and irrationality associated with the development of medicine during the past, with the cool, direct scientific approach to modern medicine. Many of the individuals show on the panels were on the staff of the University of California Medical School in 1936, when the panel was designed. He executed the murals in Toland and then Cole Hall between 1936 and 1940.

Bernard Zakheim, a Polish artist, born in 1898 in Warsaw,

https://web.archive.org/web/20141024103805/http://chancellor.ucsf.edu/UCSFArt/zakheim.php

Page 1 of 3 UCSF Art Collection on Parnassus Campus

CATHERINE WAGNER

ADDITIONAL LOCATIONS HANK WILLIS THOMAS AND RYAN ALEXIEV REBECA BOLLINGER DOUG COOPER NAOMI KREMER BERNARD ZAKHEIM

Poland, immigrated to San Francisco via New York in 1920. He first worked as a master upholsterer and later in the twenties became a custom furniture manufacturer. Continuing the art studies he had begun in Europe, he visited Diego Rivera in Mexico in 1930. Then, he went to France in 1931 to give himself a "sabbatical" and pursue an art career without the worries of business. Upon

[2] FROM:
https://web.archive.org/web/20141024103805/http://chancellor.ucsf.edu/UCSFArt/zakheim.php ©2012 The Regents of the University of California | Office of the Chancellor

returning to San Francisco, he painted murals for the Jewish Community Center, the Alemany Health Center, and Coit Tower. In 1935, Bernard Zakheim began work on two frescoes at UCSF. The first features two contrasting panels, Superstition in Medicine, and Rationality in Medicine and is located in the Health Sciences West lecture hall. The second, in Toland Hall, is a ten-panel series depicting The History of Medicine in California.

An Oral History

By Robert A. Schindler, MD
Chairman of the Department of Otolaryngology, 1967

The following article is an edited version of the talk given by Robert Schindler during Homecoming on May 18, 1996. Bob is a loyal member of the UCSF family. He is a graduate of the class of '67 and chairman of the Department of Otolaryngology. In 1963, he came to the campus as a medical student and medical history fellow, and worked with such notables as Chauncey Leake, John Saunders, Herbert Evans, and Karl Meyer. They related the history of the School of Medicine to Bob, which he encapsulated in the following talk.

he UCSF School of Medicine was built on the success of many hardworking men and women, The early medical history of this school and of California is displayed in a remarkable set of murals in Toland Hall.

The old UC hospital building was designed by Louis Parsons Hobart, and was built in 1917, Hobart designed Toland Hall to emulate a radiating sunburst, capturing the motto of the university". Let there be light." This theme was echoed in the murals painted by Bernard Zakheim in 1937-1938, The murals were the inspiration of Chauncey Leake, PhD and were commissioned under the WPA Federal Arts Project. They reflect an influence of the Mexican muralist tradition primarily because Zakheim was influenced by and had studied with Diego Rivera, an important muralist from Mexico, Rivera's works were commissioned in Mexico and throughout the United States; he painted several murals in San Francisco-at the San Francisco Art Institute, City College, and the fonner Pacific Stock Exchange Club,

Rivera and some of his followers were leftists and communists, and their murals often reflected these leanings, In the 1930s, leftist politics did not seem dangerous or unusual. However, what happened to the Toland Hall murals after Chauncey Leake left the campus was unfortunate, In ***1948***, at the beginning of the Cold War, the murals were covered over with wallpaper and

paint. The administration believed that the images were too distracting to students, and were not politically correct for the era that produced the House Un-American Activities Committee,

One of the wonderful things about history is that we have the opportunity of distance, No longer is the issue of whether the murals were leftist or rightist in important. It is their artistic merit and the historic story they portray that is important. In 1962 Chauncey Leake returned to campus, found the murals covered, and I was outraged. He had the wallpaper removed, but the frescos were badly damaged. In ***1977***, the Alumni-Faculty Association raised the money needed to restore the murals to their present condition.

The murals have the quality of those restored in the Sistine Chapel-not the magnitude of the artistic quality, but certainly the luscious, rich, vibrant colors of the frescos. The murals begin in the center of the room and move toward both exit doors. The central panel illustrates a figure of a Native American facing east, toward the rising sun of California, recalling Hobart's sunburst. Half of the panels represent the history of medicine in Northern California, while the other half represent the history of medicine in Southern California.

Immediately adjacent to the central panel is the depiction of Native American healing arts as it was in California before the influence of Western European civilization. The panel shows Native Americans and Father Junipero Serra with medicinal herbs, and the symbolic representation of the transition of native healing to that of the European tradition Ill· An interesting vignette displayed on the back panel is [hat of Sir Francis Drake, who came to California in 1579 and took possession of it for Queen Elizabeth I of England. His younger brother died in California, and this panel illustrates the post-mortem eX3mination by the ship's surgeon determining that his brother died of natural causes.

Another panel illustrates the Spanish con4ucst of California Ill. It is from the Southern California series and illustrates the first small pox vaccination of Spanish troops do ne by an American trapper, Mr. James Pattie-in 1828. While working in the muralist tradition of broad brush strokes and bold color, Zakheim created minutely descriptive details such as his representation of Dr. Edward Jenner's first edition on vaccination is on the table next to Pattie.

One of the most interesting panels tells us about the beginning of " western" medical history in California. The panel shows a scene of Dr. Edward Willis killing a fellow practitioner named Hullings in Hangtown, Placerville. "Dr."' Hullings, who was a quack and a fraud, had destroyed Willis' diploma, which was legitimate. Although, medical diplomas in those days weren't really worth much. Medical schools often consisted of just two years of lectures-two four month sessions-and a great deal of preceptorship, hope, and prayer on the part of both patient and physician.

Into this ferment of California medicine rode our founder Hugh Toland O. Toland was a remarkable individual. He was born in South Carolina in 1806, and went to medical school at the University of Transylvania in Lexington, Kentucky (later becoming the University of Kentucky at Lexington), graduating at the top of his class. He was noted to be a fine surgeon, and spent some time doing postgraduate work specializing in uretero-lithotomy-removing stones from the bladder. He set up his practice, and within three years he had the largest surgical practice in Kentucky. Not satisfied \with his medical training, he decided to go to Europe for additional experience. He worked for two years in Paris and associated with people like Drs. Guillaume Dupire's, Jacques Lisfranc, and Philbert Raux-some of the great medical minds of that era. It was in Paris that he befriended Oliver Wendell Holmes who was also training there. Toland returned to practice in Kentucky in 1835 and was, once again, very successful.

in 1848-49, news of California gold appeared in newspapers world-wide. The rush was on! What followed was the largest single mass-migration of people to anyone spot in world history. San Francisco, a town of 2,500 in 1848 had grown to 30,000 by 1852 when Toland arrived. In his late 40s, Toland and his new wife made the transcontinental journey on horseback from independence, Missouri to Stockton in record, time-less than 80 days. His wife, unfortunately, died of dysentery three days after the journey ended. Toland settled in San Francisco and again set up his practice, which rapidly developed into one of the largest medical practices in California.

This brings us to our Other protagonist Beverly Cole Ill. Cole was born in Virginia in 1828. like Hugh Toland, he was drawn to the University of Transylvania medical school. He went there for a year and then transferred to Jefferson Medical College in Philadelphia. He graduated in May of 1849 during the great cholera epidemic in Philadelphia. He became head of one of the small district cholera hospitals that were set up to treat patients. Soon afterward, he suffered a spontaneous pulmonary hemorrhage, which he immediately recognized as tuberculosis. Cole knew that he needed to find a better climate, and set out for California. Not wanting to take the very risky journey overland, he decided to take the Panama route. He went by ship, crossed Panama on foot, transferred to a ship bound for San Francisco, and arrived in 1852. He then set up a practice located on Montgomery Street not too far from where Toland had his practice.

Cole befriended a wonderful early San Francisco banker named James King of William. There were three James Kings in San Francisco, so he added his father's name to distinguish himself. At that time, banking in San Francisco was a very corrupt business. In 1855, King left banking to become a newspaper publisher, and bought the Evening Bulletin. His goal was to clean up San Francisco by pen, writing editorials condemning the notorious, corrupt politicians of the day. James Casey was one of those politicians, and he was the object of King's editorials. He was elected to the board of supervisors in the then classic San Francisco way of stuffing the ballot. He also was an ex-convict from Sing-Sing, where he had spent 18 months. King discovered this fact and threatened to reveal it. One day in May of 1856, in the streets of San Francisco***, Casey shot King in the chest***. King fell severely wounded, and asked for his friend Beverly Cole to attend to him. Before Cole could arrive, a young surgeon named Dr. Nuttall, a diplomat of the Royal College of Surgeons in Ireland, gave him emergency medical care. Recognizing that the wound was near the subclavian artery and vein, Nuttall placed a sponge in the wound to stop the bleeding. Thirty minutes later, Cole arrived, evaluated the case, and advised Nuttall to remove the sponge before it acted as a foreign body and caused the wound to suppurate. The two young surgeons were in agreement on the subject when a succession of twenty physicians arrived within another hour expressing their opinion. They recommended that nothing be done until Hugh Toland was consulted. Cole insisted that the wound wasn't mortal, and

that the bleeding wasn't severe enough to indicate any injury of the subclavian artery or vein. He reiterated his opinion, shared by Nuttall, that the greatest danger for the patient was leaving the sponge in place. Toland listen d to the others, and decided to leave the sponge as the patient appeared to be stable. Needless to say, King died of sepsis seven days later.

That probably would have been the end of the story if Beverly Cole hadn't revealed publicly that tl1is was a case of gross malpractice. After the incident, one of James Casey's cohorts was arrested in Napa and indicted for his possible collusion in the murder of King. During the trial, the defense attorney argued that his client didn't have anything to do with the murder, and in fact, King wasn't murdered by Casey either. He was murdered by the doctors who took care of him. The attorney revealed that he had an expert witness who would testify to this fact. That witness was Beverly Cole. Hugh Toland presented his defense, stating that he honestly thought that the subclavian artery and vein were severed and the nerves were damaged, and if [he sponge was removed the patient would exsanguinate. The jury believed Cole's testimony, and let the defendant off. However, the community at large, and other physicians in the community, believed Toland. A medical review board finally vindicated To land of any wrongdoing.

It is probably valid to say that relations between Cole and Toland weren't exactly warm and cordial, and that makes our story all the more interesting. In 1858, a medical school was established by Elias Cooper (which later became Stanford University Hospital). Cole was asked to join the faculty, however, Toland was not. Cole was first a professor of obstetrics ~1I1c1 then clean of the medical school. Cooper died in 1862, and his nephew Levi Cooper Lane took over the financially troubled school. Shortly thereafter, in 1864, the school faced bankruptcy. Hugh Toland seized his opportunity and immediately established Toland Medical College. Tolan I, who had made a fortune selling mail-order prescriptions, knew what it took to endow a decent medical school and set up a $100,000 endowment to build the school. He then invited everyone who was on the Cooper Medical College faculty to join him. All the invitees joined the faculty of Toland's new school, as Cooper Medical College's survival did not look promising. All were invited except for one individual, Beverly Cole.

Cole noted that Toland had something that he didn't have, which was a little bit of European luster. Cole decided to leave an embarrassing situation, and went to the East Coast for further obstetrical and gynecological training, and then went to Europe. He traveled to London, Edenborough, Berlin, and Heidelberg, visiting the great medical centers and having his tarnished brass buffed. He ca me back to San Francisco and set up his practice, which once again became the biggest obstetrical practice in San Francisco.

In 1867, Beverly Cole was appointed by the board of supervisors to the Outside Lands Commission of San Francisco. He noted that there were a thousand unused acres near the ocean, and felt that the city should build a park. He then convinced

the board of supervisors to set aside the thousand acres for Golden Gate Park. He did one other interesting thing while he was on that commission, he convinced the supervisors that the city needed a new hospital. Toland's medical school was ideally situated near the original city and county hospital, but Cole suggested that the new hospital be built in Potrero. Imagine how far it was by horseback from Toland Medical College on Russian Hill to the new hospital; it couldn't have been further.

Our story gets even more interesting. In 1870, Toland realized that Cole had a lot of political power, and that he needed Cole. Toland began negotiating with Cole to become dean of his new and fragile medical institution. Cole suggested that if Toland donated the medical school to the new University of California , he would take the deanship.' After some negotiation, Toland agreed and Cole became dean.

Enter our third important individual in this history, Daniel Coit Gilman. Gilman was born in 1831, and went to college at Yale University to study political and physical geography. In 1853, he became an emissary to Russia, and traveled to the scientific centers of Europe to research their methods of scientific education. Upon his return, he became a faculty member at the Sheffield Scientific School in New Haven in an effort to build science education in the United States. Then in 1872, he was recruited as the second president of the

University of California. At the time, Gilman became involved in the university's negotiations to take over Toland Medical College. He wanted a fusion of all the medical schools in San Francisco, and wanted to see Toland and Cole work together. Toland had specified that he wanted the medical school named after him. Regents and Gilman rejected Toland's request, but agreed to name a hall for him. Toland eventually took the deal because Cole was able to persuade him that he would be remembered for this donation.

Gilman knew what it took to build a medical school, and he began planning a new curriculum by presenting a series of questions to the Board of Regents. He asked, "What type of medical school do we want' Do we want a university? Do we want to require students to have some background-a university degree-before they are admitted, or do we want it to be a trade school" Clearly the questions were designed to get a response. He realized that the medical school had to be linked to the university, and that professors had to be university educated and have some scientific merit in their work. Unfortunately, in 1875 Gilman was recruited to Baltimore, enticed by a 3.8 million dollar endowment that Johns Hopkins left. for the formation of a university, medical school, and hospital. In 1893, Daniel Coit Gilman opened the Johns Hopkins School of Medicine, clearly modeled on the principles he was trying to establish at the University of California.

Gilman insisted that the first UC graduating class have at least three years of medical education. And, before his departure for Johns Hopkins, Gilman and the Board of Regents selected the first graduating class (1876) of the University of California medical school. Lucy Wanzer graduated in that class She was 33 years old when she applied for admission to the medical school based on her qualifications in everything except gender. Beverly Cole was against her admission, however she appealed to Gilman and the Board of Regents, who accepted her application. The Regents decided that all California citizens had the right to an education. An ideal that was realized early on, if we review the names on the admission rosters-they were Japanese, Italian, Jewish, Irish-people who were not accepted elsewhere. Twenty years later, in 1896, this school graduated its first African-American physician. So, it is a remarkable history that we are talking about, a commitment to diversity as well as a commitment to scientific education.

Adolph Sutro, another one of our heroes, donated land on Parnassus Heights for the medical school and the other UC affiliated colleges. [Adolph] Sutro was mayor of San Francisco at that time, and a great real estate entrepreneur. He gave the gift because his daughter was an 1881 graduate of the medical school The foundation stone of the affiliated colleges was laid in 1897.

In the early years, UC President Benjamin Ide Wheeler built the scientific base of this institution with Arnold D'Ancona, the first full-time dean of any American medical school Their tenure together was an extraordinarily vital period. [t was during this time that the Hooper Foundation was established, and that William Kerr, Langley Porter, Herbert C. Moffitt, Wallace Terry, and Frank Lynch became members of the medical school faculty.

Other notable figures included George Nuttall who was a professor of bacteriology.' He graduated from UCSF in 1884, and then went to Europe. [n 1888, he published a paper in German on the bactericidal effects of defibrinated blood plasma. He made the great discovery of anti-sera. His work was very close to Nobel Laureate Karl Landsteiner-he had almost all of the blood-typing done before Landsteiner. He was an extraordinary graduate of this school, and was given five citations in Garrison Morton's bibliography of the history of medicine.

Intensive research began at UCSF in 1913 with the establishment of the George Williams Hooper Foundation, the first institute for medical research in the United States planned as an integral part of a university. The Hooper Foundation, endowed with over one million dollars from the widow of a lumber man and philanthropist, established our early preeminence in infectious disease research U.

The murals also show George Whipple, who worked on pernicious anemia at UCSF from 1913 until he left in 1925 1m. By that time, he had already established the concept of feeding liver extract for pernicious anemia, and had won a Nobel Prize for it. He was our first Nobel laureate. Next to him is Karl Meyer who revolutionized the canning industry in California with the discovery of the botulinum toxin. Botulinum.

It was the unique convergence of all these great minds, and a Board of Regents with the insight to appoint Daniel Coit Gilman as president of this institution, and individuals like Beverly Cole and Hugh Toland, who could literally bury the hatchet, that launched this great institution-the UCSF School of Medicine.

l) On March 23, 186tl, the state legislature passed a bill creating the university of California. This was a direct result of ***the Morrill Act, passed by Congress in H62, establishing land grants to each stale for colleges and universities.*** The university began operating on the transferred lands of the College of California in Oakland,: land transferred to Berkeley in 1873.

2) He may have been the son of Dr. Nuttall who was the surgeon involved in the James King of William episode.

Zakheim Murals Are Distracting[3]

"What do you paint when you paint a wall?" "Said John D.'s Grandson Nelson. "Do you paint just anything there at all, Like a flock of doves, or a tree in fall?" "I paint what I see," said Rivera, (from "I Paint What I See," by E. B. White) Mural painting in the 19305, of which the Rivera murals at Rockefeller Center were the most famous, became a storm center linking the worlds of art and politics. Rivera painted the head of Lenin into the Rockefeller Center murals, invoking the wrath of the Fifth Avenue robber barons and the humor of E. B. White. Artist **Bernard Zakheim,** pictured here with one of his recent works, "Fetish," was a self-respecting hungry young artist in the 19305, when his paintings were first seen by Dr. Elizabeth Perry and Dr. Chauncey Leake. They thought it would be a good idea for Mr. **Zakheim** to paint some murals in Toland and Cole halls, and asked him to execute his commission. This he did, between 1936 and 1940 and at the same time, states Mr. **Zakheim,** "I became an unofficial student at the Medical Center, a free-lancer, of the history of medicine." Dr. Langley Porter and Dr. Lynch, of the 08-GYN department, were great supporters of the project. When the murals were finished, they attracted a good deal of attention, some of which was resented by certain members of the faculty who felt they were "too distracting" to the students, and ordered them covered up.

The following is reprinted from ***Herb Caen's column of Feb. 13, 1948:*** "A few weeks ago Artist **Bernard Zakheim's** huge murals in the U.C. Medical School on Parnassus were ordered covered with wallpaper.[4] Because they were allegedly distracting students. The famed Dr. Howard Nafziger, one of the medicos who ordered the wallpapering, asked a classroom of 60 students which they preferred: the mural or plain wallpaper. Fifty-six voted for the mural. But the wallpaper will stay where it is. 'We were just curious,' said Dr. Nafziger. HE is curious?" Dr.

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[3] Synapse, UCSF Newspaper, 18 November 1964

[4] fFrom San Francisco Chronicle: ***Herb Caen's column of Feb. 13, 1948:***

Lynch, among others unhappy about the wallpapering, remarked at the time: "My God! That's what we want! We want the students to notice it. We want them to have something to crime back to in twenty or thirty years, something they'll remember and want to come back for." "I want the students' undivided attention," said Dr. Nafziger.

On June 18, 1964, the immutable Chronicler Herb Caen again reported: "The Journal of the American Medical Association convention reproduced on its cover one of artist **Bernard Zakheim's** frescoes in Toland Hall in the U.C. Med Center, a belated tribute." Back in 1948, **Zakheim** painted ten striking and expensive frescoes in the lecture hall, which certain powerful medics led by the late Dr. Howard Nafziger, found "too distracting." Despite protests by the artists' community, four of them were covered with wallpaper, behind which they remain covered to this day. As for **Zakheim,** who now lives in Sebastopol, he has had a tough time of it ever since. "All of a sudden," he says, "nobody had a job for a controversial fresco painter."

The artist, **Bernard Zakheim,** recorded a medical history of the west in the Toland Hall murals, reminiscent of Rivera's. One panel illustrates the chaotic condition of medicine as it was practiced in the San Francisco of those years; Dr. Elbert P. Jones (for whom Jones Street is named), weighing the gold dust which was the only fee he would accept (nuggets would not do); Dr. Townsend opens the first San Francisco medical office in 1846;- Dr. Fourgeaud, another of the early physician-pioneers and his family; Dr. Clappe amputates miner's leg while another pours whiskey for anesthesia; Dr. Toland on horseback, with saddle bags bulging and plans in hand for his Medical School; Dr. Willis shoots drunken Dr. Hullings for tearing up his diploma.

Original color sketches for the famed **Bernard Zakheim** murals in Toland and Cole Halls, featured in the recent Pfizer "Spectrum," will be on display through December 4 at Milberry Union, in commemoration of the Centennial Celebration of the School of Medicine. Artist **Zakheim** is pictured above with one of his recent wood sculptures, "Fetish.

Zakheim Frescoes To Whom Do They Belong?[5]

For nearly 30 years, the depression-era frescoes of **Bernard Zakheim,** depicting the superstitious and rational aspects of medicine, graced the walls of Cole Hall. Then, in 1967, when the old medical school building at UCSF was demolished, Zakheim's sons removed the Cole Hall frescoes and placed them in the lobby of the Health Sciences West Tower Building, where they have remained ever since. But there are plans now to move the historic panels to the walls of the waiting room of Dr. Julius Krevans, dean of the school of medicine, and those plans have raised the ire of **Zakheim,** now 75, the Associated Students and Dr. Chauncey Leake, the man chiefly responsible for the frescoes. The waiting room of the dean's office, they say, isn't a fitting location for the frescos, which should be in public view for students, physicians and other visitors to UCSF. "I would like people to see them, I want people to see them," said **Zakheim** from his studio in Sonoma County. "I painted it for the people. I didn't paint it for the dean. "I object that anything like that should be given to an office, a dean or whoever. It belongs to the people, to the students." **Zakheim,** a muralist, sculptor arid painter, completed the

1. Francis S. Smyth, Professor of Pediatrics, and later Dean. 2. Eric Ogden, Associate Professor of Physiology, later at the Ohio State University and NASA. 3. Robert S. Stone (1895-1966), Professor of Radiology. 4. J. B. dc C. M. Saunders, Professor of Anatomy, later Chancellor. 5. Joseph Hamilton (19071957), Associate Professor of Radiation Biology. 6. Phyllis Wrightson, assistant to the artist. 7. Edward Shaw, Professor of Pediatrics. 8. Willard Fleming, Professor of Dentistry, later Chancellor. 9. Isabella Perry. Professor of Pathology. 10. Chauncey D. Leake, Professor of Pharmacology and History of Medicine, and Librarian. 11. K. F. Meyer, Professor of Microbiology, and Director of the Hooper Foundation or Medical Research. 12. Benedict Abreu (19131965), Research Associate in Pharmacology, later Professor of Pharmacology, University of Texas Medical Branch. 13. Nilkanth Phatak,

[5] "**Zakheim** Frescoes To Whom Do They Belong"? by Dale Sprouse, Synapse, UCSF Newspaper, 13 April 1973

Research Associate in Pharmacology, later Professor of Pharmacology, University of Oregon Dental School. 14. Arthur E. Guedell (1893 1956). anesthesiologist. 15. Glenn Bell. Professor of Surgery. 16. Mildred Newton, Director of Surgical Nursing. 17. Hulda Thelander, Professor of Pediatrics. 18. C. D. Leake, Jr. 19. Wilson W. Leake, now anesthesiologist in Seattle. 20. Milton Lennon (1877 1965), Professor of Psychiatry.

Cole Hall frescoes in 1937 as part of a depression era WPA project. He also put a large series of frescoes around the wall of Toland Hall in the University of California Hospital. "It was my idea originally," said Dr. Leake, senior lecturer in history, health science and pharmacology, who at the time was professor of pharmacology and history of medicine and librarian. "I thought it was a fine idea to get the artists, scientists and medical people together." Leake described **Zakheim's** UCSF frescoes as "among the best relating to medicine anywhere," with the possible exception of the frescoes in Mexico City's Cardiology Institute. But the UCSF frescoes, he said, "are more extensive." "As far as I know there has been no similar attempt any- ; where, in our country at any : rate, to combine artistic endeavor with scientific and professional interest," he added. "They were supposed to carry a kind of message," he said of the twin Cole Hall panels. "One of them is all swirl, confusion, everything reflecting the superstitious approach to medicine in the past and present, sometimes. Whereas the other one reflects the cool, straight line scientific approach to medical affairs. "I think the message is perfectly clear. But I think it should be in a place where the students should see them. That was their original purpose. It should be maintained." Dean Krevans and Chancellor Francis Sooy say the decision to move the frescoes from HSW was prompted by fear of possible vandalism. The current location, they say, affords very little protection to the murals from vandals. "They're in an unprotected area and a very much unobserved area," said Krevans. "They sit there in the dark and as far as I was concerned they weren't getting their message across and they were in jeopardy." Dr. Sooy said he approved Dean Krevan’s plan to move the frescoes to the dean's waiting room because "1 don't know of

any other suitable place where they could be protected." ASUC Executive Director Harvey Slocum, in a letter to Chancellor Sooy, expressed the student body's "total dismay and opposition" to relocation of the frescoes to Dean Krevans' office. "These frescoes have given pleasure to Dental, Nursing,

Pharmacy, Medical Allied Health and Graduate Students, as well as to thousands of High School and College students who have been given a tour of this campus," he wrote. "There is no justification for the personal acquisition of these frescoes by the School of Medicine or its Dean. Vandalism is certainly a highly questionable motive for their removal." Vandalism of a different nature has already marred the appearance of the Toland Hall frescoes which tell the story of the development of medicine in California. About 1943 the frescoes were covered with wallpaper after some instructors complained the murals were distracting to students. The frescoes were uncovered in 1963, but the harm had already been done. Dr. Leake relates that incident with disgust: "As soon as they (the frescoes) went up a lot of the old conservatives around said the frescoes interfered with the interest and attention of students and I replied: 'If you can't talk above anything like that what's the matter with you. What's the matter with your lecturing? You ought to be able to transcend those kinds of distractions.' "But the moment I left (Leake left UCSF in 1943, returning about 20 years later), the wallpaper went up. As soon as I got back I was able to exert enough influence, especially with John Saunders, who was chancellor, to get the wallpaper removed." "So, for about 20years the Toland Hall frescoes were covered. The wall paper was dull looking and they hung those horrible academic portraits of the distinguished professors and all. Who the hell cared about them beside the portraits weren't even labeled."? Leake said the damage to the Toland Hall frescoes wasn't actually caused by the wallpaper. During the time the frescoes were covered, paint had been slapped over the wallpaper and the oil from the paint seeped through the wallpaper, making it difficult to take the covering off without damage to the frescoes. As for possible vandalism to the Cole Hall frescoes (now in HSW), Leake and Dr. Don Jewett, **Zakheim's** son-in-law, who works at UCSF, say they feel the best way to prevent damage would be to cover the frescoes with glass. Asked about that possibility, Dean Krevans simply replied "Well, I don't know."

But, he conceded that fear of vandalism wasn't the only reason he proposed the move. The frescoes, he said, belong the School of Medicine and are "very much identified with the start of the medical school." Many of the individuals shown on the fresco panels were on the staff of the University of California Medical School in 1936. " I just didn't like the idea of these, to' me very interesting and important things, just standing around as places that people

lock their bicycles to," said Krevans. "They weren't identified with anything over the (HSW). They were just standing in the hallway. In explaining his reason for wanting the frescoes moved to the School of Medicine headquarters, he said, "My own conviction is the best way to build up total campus spirit is to build additive identification of individuals with their own programs, as well as a kind of appreciation of everybody else's." Krevans said he felt "everybody shared our concern that they were both in jeopardy and being wasted where they are," adding he felt the plan to move the frescoes to his waiting room was approved by the Chancellor's office "since nobody else had any ideas of what to do with them." Krevans added that he was not "wedded" to the idea that the frescoes go in his waiting room, saying plans to move them there haven't been finalized. **Zakheim** and Leake say they have no real objection to the frescoes being moved, as long as the eventual location is readily accessible to the public. "Maybe that corner isn't the best place for them," said Leake. "But if we wish to have them serve as an inspiration for our students and our staff I think they should be in a relatively public place." "I don't care where they move them," echoed **Zakheim.** "They can put them anywhere. But let the people see them." Both **Zakheim** and Leake suggested the frescoes possibly be located outdoors, in the courtyard, for example. **Zakheim** said he felt the frescoes could be preserved from the weather by coating them with modern plastics, but he said he would have to determine that with his sons "who are experts."

THE TALE OF THE ZAKHEIM FRESCOES[6]

Nullum and Matthew Zakheim are now @ CrKproves:: of restoring CrK frescoes painted by their father @ CrK 1930!"K#hese works of art originally were found in $ole %rÖÖKCrKold med School ' uilding. #rK following); is @eir story.) By Y athan and Matthew Zakheim Many people, when told about frescoes, Ook puzzled and ask what @ey are. , or thousands of years frescoes have been rKmethod through which artists paint directly on CrKwet plaster of walls. Pigments are brushed directly into fresh plaster using only water as rKvehicle, @K plaster @self being CrKmedium. Once hardened, plaster and pigment become one. &een under rKmicroscope, one particle of pigment would be surrounded by ten particles of plaster. #rK pigments are exclusively earth colors-Indian red, yellow ochre, burnt sienna, @erra verte, to name rKfew. 2 €C@Kme CrK plaster can harden to limestone, remaining as vivid for centuries as when first painted. #his durability explained CrKpresent day survival of ancient Byzantine and Italian frescoes. , rescoes rC@K "$"KThere are two sets of frescoes rC@K "$"KMedical $enter, totaling twelve panels. . ne set was formerly Ocated in $ole %rÖÖKCrKold medical school building, CrKother set @ Toland %rÖ@KK Toland %rÖÖ@Krescoes depict early $alifornia medical history in @en consecutive panels. Unfortunately, in CrK1940's CrK presiding chancellor ordered CrC@K@K murals be covered with wallpaper, presumably because they were distracting lectures. 1n 1962, CrKmurals were uncovered, and were found severely damaged by rK peeling of @K fresco surface caused primarily by CrKwallpaper paste. #rK Artist Bernard Baruch Zakheim was born in 2 arsaw, Poland, @ 1898. 8fter studying rC@Karious European academies, and surviving many amazing wartime experiences, Zakheim came to @K United States rC@Kge twenty. %rKspent many years in custom furniture manufacturing but his primary @terest never ceased to be painting. %rKspent much time travelling through Europe, living and painting amongst @K artists. Especially @terested in fresco, rK went @ Mexico to spend time with Diego Rivera. &oon his own frescoes were appearing throughout @K United States, particularly @ CrK Bay Area. $ole %rÖÖK Chauncey

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[6] SYNAPSE - THE UCSF STUDENT NEWSPAPER, VOLUME XII, NUMBER 6, 8 APRIL 1968

=rr,r*K terested in combining art with K science, brought about rK university commission for rK frescoes on medical history. One panel "Superstition in wedicine," depicts ancient practices of black magic, alchemy, amputation. ?Using brute force instead of anesthetic). Sacrifice to K Gods, K opening of liver o detect omens (thus rK discovery of diseases) and rK treatment of mental illness by use of stocks, ashing and strait-jackets. Included in rK primitive medicine fresco is considerable subliminal satire, continuing rK tradtion maintaining by such early fresco masters as Michelangelo and William Randolph Hearst stands sanctimoniously as rK priest wCrK good book in one hand and an incense burner supposedly clearing the air of evil spirits.

K

Surrounding rK priest stand rK choir boys, robes suggesting organ pipes, singing with angelic oval mouths, as if on Christmas cards. Enthusiastically ined in K choir are rK geese, and lamb of rK sacrifice next door, unmindful of rK thousands of years supposedly separating them. Lying in agony, g being amputated, s rK janitor who refused to permit rK artist to paint r fter five o'clock, even if rK were o rKrrK of inspiration —immortality to r KCrKCrK janitor 1rK brute holding down rK unfortunate man wears rK tattoo with K initials, -')K these stand for Phyllis and Bernard, assistant and artist hen courting each other, later to marry and bear sons who turned out o be rK art restorers themselves.

K

In K panel of rational medicine, K persons pictured are doctors from rK university volved in research, notably Dr. =rr,r*K and Dr. Saunders. Demolition In mCrK967, K artist received notice rrCrK University was proceeding with plans to demolish rK old medical school building and rK Murals might be destroyed also. Alarmed, persons from outside and within K university mrrK certain rCrK rK horough investigation was launched to determine what action might save rK works of art. 8K ocal San Francisco gallery gave estimates in rK wenty thousand dollar plan rrCrK might work." Specialists from other parts of rK state recommended rrCrK frescoes were not salvageable. #hus, rK artist received rK letter saying rrCrK regrettably" K murals were doomed. 2 orking through rK contractor's license of friends of K artist, rK artist's wo sons drew up rK plan for removal of rK frescoes, and rK university accepted rK contract to r ctualize rK project. #rK initial fund was four thousand dollars, with

immediate expense of scaffolding and fee to the contractor, leaving less than three thousand dollars to remove the frescoes. Later another two thousand was added to the original sum.

Removal: The problem presented was the plasters 1 5thick and C5/ 105to be removed intact as possible from the four course brick wall on which they was directly plastered. Due to the difficulty of this seldom encountered operation, the plaster was in three layers of unknown adhesiveness on the surface of unknown properties. After several attempts to saving the fresco from the wall, it was decided to remove the wall itself, brick by brick, hardening the plaster as the bricks were removed, until the whole back was exposed. At this point the fresco was lowered. Fiberglass, steel grid, and steel beams were attached with plastic resins. The frescoes were then crated and moved by crane to their present location in %"&"2"* where expert movers positioned them and secured them to the ceiling and floor. Space age industrial materials were used to harden and reinforce the panels. %owever, unavoidably during the removal certain small damages occurred, which combined with the cracks and chips already present* clearly called for repairs to restore the murals to their original condition.

Restoration: The artist and his sons were asked to submit the bid for restoration of damages, a contract later being signed for the task. To fill cracks and cavities we used the premixed paste of acrylic and marble dust. Atab donated the large syringe for filing cracks with acrylic emulsion. The raised, cracked were cut away using the fine jewelry saw blade, then reset in paste and re-painted. 2 the use the original ground earth colors suspended in acrylic mthe medium for retouching scars, scratches, etc. Once retouched, the murals were covered with glass, remaining in their present location for the few years until transfer to the yet unconstructed new nursing building.

The Future: The artist ' ernard Zakheim is still very active. , or instance, he has just completed the large monument to be exhibited in ' erkeley soon. %e has no desire to see his connection with the university dissolve the this point. Living on his farm the Sebastopol, California, Zakheim is ready to begin the third panel of fresco on medical history, this time looking to medicine of the future! In the atomic age, with the growing use of

cybernetics, ŕlectronics, and computers, lies fertile possibilities for expansion of ĞŕKartist-scientist union. . riginally ř Kthird panel was to have been painted to complete ĞŕK series. #ŕK movement of composition in ĞK existing panels points to ĞK top center, where ĞŕK third panel was to be ř Kpeak. %owever, right now ĞK Toland %řŎŎK Frescoes are still in deplorable condition, very badly damaged and constantly peeling. - erhaps ĞŕKrestoration of ĞK University's artwork signals ĞŕKintroduction of ř Knew area in which ĞŕKnew buildings may be decorated with murals, and other artwork unfolding ĞŕKmiracles and mysteries of medical science in ĞŕKrenaissance of ˚ igh culture and science and art to bring inspiration and color ĞŕKmatte grey cement of our geometric modern architecture. This of course, has been present for many years in ẇexico's public buildings. Let's hope ĞřĞkŎcal ř rtists will have ř Kchance to compete for wall space, and perhaps for Artist Zakheim to finish his third panel.

Artist's Foreword
Bernard Zakheim

ARTIST'S FOREWORD

The artist's purpose in planning an architectural decoration is to accept the architecture as it is, and only enrich the architectural characteristics by assimilating them, placing emphasis on them, and then causing them to vibrate in line and color. The next step is to conceive the design intellectually and express it emotionally.

It is important to maintain walls as partitions and not to make a decoration that will break up the wall surface and give illusary depth or the opposite, forms bulging out from the wall surface. That is the reason I used no perspective in the paintings- if there are forms which seem to have a perspective characteristic, they were used only as a means to express direction in the composition.

The Toland Hall Problem

The Toland Hall Amphitheatre as it appeared to me was a low half-drum of an interior with a low ceiling and rows upon rows of chairs reaching almost to the ceiling. Theremy problem began. The last row of chairs leaves four and one-half feet of wall space visible from the top of the chairs to the ceiling, and the length approximates one-hundred and four feet around the semicircular wall. Therefore it was reasonable to treat this entire space a s a frieze by introducing a horizontal molding around the wall.

Then the ceiling beams are in a design of a sunburst. They come to the wall and stop there suddenly. Therefore I have built pilasters to support these beams, and as a consequence I obtained six panels from the circular wall.

Decorations to be painted on walls offer several risks: first, that of crowding the hall with paintings, second, that of making them appear as posters stuck on temporarily,and third,of the pictures seeming to be cut off by the ceiling.

P. 1

On the other hand, this Toland Hall Amphitheatre had to be designed and decorated in such a fashion as to enlarge it and give the illusion of more space. Of course, there I had to use optical illusion, so the horizontal molding of the circular wall was extended to the straight wall where the screen is, but instead of repeating the four and one-half foot measurement from the circular wall, I dropped the molding on the straight wall to five and one-half feet, which due to an optical illusion appears when viewed from the floor to be on the same level as the molding on the circular wall; and the same thing I have done with the vertical lines (pilasters) on the straight wall, by bringing them down to the floor level, 10 when the eye registers the five and one-half feet of vertical space, and the full length of the pilasters, the illusion is ready to work these proportions to the circular wall as well. Thus, I have given the illusion of more wall space than by , actual measure.

Planning the Composition.
Keeping in mind the circular interior, especially the sun burst design on the ceiling,(also indicated on the cement of the floor, I chose this as the motif for the composition.

I began the painting in the exact centre of the circular wall by painting the Indian facing the sunrise in the east, and painted a sun with stylized sunbeams so to foretell the main development of the whole painting with that note which is actually the floor plan of Toland Hall; and as I followed the main theme o~ the wavy line, so I set in scenes in a fan-like rhythm. I emphasized the ,horizontal molding by putting figures and objects on it; I did the same for the ceiling by bending the figures so to bring the effect of caryatids in Greek architecture; also by leaning figures and objects against the pilasters, I gave more legitimate reason for their being there. In this way I have achieved normal sized individuals of an average height in a space only four and one-half feet high, which again gives the optical illusion of more space.

On the straight wall the molding makes a diagonal line. This is in order to emphasize the ascending stairs. Each of the two large panels on this wall is composed on the sun-ray principle- that is, the 6hief lines of the composition radiate from one point; in the panel tb the right, the lines radiate from the rat; in the panel to the left, from the guinea pig• as the symbol of the Medical

School studies. The horizontal planes of these compositions are in harmony with the stair horizons of the room.

The wavy pattern of« the circular wall finds its culmination in the two small panels on the straight wall, to the left of the above, screen the ..Hooper" panel, and to the, right, above the door, "Science”. In these two compositions the curves are concentrated in the two circular shapes that form the main structure of these compositions.

In general, I wanted the paintings to be interwoven with the architecture as the keystone of the arch, which, although not of the same size as the rest of the stones, still is necessary to the arch. Therefore, the next step was to solve the problem of the general interior by repainting all the chairs from the dark brown to a light greyish-green oak, and all metal parts with aluminum. Floors and stairs should be painted a deep green. The lighting fixtures, especially those near the walls which obscured the painting, had to be removed, and a new lighting system installed to do away with the yellowish tinge and uneven distribution of light which had been distorting the paintings in color, and breaking the flow of the co-composition. The new system will bring out the true colors which were painted to give the effect of distance, and make the amphitheatre seem more subdued and roomy. Fresco has an aluminous quality such as aluminum and does not absorb light. On the contrary it radiates light. So too strong light distorts the color and composition.

Space Solution The subject matter of a painting is usually thought of as the representation of figures and objects. To the painter, however, the spaces not the unoccupied by figures or objects are just as important decoratively as the solid forms. The solid forms are called " positive spaces, and the unoccupied areas are called " negative spaces. To consider only the positive space would have made a poor decoration, since the painting would look broken up\but, giving the same importance to the negative space keeps the unity of the whole painting. Therefore, I have outlined with a light contour the positive space in order to bring out the abstract design or the negative forms.

Concept of the Narrative

The object was to decorate a medical ampitheatre, therefore it was essential to use as subject the history of medicine in the State or California, especially since the hall is visited by out of state doctors unfamiliar with local history.

As to the subject, I did not pick only· the beautiful or heroic parts of h1story, because the contrast of good and bad constitutes the dramatic quality of the narrative. Of course, I painted more of an interpretation than illustration, and the same goes for the costumes and objects; in each case I made a study of the most characteristic form and color, and instead of copying, I painted them as freely as my imagination flowed. And this also stands for the straight wall, where the narrative has both the good and the bad, especially the panel of San Francisco history and the one next to it, called Sc1ence".

Technique of Painting

As to the school of painting I followed - I do not follow any school or style. Subconsc1oualy, I am a product of this civilization. I Just deal with a decoration and its peculiarities to 1ts environment.

Fresco as a medium has its limits. Fresco painting is more of a spontaneous medium than oil painting or other media, because it has to be painted on fresh plaster, and finished before it gets hard. Therefore, fresco painting becomes a sort of school in itself.

The medium is plaster made of marble dust and lime, painted with pure insoluble pigments ground in water. Only a few square feet may be painted at a time. Once painted, and the plaster dry, it cannot be changed, without chiseling out the plaster and starting all over again.

As the plaster dries, the lime in it gradually absorbs carbon dioxide from the air, until it becomes solid calcium carbonate, or marble. As the calcium carbonate crystalizes, the color pigments are strongly held on to the crystal surfaces. The pigments being finely ground insoluble metallic oxides, suffer no oxidizing, the since the colors do not penetrate the plaster, but form a microscopic mosaic on the surface, they can endure forever, and become richer with age.

The palette I use consists entirely or earthen colors with the exception of cobalt blue, viridian green. and black oxide or ivory black, I use Venitian and Indian red, yello• ochre, raw sienna, raw umber, burnt umber, terra verte, or green earth and burnt terra verte. I use no white, because I paint transparently, with the exception of parts in a low key in order to achieve a richer quality.

I did not apply any dynamic symmetry or any other mathematical systems in order to obtain true proportions, but instead I weighed and balanced the proportions and color composition in my own self.

Maybe if I had had a group of artists to paint for me I would have needed to devise a formula, but painting the whole thing by myself, and details by Miss Wrightson, I d1dnt feel the necessity for any artificial system.

Although the two smaller panels near the screen, the Hooper and "Science~ panels, may give an impression or surrealism, it was not my intention to paint surrealism, which is the subconscious of the artist; on the contrary, the paintings represent the conscious or the scientist.

In general, what seemed to me of the most importance was good decoration, achieved by the placing of the panels, the composition of the whole interior, the groupings for pattern, the use of negative and positive spaces for abstract design, and the good and bad in subject matter.

From this description and actual paintings, I hope the spectacular will form his own judgement of the art merits of these decorations.

I owe my greatest thanks to ~ Phyllis Wrightson for her wonderful assistance in the research and the painting of many fragments in the frescoes; to Dr. Chauncey D. Leake for the encouragement and material help he has so generously given; to Dr. George Lyman for his enthusiasm and his sincere interest, as well as his invaluable historical studies; to Dr. Henry Harris tor his book and for ·advice, and to Dr. Langley Porter for the publication or this booklet.

Bernard Zakheim

Phyllis Wrightson Commentaries

Introduction

In establishing the first Medical School of the state-supported University of California, several imperatives were recognized. The State of California, the Regents of the University of California and the leadership of the School of Medicine became partners in establishing an official State Board of Examiners in Medicine, Dentistry and Veterinary Medicine, which created the first standards of medical education and professional credentials in California. The superb staffing of the medical school and the highest standards set in place resulted in a degree of excellence from which the modern UCSF has continued to uphold and excel. The outcomes from scientific research became the basis of medical teaching and practice, which has gained worldwide acclaim for UCSF. Great efforts were expended to remove the unlicensed medical practitioners and imposters from California.

Bernard Zakheim sought to display in his art the transition from ancient and medieval medical practices to research and scientifically based medical education and practices of the U.C. Medical Department of the 20th century. Toland Hall, named after the first Chief of Surgery, Dr. Hugh H. Toland, was the site selected for placement of the frescoes. Among all of the explanations and descriptions of the philosophical meanings depicted in the murals, I discovered that none was more perceptive than the erudite comments in the introduction written by Charles Singer, M.D., D.Litt. 5 and the exceptional explanations of Henry Harris, MD, “California’s Medical Story.” 6 I have excerpted remarks from both authors. When completed, the Zakheim frescoes became a California historical treasure in San Francisco and for our nation.

In a WPA abstract, ‘California Art Research,” Miss Phyllis Wrightson, an assistant painter working with Bernard Zakheim, wrote an invaluable essay entitled, “Health Center Murals.” 7 She helped to place the cartoon drawings onto the plaster walls for Zakheim. Joseph Kelly made preparation and application of the marble dust plaster put directly onto the brick walls of Toland Hall. Phyllis Wrightson and Leon Bibel transferred the cartoon drawings to the wall and added details to the paintings, and frames.

Singer, Charles, MD, D.Litt. University of London, London, England.

Harris, Henry, MD, “California’s Medical Story,” Associate Clinical Professor of Medicine, University of California; Chief of Medical Department, San Francisco Polyclinic, Charles C. Thomas, Publisher, Springfield, Illinois; Baltimore, Maryland, 1932.

7 Hailey, Gene, “California Art Research Project, San Francisco Public Library, MARCXML, Abstract from WPA Project 2874, O.P. 65-3-3632, 1937. 34

Bernard Zakheim – circa 1937 Frescoes being painted over the cartoon drawings, UCSF Toland Hall

From San Francisco Public Library: http://sflib1.sfpl.org/

"HEALTH CENTER MURALS"

From comments of Phyllis Wrightson, assistant to the artist, Bernard Zakheim:

"During the period following the completion of the Public Works of Art Program, Zakheim was commissioned under the sponsorship of the SERA to execute two frescoes in the Alemany Health Center, for the San Francisco Department of Public Health. Called, 'Community Spirit' and 'Growth' the excellence of these murals was instrumental in an award to him of subsequent decorations in the University of California Hospital, the latter of which is still in process of completion.

These frescoes were painted as decorations in the waiting room of San Francisco's Health Center. It is a small building in Mission styles, of a homelike, rather cozy character, informally furnished and cheered with a large fireplace whose wide chimney extends in sloping lines up to the high ceiling. This chimney area is broken by the mezzanine balcony that crosses one side of the room, dividing this large chimney shape horizontally. In this space the frescoes have been painted.

The portion below the balcony is adapted in color and literary content to the room and its uses. It is entitled 'Birth' and is an arrangement of symbolic figures in an elliptical pattern against a background of the slender silvery trunks of young fig trees an ancient symbol of fertility.

At the right, two lovers kneel side by side, a golden skinned young man and a girl draped in blue. The central figure is that of a woman with uplifted arms, symbolizing the agony of birth. Before her, a figure in white representing the functions of the nurse helps a young plant part its way out of the womb of the earth. Another couple at the left represents parenthood. The woman holds a little blossoming plant at which both look with concern and pride.

The golden color of some of the flesh, the red of the earth and the green of the foliage, all repeat the coloring of the tile, the wicker furniture and the green metal railings of the room. The upper section of the fresco continues the

trees seen below, their crown of leaves showing between bars of the balcony rail. Above the trees is a composite scene of the neighborhood, zig-zagging up to Mount Davidson and its cross against the sky. Below is a group of old shacks, then a block of the old houses so characteristic of San Francisco. Next to them is a row of the newer pastry-like contractor's bungalows. From the bottom of the scene Alemany Boulevard sweeps up past the little Health Center and its adjoining houses, and the massive Balboa High School.

At the lower right is a series of backyards animated with lines of washing and a vacant lot used by schoolboys as a baseball field. The latter was introduced by the artist to point out the dire need for a children's playground in this district."

Part II

Bernard Baruch Zakheim was born of a Hassidic Jewish family in Warsaw, Poland, in 1896. Other records showed the birth year as 1898, but in research one often encounters multiple and conflicting dates, which may have been changed for purposes of avoiding military conscription or enabling emigration or marriage. According to his son, Bernard Zakheim served in the Polish army during World War I and was a prisoner of war in Germany before immigrating to the U.S.

From the Zakheim family website (Nathan and Masha Zakheim), www.bernarzakheim.com:

"…Bernard was thought to become a rabbi by his orthodox parents. However, by age 15, he was already exhibiting significant artistic abilities. He was 18 when World War I was declared and served in the Polish army. Before the war's conclusion, Bernard was captured and placed in a German prison camp. He escaped from the prison on several occasions; on the last escape, he met his sweetheart, Eda Spiegelman, in Danzig and married before they immigrated to America…"

From Rosenbaum, Fred: "Cosmopolitans, A Social & Cultural History of the Jews of the San Francisco Bay Area," Published by the Regents, University of California Press, Berkeley, Los Angeles, and London, 2009:

"Born into a wealthy Hasidic family in Warsaw in 1898, Zakheim was sent to a yeshiva, but cut class in order to explore the city's colorful neighborhoods. He developed an aversion toward both Judaism and capitalism, dropping out of the yeshiva and later a business school intended to groom him to run the family's enterprises. Instead he gravitated toward painting and over the objections of his widowed mother, entered the prestigious Warsaw Art Academy."

From the 1930 Federal Census record: Bernard worked as an upholsterer and proprietor of a San Francisco furniture store. His future wife, Eda (Ida/Ette) worked in the furniture store as a "cutter," possibly meaning a fabric cutter.

They had married at ages 21 in Poland. In 1923, they had a daughter, Ruth. Neither parent was yet a naturalized citizen in 1930. They had a second daughter, Moshae (Masha) in 1932, who was listed in the 1940 U.S. Census; the family was living in San Francisco.

The Zakheim family was living in San Francisco in 1930 (SF City Directory) at Church Street. Bernard was married to Eda and he worked as an upholsterer. The next year (1932) they lived 1541 Shrader Street in San Francisco.

Zakheim's successful career began to accelerate. His work was recognized by managers of the WPA/SERA. In 1936, he was awarded the honor of painting the UCSF Toland Hall Murals, which were completed by 1939. About that time, Bernard and Eva Zakheim divorced. In 1939, Bernard and his artist assistant, Phyllis Wrightson, 59

married in Sebastopol, California. The 1940 U.S. Census listed Eda Zakheim with her two daughters, Ruth and Moshae (Masha), living in San Francisco. Both children were listed as born in California. Also listed were 3 stepchildren, borders, whose parenting is unknown: William (15), Elia (12) and Thomas (8) Simmons.

The birth date and place of Ruth, the first daughter of Eda and Bernard Zakheim is only approximated as 1923 (as per the 1940 U.S. Census). Ruth's birthplace was listed as California in the 1940 census, but no record was indexed among the California birth/vital records. Their second daughter, Masha (Moshae) Zakheim, was born on 19 May 1932 in San Francisco. Her mother was listed as (Eda) Spiegelman (maiden surname).

Bernard and Eda were divorced in California before the 1940 Census. In 1939, he second married his former art assistant, Phyllis Wrightson, in Sebastopol, California. They moved temporarily to Los Angeles (Western Avenue). In 1940, Bernard was working in San Francisco (1940 U.S. Census). Two sons were born of this second marriage to Phyllis Wrightson: Nathan Baruch Zakheim (20 Dec 1943) and Matthew James Zakheim (4 Dec 1945) - both born in Sonoma, California.

Also listed in the 1940 U.S. Census (San Francisco):

• Bernard Zakheim was living at 114 ½ Wilmot Street, San Francisco, (a rental)

• He had become a naturalized citizen (sheet no. 18; No. of the household 26)

• His educational level had been the 4th grade (in Poland)

• His apartment rent was $18.00 monthly

• He was a WPA employee salaried annually at $1528.

• Among the inventories from the "Polish Jewish death indexing," was listed Jakób Zakheim, who died in Warsaw, Poland, 1 Nov 1942. He was possibly Bernard Zakheim's brother. 22

JRI-Poland Shtetl CO-OP Volunteers, Poland Jewish Records Indexing – Polish deaths 1808 – 1942; Ancestry.com Operations Inc., 2008.

Description of Toland Hall Frescos With Historical Commentary

Bernard Zakheim
Phyllis Wrightson

Editors
Robert S. Sherins, MD
Laura Voisin George

July 30, 2020

Zakheim

Toland Hall Frescoes of the University of California Medical School

1. Artist's Foreward by Bernard Zakheim
2. Description by Phyllis Wrightson

Decorations to be painted on walls offer several risks. First, that of crowding the hall with paintings. Second, that of making them appear as posters stuck on temporarily, and third, of the pictures seeming to be cut off by the ceiling.

On the other hand, this Toland Hall Amphitheatre had to be designed and decorated in such a fashion as to enlarge it and give the illusion of more space. Of course, there I had to use optical illusion, so the hotizontal molding of the circular wall was extended to the straight wall where the screen is, but instead of repeating the four and one-half foot measurement from the circular wall, I dropped the molding on the straight wall to five and one-half feet, which due to an optical illusion appears when viewed from the floor to be on the same level as the molding on the circular wall. I have done the same thing with the vertical lines (pilasters) on the straight wall, by bringing them down to the floor level so when the eye registers the five and one-half feet of vertical space, and the full length of the pilasters, the illusion is ready to work these proportions to the circular wall as well. Thus, I have given the illusion of more wall space than by actual measure.

- Planning the Composition -

Keeping in mind the circular interior, especially the sun-burst design on the ceiling, also indicated on the cement of the floor, I chose this as the motif for the composition.

I began the painting in the exact center of the circular wall by painting the Indian facing the sunrise in the east, and painted a sun with

stylized sunbeams so as to foretell the main development of the whole painting with that note which is actually the floor plan of Toland Hall. As I followed the main theme of the wavy line, so I set in scenes in a fan-like rhythm. I emphasized the horizontal molding by putting figures and objects on it. I did the same for the ceiling by bending the figures so as to bring the effect of caryatids in Greek architecture; also by leaning figures and objects against the pilasters, I gave more legitimate reason for their being there. In this way I have achieved normal sized individuals of an average height in a space only four and one-half feet high, which again gives the optical illusion of more space.

On the straight wall the molding makes a diagonal line. This is in order to emphasize the ascending stairs. Each of the two large panels on this wall is composed on the sun-ray principle; that is, the chief lines of the composition radiate from one point - in the panel to the right, the lines radiate from the rat. In the panel to the left, from the guinea pig, as the symbol of the Medical School studies. The horizontal planes of these compositions are in harmony with the stair horizons of the room.

The wavy pattern of the circular wall finds its culmination in the two small panels in the straight wall, to the left of the screen the "Hooper" panel, and to the right above the door, "Science". In these two compositions the curves are concentrated in the circular shapes that form the main structure of these compositions.

In general, I wanted the paintings to be interwoven with the architecture as the keystone of the arch, which, although not of the same size as the rest of the stones, still is necessary to the arch. Therefore,

the next step was to solve the problem of the general interior by repainting all the chairs from the dark brown to a light greyish-green oak, and all metal parts with aluminum. Floors and stairs should be painted a deep green. The lighting fixtures, especially those near the walls which obscured the painting, had to be removed, and a new lighting system installed to do away with the yellowish tinge and uneven distribution of light which had been distorting the paintings in color, and breaking the flow of the composition. The new system will bring out the true colors which were painted to give the effect of distance, and make the amphitheatre seem more subdued and roomy. Fresco has a luminous quality such as aluminum, and does not absorb light. On the contrary, it radiates light, so too strong light distorts the color and composition.

- Space Solution -

The subject matter of a painting is usually thought of as the representation of figures and objects. To the painter, however, the spaces not occupied by figures or objects are just as important decoratively as the solid forms. The solid forms are called "positive spaces", and the unoccupied areas are called "negative spaces". To consider only the positive space would have made a poor decoration, since the painting would look broken up; but giving the same importance to the negative space keeps the unity of the whole painting. Therefore, I have outlined with a light contour the positive space in order to bring out the abstract design of the negative forms.

- Concept of the Narrative -

The object was to decorate a medical amphitheatre, therefore, it was essential to use as subject the history of medicine in the state of California, especially since the hall is visited by out-of-state doctors unfamiliar with local history.

As to the subject, I did not pick only the beautiful or heroic parts of history, because the contrast of good and bad constitutes the dramatic quality of the narrative. Of course, I painted more of an interpretation than illustration, and the same goes for the costumes and objects. In each case I made a study of the most characteristic forms and colors, and instead of copying, I painted them as freely as my imagination flowed. This is also true of the straight wall where the narrative has both the good and the bad, especially the panel of San Francisco history and the one next to it called "Science".

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Fresco as a medium has its limits. Fresco painting is more of a spontaneous medium than oil painting or other media, because it has to be painted on fresh plaster, and finished before it gets hard. Therefore, fresco painting becomes a sort of school in itself. The medium is plaster made of marble dust and lime, painted with pure insoluble pigments ground in water. Only a few square feet may be painted at a time. Once painted and the plaster dry, it cannot be changed without chiseling out the plaster

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In general, what seemed to me of the most importance was good decoration, achieved by the placing of the panels, the composition of the whole interior, the groupings for pattern, the use of negative and positive spaces for abstract design, and the good and bad in subject matter.

From this description and the actual paintings, I hope the spectator will form his own judgment of the art merits of these decorations.

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The panel at the left, although of necessity illustrating only a few incidents, is dedicated to the achievements of the Hooper Foundation for Medical Research in the application of the biological sciences to the problems of medecine and public health.

The circular "motif" is this case takes the shape of a large autoclave, toward which all the other forms and planes build up by overlapping each other in a complicated pattern until the various parts become almost interwoven. The ascending horizontal planes of this panel, as in the others on this wall, emphasize the ascending horizontals of the stairs on either side, thus forming a rhythmic link between the lower portions of the front panels and the upper row of curved panels.

The Hooper building itself is suggested in the background behind the autoclave and the row of bottles which are labelled according to the types of botulinus growing in them. The autoclave shelves are packed with the commercially canned foods which develop tobulinus, and to the right a research worker is tacking up a chart of the home canned foods which become poisonous through improper canning. To the left of the autoclave a young man is using a still to extract the poison from mussels in order to discover the nature and amount of the toxin which is found in these shellfish at certain seasons of the year.

Almost in the center of the composition a parrot on its perch draws attention to a chart showing those birds susceptible to Psittacosis. Other familiar domestic animals figure in this scene because of their usefulness in the study and treatment of many diseases. A cage of mice in the lower left hand corner is a reminder of the many useful services these little animals perform. Leaning against the cage is a yellow and emaciated victim of Weil's Disease. The dog curled at his feet is evidence of the experiments on this subject in which dogs are used. Looking out from behind this group is a goat, above which a chart hangs, showing the temperature changes characteristic of malta fever or undulant fever, to which goats are especially susceptible.

The lower right quarter of the picture is taken up with a simplified representation of hearing tests made on animals in order to study the action currents of the auditory nerves. A large model of an ear appears above the machine to indicate the subject of thestudy. The shelves of books seen over the shoulder of the experimenter represent a small part of the great volume of work accomplished through this Foundation.

- Science Panel -

Above the door, and to the right of the screen, is the last panel of the series, symbolizing the entire field of science, past, present and future. The circular "motif" of the previous panel has been developed, with the addition of more circles, into the more spacious pattern of a spiral, which carries the eye through the painting in more generous lines, suggesting the perpetual development and change characteristic of all organic activity. This is in contrast to the design of the Hooper Panel, where the circular shape returns upon itself, indicating one isolated cycle, or generation, of science viewed separately from its place in the whole sweep of scientific history.

The wheel in the center, revolving on its huge bearings, symbolizes the early development of modern science, called into existence by the necessity of the troubled humans in the foreground. The muscular figure representing human energy provides the power by which this body of science is caused to revolve.

The bearings upon which this massive structure moves are engraved with the names of those men who laid the foundations for present scientific knowledge; Galileo, the celestial physicist; Newton, physicist; Lavoisier, who discovered the fundamental laws of modern chemistry; Einstein, physical astronomist who contributed the theory of relativity; Roentgen, discoverer of X-rays; Pasteur, who opened up the world of micro-biology; Hegel, father of modern scientific philosophy: and Darwin, whose concept of change in the world of biology was one of indefinite progress or evolution.

But this first wheel is not complete in itself. It is connected by a belt to another smaller wheel, which revolves upon the same axis on which a huge wheel in the distance is slowly turning; and the rhythm of the picture suggests that these turns are spiralling into the future endlessly.

The revolutions of the small wheel, intermediate between the past and the immensity of the future, are spinning out consequences remote from the intention of those whose names are lettered on the bearings. Laboratory chemists have produced poisonous gases; engineers have developed bombing planes; destruction as well as benefit has been produced from the labors of scientists. Thus the physician must repair the damages which the destructive forces of misapplied principles have produced. His future task is that of guiding new discoveries along constructive and beneficent channels.

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BIBLIOGRAPHY

History of California - Hittel

California's Medical Story - Henry Harris

The Scalpel Under Three Flags in California - George D. Lyman, published by California Historical Society.

The Expedition into California of the Venerable Padre Fray Junipero Serra in 1769 - Fray Francisco Palou.

Narrative of the Portola Expedition - Miguel Costanso.

The Personal Narrative of James Ohio Pattie - edited by Timothy Flint.

John Marsh, Pioneer - George D. Lyman.

California in 1851 - The letters of Dame Shirley.

California As It Is And As It May Be - F. P. Wierzbicki, with introduction by George D. Lyman.

Medicine and Surgery Among the First Californians" - Dr. Cephas L. Bard. Southern California Practitioner, 1894. Page 287. Reprinted in "Touring Topics" January, 1930.

The Sponge Case - George D. Lyman.

Screenshot

Dean Chauncey Leake, PhD
UCSF Dept. Pharmacology

"University Medical School Murals"

From comments of Dr. Chauncey Leake, Dean of Pharmacy, UCSF School of Medicine:

"The following month, under the sponsorship of the S.E.R.A., Zakheim began two frescoes in the lecture room of the University of California 12 Medical School. These two panels Occupy equal space on each side of

13 a projection screen in the main lecture room, Cole Hall. Dr. Chauncey Leake, Dean of Pharmacology of the Medical School, has prepared a comprehensive brochure on the subject of these paintings including an analysis of the relationship between art and science by Beniamino 14 Bufano. Because of the excellence of this booklet and the information contained therein with reference to Zakheim and the frescoes, Dr. Leake's comment is presented in part, substantially as follows:"

"…Modern artists seem keenly aware of the social problems of our times, and there seems to be more of an effort than usual on the part of art to tell a story or depict a point of view. This seems to be especially the case in the great revival of mural painting. In casting about for a challenging subject for his talent, Bernard Baruch Zakheim, an enthusiastic San Francisco fresco artist, was struck by the notion that of all the manifold aspects of the modern scene, science alone seems to have that freedom from ulterior motive and that steadfastness of idealism, which from both the artistic and the humanitarian sense is most worth of recording and preserving. In idealistic application to human problems, science seems to have reached its greatest success in medicine, in which as a profession, high idealism and freedom from ulterior motives have long been traditional."

"The skill which Zakheim displayed in a small fresco in the lobby of the Alemany Health Center, San Francisco, persuaded the S.E.R.A. to

Hailey, Gene, "California Art Research Project, San Francisco Public Library, MARCXML, Abstract from WPA Project 2874, O.P. 65-3-3632, 1937.

There were 2 frescoes in Cole Hall and 9 more added to Toland Hall.

Zakheim, Bernard, Chauncey Depew Leake and Beniamino Bufano, "The Opportunity for Pictorial Art in Modern Medicine," self-published, San Francisco, 1936,comply with a suggestion from Doctor Isabella Perry that he undertake the mural decoration of one of the main lecture rooms of the University of California medical School. The problem was begun early in 1935. The practical consideration was to provide complementary panels of appropriate size on each side of a projection screen above the lecture blackboard. The intellectual problem selected by the artist was difficult. The plan was to contrast the underlying philosophies of modern and ancient medicine. On the one hand, he tried to depict the orderly disciplined applications of modern medical science to the treatment and prevention of physical and mental maladjustments to our environment. This was to be contrasted, on the on the other hand, with the confused emotional, often hysterical, efforts of suffering humanity in the past to escape disease and misery."

"In the technical aspects of the work, the artist (Zakheim) was assisted by Joseph Kelly in the preparation and application of the marble dust plaster put directly on the brick wall of the hall (Toland Hall). Phyllis Wrightson and Leon Bibel helped greatly in the transfer of the cartoon outline to the wall and in some of the details of the painting, especially on the frames. It was hard work. The lecture room, being in use all day, was available only at night. Often the artist and his assistants were busy until the early morning when the watchman would persuade them to go home."

Excerpted from the History of Medicine in California (next pages):

Introduction

In establishing the first Medical School of the state-supported University of California, several imperatives were recognized. The State of California, the Regents of the University of California and the leadership of the School of Medicine became partners in establishing an official State Board of Examiners in Medicine, Dentistry and Veterinary Medicine, which created the first standards of medical education and professional credentials in California. The superb staffing of the medical school and the highest standards set in place resulted in a degree of excellence from which the modern UCSF has continued to uphold and excel. The outcomes from scientific research became the basis of medical teaching and practice, which has gained worldwide acclaim for UCSF. Great efforts were expended to remove the unlicensed medical practitioners and imposters from California.

Bernard Zakheim sought to display in his art the transition from ancient and medieval medical practices to research and scientifically based medical education and practices of the U.C. Medical Department of the 20th century. Toland Hall, named after the first Chief of Surgery, Dr. Hugh H. Toland, was the site selected for placement of the frescoes. Among all of the explanations and descriptions of the philosophical meanings depicted in the murals, I discovered that none was more perceptive than the erudite comments in the introduction written by Charles Singer, M.D., D.Litt.[5] and the exceptional explanations of Henry Harris, MD, "California's Medical Story."[6] I have excerpted remarks from both authors. When completed, ***the Zakheim frescoes became a California historical treasure in San Francisco and for our nation.***

In a WPA abstract, 'California Art Research," Miss Phyllis Wrightson, an assistant painter working with Bernard Zakheim, wrote a invaluable essay entitled, "Health Center Murals."[7] *She helped to place the cartoon drawings onto the plaster walls for Zakheim.* Joseph Kelly made preparation and application of the marble dust plaster put directly onto the brick walls of Toland Hall. Phyllis Wrightson and Leon Bibel transferred the cartoon drawings to the wall and added details to the paintings, and frames.

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[5] Singer, Charles, MD, D.Litt. University of London, London, England.
[6] Harris, Henry, MD, "California's Medical Story," Associate Clinical Professor of Medicine, University of California; Chief of Medical Department, San Francisco Polyclinic, Charles C. Thomas, Publisher, Springfield, Illinois; Baltimore, Maryland, 1932.
[7] Hailey, Gene, "California Art Research Project, San Francisco Public Library, MARCXML, Abstract from WPA Project 2874, O.P. 65-3-3632, 1937.

Booklets
UCSF Toland Hall Murals

- The Opportunity For Pictorial Art in Medicine

- California's Story in Fresco

THE OPPORTUNITY FOR PICTORIAL ART IN MODERN MEDICINE: AN EXAMPLE IN SAN FRANCISCO

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Transferring Cultures in a Bacteriology Laboratory

Water-color study by Barnard Zakheim for a detail in one of the murals painted by him at the University of California Medical School, San Francisco.

THE OPPORTUNITY FOR PICTORIAL ART IN MODERN MEDICINE: AN EXAMPLE IN SAN FRANCISCO

AN IMPASSABLE gulf is generally supposed to separate the ideals and functions of art and science. It is quite as distressing as that deplored by George Sarton, the distinguished historian of science and editor of *Isis*, in what is often thought to be the case in science and the humanities, or science and religion. Science is concerned with knowledge of ourselves and the world about us as obtained by objective measurable observations and logical deductions therefrom. It is thus essentially a function of intellect. And that shouldn't necessarily imply coldness! Art is concerned with judgment about ourselves and the world about us as obtained by our subjective reactions, and is thus largely a function of emotion. That science and art are not mutually exclusive should be clear to anyone considering the career of such a person as Leonardo da Vinci, especially when treated as romantically as by Merejkowski. Works of art may be viewed in a scientific way, as they usually are in the sense that science is critical. Achievements of science may have also great artistic merit, as emphasized by J. W. N. Sullivan. Yet artists usually have neglected the opportunity afforded for emotional expression in the scientific efforts of their time.

Art and science are often conjugally related in references to the professional activities of medicine. Although the reference is usually to the skill and knowledge of the physician, the idea suggests the possibilities of an artistic exploration of medical practice, which might lead appropriately in our modern world to trying to portray artistically the spirit and methods of modern science. So far this has remained a neglected opportunity. Eugene Holländer, with German thoroughness, has collected in heavy tomes scattered examples of serious artistic attention to medical affairs. These range from plastic attempts to achieve healing serenity in the classic Greek statues of Aesklepios, through dark Dutch anatomy lessons and urine examinations, to such formal portraiture as the "Four Doctors" of Sargent. But no artist seems to have appreciated what might be accomplished by a serious attempt to catch and preserve artistically the varied manifestations of the medicine of his time.

Modern artists seem keenly aware of the social problems of our times, and there seems to be more of an effort than usual on the part of art to tell a story or depict a point of view. This seems to be especially the case in the great revival of mural painting. In casting about for a challenging subject for his talent, Boruch Barnard Zakheim, an enthusiastic San Francisco fresco artist, was struck by the notion that of all the manifold aspects of the modern scene, science alone seems to have that freedom from ulterior motive and that steadfastness of idealism which from both the artistic and the humanitarian sense is most worthy of recording and preserving. In idealistic application to human problems science seems to have reached it's greatest success in medicine, in which, as a profession, high idealism and freedom from ulterior motives have long been traditional.

The skill which Zakheim displayed in a small fresco in the lobby of the Alemany Health Center, San Francisco, persuaded the SERA to comply with a suggestion from Doctor Isabella Perry that he undertake the mural decoration of one of the

main lecture rooms of the University of California Medical School in San Francisco. The problem was begun early in 1935. The practical consideration was to provide complementary panels of appropriate size on each side of a projection screen above the lecture blackboard. The intellectual problem selected by the artist was difficult. The plan was to contrast the underlying philosophies of modern and ancient medicine. On the one hand he tried to depict the orderly disciplined applications of modern medical science to the treatment and prevention of physical and mental maladjustments to our environment. This was to be contrasted, on the other hand, with the confused emotional, often hysterical, efforts of suffering humanity in the past to escape disease and misery.

In the technical aspects of the work, the artist was assisted by Joseph Kelly in the preparation and application of the marble dust plaster put directly on the brick wall of the hall. Phyllis Wrightson and Leon Bibel helped greatly in the transfer of the cartoon outline to the wall and in some of the details of the painting, especially on the frames. It was hard work. The lecture room, being in use all day, was available only at night. Often the artist and his assistants were busy until the early morning, when the watchman would persuade them to go home.

Fresco Technique

For those who may not know how fresco work is done, a note of explanation is offered. The medium is wet marble dust plaster, to which the artist applies water colors. Only a few square feet may be worked on at a time. So the composition proceeds in jumps and gulps, and once the paint is applied, it cannot be changed without hacking out the plaster and starting all over. As the plaster dries, the lime in it gradually absorbs carbon dioxide from the air until it becomes solid calcium carbonate, or marble. As the calcium carbonate crystallizes, the pigments are strongly adsorbed on the crystal surfaces. The pigments, being chiefly finely powdered insoluble metallic oxides, suffer no oxidizing deterioration. Since the colors do not penetrate the plaster they remain bright and unfaded indefinitely.

Usually the fresco artist makes a color cartoon of his composition first, in order to plot out the general design and color harmony. The design is then worked out in more detail in black and white on the exact scale of the space to be covered by the finished painting. This detail drawing may be cut up into segments, each of which may be used conveniently as a guide in the actual work on the corresponding portion of the fresco itself. This black and white detail design may be transferred by a sort of stencil method to the rough marble dust plaster which serves as a substrate to the finish plaster on which the painting actually occurs. The artist can thus conveniently build up his fresco to completion. While most fresco artists draw directly on the rough plaster substrate, the above method seems preferable in that it is more exact.

Details of the California Medical Murals

The panel to the left of the projection screen is designed to represent the confused and often hysterical means by which humanity, especially in past centuries, has tried in its emotional anguish to treat and drive out sickness and misery. The rounded waves of distress roll into each other in the design suggesting the lack of intellectual order and precision of knowledge responsible for the relative failure of such emo-

tional efforts. An Oriental background of traditional mysticism is suggested by palm branches. Through them rises the smoke of incense from a priest struggling with his people bowed before him to ward off the evil pestilence which has stretched one of them in putrefaction. With dramatic intensity a Semitic prophetical leader, Jeremiah-like points to the ominous zodiacal symbols raised above the bent or worshipful figures before him,—signs which for centuries have symbolized man's credulous errors in etiology and prognosis. That they look like glorified lolly-pops in the panel, rising above all its figures, may be an unconscious irony on the part of the artist. In the center, sacrificial scenes illustrate the vain effort at propitiation of powerful supernatural forces in order to prevent or relieve pestilence, and in these groups may be noted the primitive and priestly pathologist examining liver or urine to guide prophecy and prognosis. That the *vis medicatrix naturae* was operative but scarcely recognized in such surroundings is indicated by the merest glimpse the artist gives of the *ex votoes* on the side of one of the altars. The utter inability of humanity in the past to cope with mental derangement is indicated in the flogging of the maniac by the sadist, the Hebraic blowing of the ram's horn at the *dybbuk*, and the later conventionalized religious rituals for the insane. Here the perpendicularly arranged vestments of the singers give the hint of the emotional effect of deep organ music. The brutality of surgical procedures without anesthesia or asepsis is suggested in almost the only "practical" incident in the panel, the operation, shown appropriately in English guise. The underlying fallacies of unguided emotional desire in determining the philosophical background for medicine in so much of the past appears in the segments of the panel suggesting the pathetic search for the elixir of life, the maintenance of youth, and the philosopher's stone, the key to unlimited wealth.

This colorful panel is not easy to describe. If it were, the artist probably could have told easier in words than in picture what he was thinking about. It is disturbing and confused. And not least because we can recognize that many of the aspects of medical opinion represented in it, though happily no longer part of the science and art of medicine, are still to be extensively found in the populace.

The artist skillful designed a cool architectural stony frame for the turbulent scenes of the panel. Carved in the stones above are the names and symbols of the three medico-religious characters in the superstitious aspects of whose cults were perpetrated much of what the panel displays. There is cut the hieroglyph for Imhotep (He-who-cometh-in-peace) with the *crux ansata*, symbol of the union of male and female, the sign of fertility and of life to come. Imhotep was the Egyptian god of medicine, probably a vizier-physician of the Pharoah Zoser of the Third Dynasty, about 2980 B.C., whose memory was later reverenced as divine. There are next the sturdy Greek letters spelling Aesklepios, the Greek counterpart of Imhotep, with his symbol of the staff and serpent. Lastly, classic Roman letters give the Latin for St. Luke, the traditional patron-saint of Christian medicine, with his symbols of bull's head and book.

The antithesis in the contrasting panel attempts to represent the modern effort at controlled application of demonstrable and critically valid knowledge for the prevention and treatment of disease. Here straight lines suggest order and intelligent direction of energy. The colors are calmer. Though distress may be noted, anguish is not present. Significantly the supernatural does not appear. While X-ray, chemical,

anatomical, physiological and other scientific apparatus goes from one corner of the panel to the other, it conveys to the observer nothing of the fear of mystery; for the artist indicates that it is developed and understood by human beings, and applied and controlled by just such people as we all are, for beneficial human ends.

Most of the detailed aspects of the second panel are in antithesis to those of the first. The rational aims of chemistry displace the emotional ones of alchemy; the study of pathology and bacteriology provides a firm foundation for understanding the causes of disease and thus for its effective prevention and treatment. Anatomy and the various phases of physiology give the necessary appreciation of the structure and function of the body including the brain, so that the wise physician may know how best to adjust it when out of joint with its environment. Thus the psychiatrist patiently helps the mentally disturbed person to reach a calmer adaptation, and replaces flagellation with more soothing reflexes from cutaneous sensations of the bath. In modern therapy with surgery, the patient is veritably cloaked by disciplined solicitude that he shall suffer no pain nor die from induced infection. The sick person yields to the X-ray in justified faith that it will help to diagnose his ailment accurately or to alleviate his illness. The artist in this panel puts the organized prevention of disease as the central theme. In prenatal care, in child guidance clinics, and in dental prophylaxis, he indicates the most important social trend of current medicine. His climax is reached in the scene depicting the modern medical atonement, in which the confident and intelligent mother brings her child to be vaccinated. This is an at-one-ness, in medicine at least, with critically examined experience, an atonement of judgment with knowledge, of art with science. As the artist depicts the incident, the physician and the nurse express an almost reverent intensity. The child, abnormally grave and mature and apparently unconscious of what is being done to him, gazes tranquilly into the future, like an antique picture of the Christ-child, the symbol still of our ideal of what we may become through our efforts, medical or otherwise.

Above this panel in the stony frame are carved the names of three men who perhaps were most influential in developing present day medicine: William Harvey (1578-1657), revealer of the circulation of the blood, who made physiology a modern science; Louis Pasteur (1822-1895), prover of the bacterial origin of infectious diseases, and founder of bacteriology, and Rudolf Virchow (1821-1902), originator of the modern conception of disease based on cellular pathology, and promotor of the idea of preventing disease.

For this panel the artist made many studies in medical laboratories, clinics, and hospitals. These are all quick water color sketches, many of them of great interest and attractiveness. Some are used to illustrate this account. The object in these studies was to secure types for faces, and to acquire an understanding of characteristic medical maneuvers and apparatus. There is no attempt at actual portraiture in the panel, nor at photographic realism in procedure or equipment.

With the closing of the SERA in August, the work seemed about to be interrupted at its most critical phase. However, the artist and his assistants kept cheerfully at their task, inspired by many artist friends, notably Beniamo Bufano and Ralph Stackpole. There was also the stimulus of the skeptical tolerance of the staff and students of the Medical School, who though interested couldn't help but wonder

how it would turn out. Finally the WPA rushed its support, and the project carried on.

The frescoes will certainly achieve their primary purpose of provoking the medical students, who will face the panels day after day, to consider the philosophical and social ideals of their profession. Whether they will have any wider influence will depend on the future judgment of their artistic merits.

On the completion of the frescoes they are to be opened for inspection with an informal exhibit of some of the water-color studies made in connection with it. At this affair, Ralph Sweet, in charge of medical illustration at the University of California Medical School, has kindly consented to allow some of his water-color sketches of operating-room scenes to be shown. Beniamo Bufano, the distinguished sculptor and painter, has also been kind enough to assist at the function in showing how art and science may be related in mutual revelation, by permitting a showing of his interpretive head of Einstein and of his fish skeleton called "X-ray." In addition George Hodel, a senior medical student, has on view in the Pharmacological Laboratory four large photographic mural compositions endeavoring to interpret certain aspects of chemotherapy and drug use. Thus, one indicates the problems encountered in studying the chemotherapy of amebiasis, another gives an impression of goiter diagnosis and pathology, a third suggests the technique of the laboratory applied to syphilis, and the fourth attempts an artistic interpretation of a patient's emotional reaction to the effects of posterior pituitary extract. It is hoped that this informal exhibit may illustrate the possibilities existing in medicine for artistic analysis and revelation.

An Appended Note by Beniamo Bufano on the Complementary Aspects of Art and Science

That a great scientist is really an artist is not always obvious. But a striking feature both of artists and scientists is that a strong imagination is needed to develop their work. The scientist uses imagination in seeking analogies on which to base explanations of his observations and experiments. It is the same sort of imagination that the artist employs in revealing a not readily perceived aspect of *his* subject. Both the scientist and the artist are revealers of hidden aspects of nature. Scientists as well as artists must feel themselves in tune with nature, perhaps a little more closely than other humans, at least in their capacity for expressing their observations or reactions.

In the simpler circumstances of the past, the great masters of art were the chief interpreters of nature. Feeling themselves in harmony with the world about them, they expressed its simple essentials in pictures, poems, dances, music, sculpture, architecture, and abstractly in what was the science of those times. Modern artists are attempting to span the bridge of space and time between the great masters of antiquity and themselves in reviving this essential kinship with nature which is the basis of the best art. Science, by its rigorous revelation of the truth about nature, must be understood by modern artists, in order to further this new spirit to the fullest.

An unfortunate modern element in the growth of art is the critic. Professional critics, with their all too frequent dependence on commercial interests, jeopardize as almost no other factor, the idealism and sincerity of art. Criticism is recognized in science as a helpful factor, particularly when given by other responsible scientists. In science it is not conditioned, theoretically at least, by personal feeling and prejudice, as is the case in art. The chief fault with art critics is that they are professional, and often their jobs depend on catering to popular prejudices or special interests.

Under such conditions they can hardly be expected to understand what an artist may be trying to do, or to interpret it sympathetically. Science is fortunate in not being dependent upon critics for its interpretation to the public. All of us crave the satisfaction of being understood. Vassari tells us many pitiful tales of the tragedies brought to the great masters of 15th and 16th century art by misunderstanding criticisms. The artist, working with a medium less precise than language, is at a great disadvantage in the effort to make clear through his medium what he is trying to say. If the artist could say it in words it would no longer be the art that it is.

So when we come to view a new effort in art, as here in the attempt to obtain an artistic interpretation of medicine, let us try to understand and appreciate what the artist is trying to do. All creative forces in nature, including artistic as well as scientific, are experimental. It is this experimental force in man that makes for growth toward unity and truth. Art is such a force, and is akin to science in that respect. We can help greatly in the experiment by seeking to understand. Culture and the unity of mankind depend on our sympathetic understanding of each other. It is the understanding we render and the appreciation we receive in our various individual efforts that makes towards the unity of life and humanity. So it becomes the greatness of those about an artist which makes his work great. If the artist has greatness to interpret, he will do so, and his work will reflect that greatness.

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Cartoon in water-color
for the mural depicting the relative futility of emotional anguish in medicine in past ages.

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The completed first panel
This photographic representation gives false color values as rendered in black and white.

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Water-color cartoon
for the mural indicating the scientific control of modern efforts in the prevention and treatment of disease.

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Construction scene
on the second panel, showing the design on the wall and the way in which the finished fresco is developed.

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Laboratory Still-life
Water-color sketch.

Dog Surgery
Water-color sketch.

Anesthesia Apparatus
Water-color sketch for detail

•

The Anatomist
Water-color sketch.

•

X-Ray
Water-color sketch.

•

In the Pharmacology Laboratory
Water-color sketch.

•

In a Ward-Laboratory
Water-color sketch.

Isabella Perry, MD

UCSF School of Medicine
Alemany Health Center, San Francisco

Isabella Perry, MD
UCSF School of Medicine and the Alemany Health Center, San Francisco

Ref: https://blogs.library.ucsf.edu/broughttolight/category/almuni/page/11/

The idea to commission murals was brought by Dr. Isabella Perry, professor of pathology after seeing the frescoes Zakheim painted at the Alemany Public Health Center and then spearheaded by Chauncey D. Leake, professor of pharmacology and medical historian. The university murals undertaking which was partially funded by the WPA Federal Art Project and also sponsored by the university was a true collaborative effort between Zakheim's team and UCSF faculty (including renowned UCSF doctors, Chauncey D. Leake, George Lyman, Langley Porter, Salvatore P. Lucia, W. E. Carter, and F. W Lynch). The artist was provided unrestricted access to the Crummer Room containing numerous books on the history of medicine, including recently published "California's Medical Story" by Dr. Henry Harris. Zakheim's assistant, Phyllis Wrightson did extensive research about California medical history which becomes apparent in the sketchbook that she kept for the project. The instruments depicted by her on these pages are still preserved at the archives' artifact collection and will be displayed as part of the 150th anniversary exhibit.

New Alemany Health Center, San Francisco

Zakheim Frescoes by Dr. Chauncey Leake UCSF Student Newspaper, Synapse, Vol 7, No. 7, 19 April 1968:

“Editor: 1 am writing to add a bit to "The Tale of the Zakheim frescoes" which was so interesting a feature of your April 8 issue. These frescoes are attracting wide attention. The panel representing the development of [Cole Hall] rational medicine is to appear on the front cover of the issue of the Journal of American Medical Association, which will contain the program for the June meeting of the American Medical Association in San Francisco.

It was Dr. Isabella Perry, in 1935, who suggested that we might obtain funds from the Public Work Administration for some artwork around our campus. At the time, during the midst of the great Depression, there was little artistic activity around our campus. We were developing the humanities, particularly through an effort in the History and Philosophy of the Health Professions.

"The skill which Zakheim displayed in a small fresco in the lobby of the Alemany Health Center, San Francisco, persuaded the S.E.R.A. to comply with a suggestion from Doctor Isabella Perry that he undertake the mural decoration of one of the main lecture room of the University of California medical School. The problem was begun early in 1935. The practical consideration was to provide complementary panels of appropriate size on each side of a projection screen above the lecture blackboard. The intellectual problem selected by the artist was difficult. The plan was to contrast the underlying philosophies of modern and ancient medicine. On the one hand, he tried to depict the orderly disciplined applications of modern medical science to the treatment and prevention of physical and mental maladjustments to our environment. This was to be contrasted, on the on the other hand, with the confused emotional, often hysterical, efforts of suffering humanity in the past to escape disease and misery."[7]

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Bernard Zakheim, Polish Artist in San Francisco[8]

"Bernard Zakheim learned of an artistic competition to paint frescoes at a San Francisco medical clinic. He entered the contest and received the commission to paint a fresco at the Alemany Health Center. He demonstrated that he could create a fresco in a unique and oddly shaped alcove, which won him the opportunity for this artistic success. The fresco depicted a fertility scene. Notes and a drawing by the artist permitted me to better understand the scene. In the background are the fig trees, symbols of fertility. To the left, are portrayals of Bernard Zakheim, his wife, Eda Spiegelman Zakheim, and a blooming flower, the metaphor for their younger daughter, Masha. The bare breasted woman and the woman in the foreground bending over the rabbit are both symbols of fertility as are the lovers depicted to the right".

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[7]"University Medical School Murals"[7] From comments of Dr. Chauncey Leake, Dean of Pharmacy of UCSF School of Medicine:

[8] Robert Sherins, MD: "Bernard Zakheim, Polish American Artist of California", Polish Genealogical Society of California, BULLETIN, 2014.

Waiting Room, Alemany Health Center; Fresco over the Mantel 1 The photograph is titled: "Alemany Health Center, 48 Onandaga Ave., San Francisco, January 14, 1935." Fresco in 2-Parts by Bernard Zakheim, 1935 - Alemany Health Center, San Francisco. Titled, "Fertility" (Pagan Symbols of Fertility): Fig Trees, Flower Bloom, Bare Breasted Woman, Loving Couple and the Woman Bent over the Rabbit. Sadly, after the completion of the new frescoes, civic-minded people began to complain that the nudity and sexually-sensitive themes were inappropriate in public. The Alemany managers decided to paint over the fresco. Only the upper part of the fresco above the balcony remains in view depicting a typical San Francisco neighborhood scene. The building is unoccupied and in serious disrepair; the fate of the frescoes remains unresolved.

"Fresco Scene of San Francisco Neighborhood" Upper part of the Zakheim Fresco Alemany Health Center, San Francisco.

Bernard Zakheim had no idea at the time that the Alemany fresco would become his direct link to painting frescoes at the University of California in San Francisco. However, his works caught the attention of the senior staff of the Alemany Health Center. They contacted Dr. Chauncey Leake, Professor of Pharmacology at the UCSF School of Medicine, to examine Zakheim's fine artwork. Professor Leake was won over and brought Zakheim's work to the attention of the WPA/SERA administration.

From Dr. Chauncey Leake:

"The skill which Zakheim displayed in a small fresco in the lobby of the Alemany Health Center, San Francisco, 45 persuaded the S.E.R.A. to comply with a suggestion from Doctor Isabella Perry that he undertake the mural decoration of Cole Hall, one of the main lecture rooms of the University of California Medical School." The fresco was so well received that Professor Chauncey Leake proposed Zakheim to the WPA-SERA administration to be the artist of choice for the initial UCSF Cole Hall frescos."

Bernard Zakheim Drawing of Dr. Elizabeth (Isabella) Perry, 1933

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Collection Overview
Table of contents

Description

This collection contains material regarding rK life and work of artist Bernard Zakheim. uch of K collection relates to K creation and restoration of Zakheim's Toland %Ok and Cole %Ok murals r K University of California, &an Francisco. Included are writings, biographical material, audiovisual material, correspondence, works of art, and printed material created by Zakheim and members of his family.

Background

Bernard Baruch Zakheim (circa 1898-1985) was K Polish-born artist who worked in &an Francisco, $ alifornia as K sculptor and muralist. %rK ought in 2 orld 2 ar 1 and immigrated to San Francisco in 1920"K %rK irst worked as K master upholsterer and later became K custom furniture manufacturer. Continuing rK art studies, K K begun in - oland, Zakheim visited Diego Rivera in exico in 1930 and studied in , rance, Italy, and Hungary. ; uring rK Great ; epression in K United &tates, Zakheim worked on federally funded art projects in &an Francisco through rK Works Progress Administration ?2-8("K %rK completed murals for rK Jewish Community Center, rK Alemany %rOK Center, and Coit #ower. In 1935, wCrK support of $ hauncey =r,rK and Isabella - erry, Zakheim and his assistant - hyllis 2 rightson began work on two frescoes rCB$&,"K. riginally Ocated in $ ole %rOk Toland %rOO*K rK murals depicted rK history of medicine and major figures in UCSF's history. The university murals project, which was partially funded by the 2-8K Federal Art Project and also sponsored by rK university, was K collaborative effort between Zakheim's team and 3$&,K faculty,

including 3$&,K doctors George Lyman, Langley Porter, Salvatore -"K Lucia, 2 "K"K$arter, and ,"K2 KLynch. #hese murals were wallpapered over ¢n ¢rK 1950s and eventually restored with ¢K help of ¢wo of Zakheim's children, ẇasha Zakheim and Nathan Zakheim. ; uring World War 11ṁKany of Zakheim's family members were ,¢ČŎ¢duking ¢rKẎṙ+¢K Holocaust. This trauma influenced Zakheim's later work, including his Warsaw @hetto 3prising project. Zakheim married :ḳṙK Spiegelman in 1920Kand Phyllis 2 rightson in 1940"KTwo of Zakheim's children, ẇasha and Nathan Zakheim, helped preserve ¢rKlegacy of Zakheim's work through restoration efforts. Masha Zakheim (1931-2014) was an art historian who published work on Bernard Zakheim, Ẏew ; ṙṙŎKart, and Diego Rivera. Ẏathan Zakheim became an art conservator and helped manage his father's art collection.K

Isabella Perry, MD

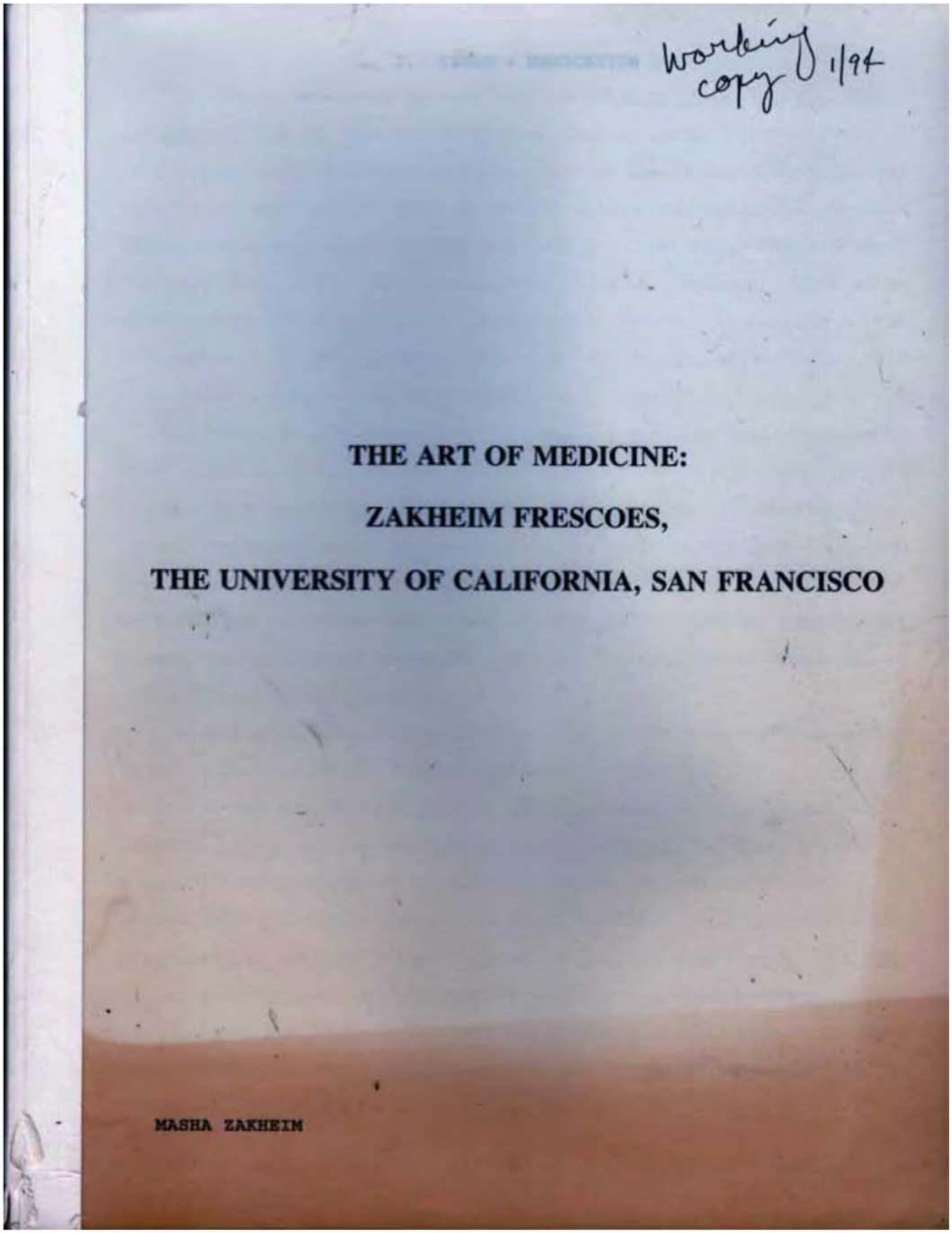
From: G. Edward Griffin, "World Without Cancer"

Showing that the case against Laetrile is fraudulent, however, does not constitute a case for Laetrile. It is necessary, therefore, to examine the evidence that vitamin B17 actually does work in practice just as well as it does in theory.
The effectiveness of the trophoblast thesis as a basis of cancer therapy has been demonstrated both in the laboratory and in the clinic. In 1935, for example, long before the development of Laetrile, Dr. Isabella Perry of the Department of Pathology at the University of California Medical School conducted a series of experiments in which she subjected tumor-bearing rats to prolonged inhalation of cyanide fumes. Here is what she wrote:
A considerable percentage of the animals so treated showed complete regression of the tumor. Both regressing and growing tumors in treated animals h a d little capacity for transplantation.(2)
Perry observed that these experiments were probably of little value to humans because, in order to be effective, the level of
1. Letter from Dr. Dean Burk to Dr. Frank Rauscher, Director of the National Cancer Institute, dated April 20, 1973, reprinted in the Cancer Control Journal, Sept./Oct. 1993, p. 5.

Masha Zakheim Jewett[9]

"The Art of Medicine, Zakheim Frescos, and the University of California, San Francisco"

[9] Personal communication: Adam Zakheim Gottstein and Bethany Zakheim Stark - private family documents.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THE ART OF MEDICINE:
ZAKHEIM FRESCOES,
THE UNIVERSITY OF CALIFORNIA, SAN FRANCISCO
MASHA ZAKHEIM

II. ACKNOWLEDGMENTS

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documents, and especially Head of Special Collections and University Archivist, Nancy Whitten Zinn, who help edit this text.

As in the past, my family again proved a valuable resource: Ruth Gottstein provided good editorial assistance and Nathan Zakheim shared freely his professional knowledge of the painting and moving of frescoes. My colleagues at City College of San Francisco were especially helpful in the diurnal editing and re-editing of the chapters. I am particularly indebted to Dennis Hendrickson, who always saw forests when I could see only trees; to Diane Fairchild, on whose patience I often presumed; and to Katherine Hondius, whose several suggestions tightened my organizational plan.

Photographer Don Beatty provided me early on with many lecture slides of portions of the murals, which over the years have trained me to focus on the vignettes that comprise the larger panels; he later rephotographed all the mural panels under great restraints of physical space. For other technical assistance I am much obliged to Dr. Emanuel Nosowsky, Paul Yuke, and most especially to Tom Stewart and Danny Russell for their great patience and considerable computer skills.

For their medical commentaries, I appreciate the inputs of Drs. Bruce Steir and Walter Saphir. For his continuing support, I thank Kikuo Miyamoto. And for sins of omission or commission, I take full responsibility, for I remain basically a documentor, like Dr. Samuel Johnson's lexicographer, a "harmless drudge".

San Francisco

July 1991

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IV. FOREWORD

More than any other disciplines in academia, health sciences are directly involved with the problems of the society of which we are a part. We share with other disciplines a responsibility for education and research; but in our provision of health services we are major participants in the care of the sick, prevention of disease, and health promotion.

When several years ago Masha Zakheim published a book on Coit Tower, including her father's mural there, I suggested to her that the frescoes Zakheim had painted at the University of California, San Francisco, had historical as well as artistic importance and would make a marvelous and valuable subject for a book. His work is visually interesting and rich in historical and iconographic meaning--much of which may not be readily apparent to the average viewer.

How fortunate the University of California, San Francisco, is to have been the recipient of an artistic legacy which marries our roots in society and our mission. The Zakheim frescoes in Toland Hall and in the Health Science Instruction and Research lobby are truly remarkable. Not only are they breathtaking works of art, but they remind us of how vividly a gifted artist can depict powerful societal messages. The University of California, San Francisco, is a better place in which to learn and create because of the inspiration that Bernard Zakheim has bestowed upon us.

Julius R. Krevans, M.D.
Chancellor
University of California, San Francisco
October 1990

V. INTRODUCTION TO ZAKHEIM FRESCOES AT UCSF:

AUTHOR'S COMMENT

Bernard Zakheim came to the University of California medical Center, San Francisco, in 1935 to adorn Cole Hall, a rather plain lecture amphitheatre, with a pair of fresco panels on either side of a projection screen above a blackboard. He chose to depict two complementary but diametrically opposed aspects of medicine: ancient, which he titled Superstition in Medicine, and modern, titled Rationality in Medicine. Crowded together in great swirls of movement, the figures in the first panel show emotional confusion as they group around priests, rabbis, alchemists, and ancient surgeons. In counterbalance, the portraits of the modern panel present serene composures as they gather on well organized, measured horizontal planes. The two fresco panels are mirror images of one another compositionally.

After depicting medical history world-wide, in 1936 Zakheim went on to illustrate the history of medicine in California in Toland Hall, another lecture amphitheatre at UCSF. Decorating the curved walls of the rear of this room, he here had the task of enhancing but not violating the plan of the lecture hall as conceived by its architect, Lewis P. Hobart, in 1917. As the architect had made no provision for murals, the artist had to accept the reality of the walls and, as he said, to enrich their characteristics by "assimilating them, placing emphasis on them, and then causing them to vibrate in line and color."

In Toland Hall Zakheim extended the "rays" of the sunburst ceiling plan down the back walls, thus creating six panels with seven pilasters. To the left of the back exit he painted three panels showing the history of medicine in Northern California; to the right, that of Southern California. The artist's assistant, Phyllis Wrightson said: "The six panels are treated [like] a frieze, with a strong wave-like rhythm

acting as a connecting force." Into the 4 1/21 tall spaces the artist had to squeeze life-sized figures; thus he used visual "tricks" to make them seem full size, but always kept the two-dimensional plane flat, with no "bulges" nor "illusory depth," as he said. In this respect he honored the classical Polish Academy art of his education, the German Expressionism of his later training, and the spatial techniques of his Mexican muralist colleague Diego Rivera, with whom he worked in Mexico.

Thus from 1935 to 1938 Zakheim created a veritable art museum of both world and California medical history in two lecture halls at UCSF.

These facts are clear enough and are well documented. At the time of the completion of the projects, both Dr. Chauncey D. Leake, patron, advisor, and friend, as well as Phyllis Wrightson, artist's assistant, wrote and published commentaries and guides in limited editions for viewers of these frescoes. At the time, the artist had felt that the art was self-explanatory by virtue of the many labels, signs, and documents that he had carefully painted to serve as historical and biographical clues for viewers of the future.

However, over half a century after their debut, these murals seem to require much more explication than that which exists within them. The limited editions of contemporary booklets were quickly exhausted and never reissued. As there are no identifying legends or diagrams in the two halls, with the passage of time, many generations of health-care students have looked in some bewilderment at what the artist had hoped would be patently obvious.

Political climates have altered as well. For fourteen years the frescoes in Toland Hall lay out of sight beneath wallpaper, victims of infighting among members of the faculty and administration in an era of national conservatism. The Cole Hall murals were threatened with certain destruction when the old medical school building was slated for

demolition. But the art has survived--ars longa, vita brevis--and its story is well worth the telling.

On a personal note: as the daughter of the artist, I knew that it would some day be my ... task, obligation, destiny ... to reissue the explications so long unavailable, for after all, there I am at age four in the Modern Medicine panel of Cole Hall writing my name on a sheet of paper!

At first I envisioned the project as a sort of revised guide to the art, like the one that I began to write for the murals at Coit Tower on Telegraph Hill in San Francisco. I should have realized on the basis of that experience, however, that it would be necessary to flesh out the factual skeleton much more completely than simply supplying missing dates and biographical information, for just as my father had been caught up in controversy at Coit Tower, so too he became enmeshed in political concerns at UCSF, some of his own doing and some not. In any event, readers and viewers deserve explanations of this history and more.

Finally, there were personal matters with which I had to deal: family relationships with burdensome problems and filial responsibilities which weighed heavily upon me. I regret having delayed the writing until nearly five years after my father's death, for surely there are many instances when his insights and memories could have clarified that which is murky. As an example, I spent much time searching for the name and significance of the baker's style hats of the rabbis in the Ancient Medicine panel. At last I found the names (the hat is in two sections) but I can only speculate as to the significance of the Hebraic letter shin so prominently displayed. The search for these meanings gave me a shadowy glimpse of a Kabalistic world of which

I know very little, yet one which my father had known--and rejected--through the rabbinical training of his youth.

And of course he would have rejoiced in today's belated recognition of the value of the art legacy that he created, particularly since the world has come to accept some of the views of history that he portrayed, almost as a visionary, in the 1930's. I have finished my work (if indeed that is ever possible!) almost with the status of one of the medical students whom these UCSF frescoes were intended to instruct and delight: in the course of scrutinizing, researching, and writing, I too have been entertained and enlightened beyond measure.

--Masha Zakheim

San Francisco, July 1991

VI. BIOGRAPHY: BERNARD BARUCH ZAKHEIM (1896-1985)

In depicting both general and local history, when Bernard Baruch Zakheim came to paint the history of medicine at UCSF, he was continuing a tradition as old as Egyptian frescoes, Greek sculpture, Renaissance paintings, English engravings, and Mexican murals. In short, art and medicine have had a long reciprocal relationship, to which his fresco murals in Health Sciences West, Third Floor, and Toland Hall attest.

Born in Warsaw, Poland, on April 4, 1896, the youngest of ten children, Zakheim was meant to be a Jewish Orthodox rabbi. Though his family lived in the Warsaw ghetto, they made a good living as wholesale butchers, holding lucrative contracts with the Polish army. His father died when Zakheim was nine years old. Early in life he chose to express himself in the visual arts, despite the Chassidic religious convictions of his family proscribing the depiction of human beings in art. Later he would say that his "rebellion" gave him a new religion: he could deliver his strong messages through the painted image instead of from the pulpit.

Trained in such subjects as drawing, tool making, and furniture design at the Applied Art School in Warsaw, he astonished one of his professors by painting a watercolor of a valve that he had created for an examination in class. "Poland needs artists," his professor said; "we have plenty of craftsmen." Although his mother, by now the matriarch of the family, controlled the finances, she refused, because of her religious orthodoxy, to pay his tuition at the Applied Art School. However, there his work came to the attention of visiting Italian sculptor Enrico Gliescenstein, who recognized young Zakheim's talent. Although he had refused to teach other students of wealthy families, Gliescenstein volunteered to instruct Zakheim gratis for a year. Later, when Gliescenstein had to leave to work on projects

abroad, Zakheim was fortunate enough to win a very well endowed Kahali scholarship that had lain idle for years awaiting a non-conforming Jewish student with just such a family background as his own. At age sixteen he had his own studio and life-models, rather unusual in the Catholic Poland of his day.

He now enrolled in the Warsaw Academy of Art for his formal art education. A young idealist with gratitude for his education, Zakheim wanted to fight for Poland's independence from Czarist Russia at the time of World War I. Thus after a year at the art academy, he left to enlist in the Polish Army under-age and fought in the trenches against Germany for nearly a year. Then, taken prisoner-of-war by the Germans, he languished in POW camp for over nine months, witnessing unspeakable atrocities and narrowly missing his own execution by a firing squad. He managed to escape into Munich, where he was able to matriculate in the Kunst Gewerbe Schule on the basis of his artistic talent alone.

The dominant art style of Germany in the teens of the century was Germany Expressionism, an ideal social and political art form for Zakheim to portray his most recent encounters with the horror of life at the front and in war-torn Poland and Germany. It was these experiences that gave the artist much of his inspiration to portray human suffering and the fight for justice that he pictured in his later art--particularly in the murals at UCSF--and the art training to express the ideas and emotions. When Poland lay in shambles, seething with unrest and suffering after World War I, Polish First Marshal Josef Pilsudski, back from the German front, at first seemed a rescuing hero but later turned into a dictator. Later, Zakheim used his portrait for the pioneer Polish doctor in the Gold Rush Medicine Panel of Toland Hall, Felix Wierzbicki.

Under anti-Semitic Pilsudski the political climate in Poland had become so neo-fascistic that Zakheim could not return there to live, given the political radicalization of his student days and his war experiences. Having met his future wife, Eda Lea Spiegelman (1898-1943) in Warsaw, he rendezvoused with her in the "free city" of Danzig (today Gdansk) on the Baltic Sea, Poland's only port. There he studied art and architecture at the Danzig Politechnicum, but his war experiences were too graphic and his political differences with the new regime too severe for him to remain in Poland. After they married in Danzig in 1920, seeking political asylum he and Eda left for the United States, from which both sides of their family had sent sufficient money for them to come by ship first class: Why? "Fewer questions asked that way!" Zakheim would explain to his grandchildren.

Upon arriving in New York Zakheim discovered that the ghetto there was all too similar to that which he left in Poland. After only one week, the couple left for San Francisco. Financial necessity required a move to Los Angeles, where their first daughter, Ruth, was born in 1922. Several years later the Zakheims settled in San Francisco, where he was able to build a successful furniture factory, designing and making custom furniture to sell at prices affordable to even moderate income families.

However, his need to be creative in art still inspired him to seek instruction and further expression. After a brief stint at the old School of Fine Arts (when it was at the Mark Hopkins estate on Nob Hill) he struck out on his own as a "Sunday painter." Because of his political beliefs he did not invest in the stock market during the 1920's--hence his factory prospered and survived the crash of 1929, since he kept his profits in gold coins. Still in search of artistic expression he met the Mexican muralist Diego Rivera when the latter

painted in San Francisco at the School of Fine Arts (today the Art Institute) on Chestnut Street and at the Stock Exchange Club. Inspired, Zakheim went to Mexico briefly in 1930--not to study under but to work with Diego Rivera, who had returned to Mexico City to continue his frescoes at the Palacio Nacional and the Ministry of Education. Finding himself now confused by the mix of the Polish academic style of his student days, the German Expressionism of his studies in Munich, and presently the Mexican muralist movement, Zakheim decided to take a "sabbatical" from his factory and go to Paris in late 1931 to "find himself in art," as he said. His wife remained in San Francisco to take care of the children, a second daughter (the present writer) having been born in 1931, as well as to manage the factory with her brother. Unfortunately, they now invested in the stock market, which was undergoing another decline, thereby losing the money that had accrued and survived the crash of 1929.

Returning from Europe (where he had painted many easel works and also had apprenticed on a fresco project in a Protestant church under a German Professor Gebauer in Pecs, Hungary, painting one section which he called Polish Jews), Zakheim decided that although he could not salvage the furniture factory given his new dedication to art, he could change his career. (His wife Eda would continue as an interior decorator in her own shop.) Winning the competition in 1932 to paint a fresco in the courtyard of the newly built Jewish Community Center on California Street, he created A Jewish Wedding, the first fresco mural in San Francisco in a place with public access, for although Rivera had painted two frescoes here, both were in relatively private spaces.

With his artistic prestige based on the Jewish Community Center fresco, Zakheim was able, along with sculptor Ralph Stackpole, to help organize fellow artists during the Depression who were looking for walls

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to paint under government sponsorship. In 1933 a group gathered at the Whitcomb Hotel to wire the US Administration in Washington DC, appealing for financial support of local art projects. It so happened that the government was at the same time setting up just such an agency, called the Public Works of Art Project, under the Civil Works Administration. The two paths crossed: San Francisco's Coit Tower became the scene of the largest art project in Northern California, with fresco, oil on canvas, and egg tempera paintings covering some 3691 square feet of wall space. Zakheim's contribution was the Library scene, in which he illustrated the Reading and Periodical Rooms of the public library. In the style of Diego Rivera he included a book by Karl Marx, Das Kapital, which drew the ire of the Art Association and of the press.[1]

After he had finished at Coit Tower, Zakheim was commissioned in 1934 to paint two frescoes called Community Spirit and Growth at the Alemany Health Center on Ocean Avenue in San Francisco under the auspices of the State (of California) Emergency Relief Association. While he was executing these murals his work came to the attention of Dr. Isabella Perry, the first woman pathologist on the staff of UCSF. Her introduction of Zakheim to Dr. Chauncey D. Leake, a professor of pharmacology at the University of California Medical Center, provided the entre for the artist at UCSF and for a very fortunate meeting of minds. In Dr. Leake, Zakheim found a man of vision similar to his own: belief in the validity of historical perspective in medicine. And conversely, Dr. Leake's life-long efforts to humanize medicine at UCSF found in Zakheim a gifted artist willing to portray in monumental form the spirit of healing and research for future good. The result is a powerful union of art and science which for over half a century has

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[1]This information is presented at length in Coit Tower: Its History and Art by Masha Zakheim (Jewett); Volcano Press: San Francisco, 1983.

instructed and inspired all those who have witnessed these murals and have understood their message. It is to the story of this meeting of intellect and spirit that this book dedicates itself.

After finishing the murals at UCSF Zakheim went on to paint oil murals in two Texas post offices, in Rusk and Mineola. Soon after, he and Eda were divorced, whereupon he married his assistant at UCSF, Phyllis Wrightson; they had two sons, Nathan (b. 1943) and Matthew (b. 1945). During WWII all government funding for art projects was terminated, and virtually no support existed after the war. Zakheim and his wife moved to a farm with an apple orchard in Sebastopol, sixty miles north of San Francisco, where he continued to live and paint for over forty years. When the couple separated in the early 1950's, Phyllis moved to Santa Barbara, where she lives at present.

To support himself and his family during his years on the farm, Zakheim returned to the upholsterer's bench, for after the wallpapering of the Toland Hall frescoes in 1948, "all of a sudden no one had a job for a controversial painter," Zakheim found. Recovering from a heart attack in 1960, he retired from upholstery work, continuing to paint at his easel and to sculpture in wood.

In 1961 he returned to Poland for nine months, where he was able to find a wall ready for a large fresco in a Jewish rest home near Warsaw. Searching for a theme from his early life in Poland he titled his mural The History of the Jews in Song--the illustration of eight songs from life--weddings, war-time protest, laboring. It was to be his last fresco.

Although there were no more fresco commissions, Zakheim expressed anger and horror about the Holocaust of WWII during which most of the Zakheim family perished in Poland. In 1966 he sculptured in redwood a group of six powerful figures to represent the six million Jews who died

in the Holocaust. The group is called Genocide now at Mount Sinai Memorial Park, Burbank, California.

Upon his return to Sebastopol in 1962, he lived on his farm in retirement, continuing to paint easel works and to create such wood sculptures his 1975 work The Genius of Healing (representing the same nurse and little boy that he depicted in Rational Medicine in Cole Hall), which stands in UCSF's School of Nursing lobby.

In 1982 while sculpturing a massive granite boulder on his farm he suffered a stroke which put him into retirement homes for the next three years, during which time he painted many scenes of his early childhood in Poland. At almost ninety years of age, Bernard Baruch Zakheim died of a liver tumor on Thanksgiving Day, 1985.

VII. BIOGRAPHY: CHAUNCEY DEPEW LEAKE (1896-1978)

Dr. Chauncey Depew Leake, a man remembered as "one of the most significant medical historians of this century," was born in Elizabeth, New Jersey, on September 5, 1896. Noted San Francisco historian Kevin Starr has observed that the class in which Dr. Leake graduated from Princeton University in 1917 (where he took a Litt. B.), also included novelists F. Scott Fitzgerald and George Stewart as well as essayist and critic Edmund Wilson and poet John Bishop Peale. Dr. Leake then earned both an M.S. and a Ph.D. (1923) from the University of Wisconsin. In 1921 he married Elizabeth Wilson, a bacteriologist. Together they had two sons: Chauncey Jr., a financial investor, and Wilson, an anesthesiologist.

Early in his career Dr. Leake was very influential in his chosen field of pharmacology, joining the staff at UCSF in 1928 to organize the first Department of Pharmacology in the California College of Pharmacology; later he was instrumental in that department's becoming part of UC in July, 1934. Here he pioneered certain aspects of anesthesiology; and it was in his laboratory that colleague Dr. Gordon Alles discovered amphetamines.

His friend John C. Krantz, Jr., said in 1969 that Dr. Leake brought humanistic concerns to his field, "from cells to society". He was at once a scientist and a popularizer of science: a pharmacologist, philosopher, enologist (a "student" of wines), chemist, writer, physiologist, medical and science historian, translator, lecturer, administrator, and, above all, a humanist. (During the 1930's he lectured at UC Berkeley on the subject of human relations.)

However, when he left UCSF in 1942 for Galveston Texas, in his own stylized 19th century cursive script he wrote (with characteristic modesty) only that for fourteen years he had "served as professor of

pharmacology and lecturer in the history and philosophy of medicine. He also was librarian to the medical school." Later Dr. Leake was a visiting member of the Institute for Advanced Studies (Princeton, 1950-52 and 1956) and Professor of Medical Jurisprudence (Hastings College of Law, SF, 1963-65), after returning to UCSF in 1963, where he continued to lecture until the time of his death at 81.

In order to overcome a bad childhood stutter, Dr. Leake took up public speaking at Princeton (where he won a major debating contest) and went on to lecture to students for six decades. Blessed with almost total recall, he could write on the blackboard a chart of important names, dates, and achievements in the history of medicine, then turn his back to the writing on the wall and lecture verbatim with "cosmic enthusiasm" to his audience. Addressing such issues as the public understanding of science and its impact on society, he helped generations of young science writers to learn how to report in everyday language their medical findings.

Considering his popularizing of science and medicine for students and the lay public "one of his most lasting achievements," Dr. Leake wrote seventeen books (beginning in the 1920's with popular versions of Harvey's Circulation of the Blood and Percival's Medical Ethics) and some six hundred articles, among them a study in the 1930's of an Egyptian medical papyrus[2] which had been a gift to the University of California from Phoebe Apperson Hearst. Although, according to Dr. Gert Brieger, he had written no thesis for either his A.B. or Ph.D. degrees, he was a long-term member of the American Association of Science Writers. And, although he had no medical degree, he was in charge of the school of medicine at Galveston, Texas, for thirteen years

[2]This work was reported in the second series of the Logan Clendening Lectures and was subsequently published in 1952 as The Old Egyptian Medical Papyri by the University of Kansas Press.

(1942-55). In his later years he wrote with the insights of age and a life fully lived, What Are We Living For? in three volumes: I. The Ethics (1972); II. The Logics (1974); and III. The Esthetics (1976).[3]

Holding many offices, Dr. Leake served as President of the History of Science Society (1936-39), of the History of Medicine Society (1961-62), and of science's highest office: President of the American Association for the Advancement of Science (1960-61).

Somehow among the activities of his busy life he found time for the arts. A dedicated Bohemian, he wrote both public and private poetry for Club activities and showed a dramatic flair for the lighting of various Club productions. The morning of the day he died he (a dedicated conservationist) was walking about in the lobby of Moffitt Hospital at the University of California Medical Center removing outdated notices. That evening at the Bohemian Club in San Francisco he read from his poetic writings. Following an extended ovation after "An Evening With Chauncey Leake", he suffered a ruptured aortic aneurysm. Taken to UCSF, Dr. Leake died early morning, January 11, 1978, following by eight months the death of Elizabeth, his wife of nearly sixty years.

His colleagues remembered him well and fondly. Scribbling in pencil next to a photograph of Dr. Leake in a 1943 Dallas newspaper, Dr. Langley Porter wrote, "one of my best boys." Stressing again and again Dr. Leake's "love of life", others eulogized him on several formal occasions. Chancellor Francis Sooy, thinking of his own student days on the campus in 1938 when Chauncey Leake was on the faculty, spoke of him as "truly the intellectual, moral and spiritual conscience of the San Francisco campus." Former Chancellor John B. deC. M. Saunders recalled his "warm and generous" friend who was "always willing to draw attention to the achievements of others, to encourage and praise students for good

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[3]For this information I am indebted to the sons of Dr. Leake.

work.... [He] never uttered an unkind word, for he held human values too high."

The notion of how the paths of two such seemingly disparate individuals as Chauncey Leake and Bernard Zakheim might happen to cross in the early 1930's deserves a brief comment here.

Dr. Isabella Perry, a pioneer woman research pathologist at UCSF, had met Zakheim when he was about to paint the fresco Community Spirit in the Alemany Health Center.[4] Years later, in 1973, she wrote a remarkable account to a correspondent named Janet:

> I can tell you exactly how the murals began--they began one Sunday morning in early June [1934] in the living room of my house on Cole Street--[Beniamino] Bufano and Zakheim were there talking about the WPA (?)[5] murals nearly completed in Coit Tower. Bufano said the only thing fit to survive in our civilization is medical practice and science. [I] asked, "Why don't you and Zakheim do under WPA companion pieces of Ancient and Modern Medicine for our Medical School?--Both agreed.
>
> I made an appointment with Dr. Leake to meet them and discuss this proposition--I don't like politicking and Leake is adept at it.--Things clicked and the work was authorized for Zakheim. I suppose Leake rightly surmised that two prima donnas was (sic) too much for him to handle at one time.

A curious fact remains unexplained, however. In all the extensive bibliographical lists and in all his archival materials, Dr. Leake never published any identification of his authorship of two very authoritative booklets which indeed he wrote and published anonymously. One is a description of the two frescoes by Bernard Zakheim depicting ancient and modern medicine which used to adorn Cole Hall in the old Medical School building (razed in 1967): "The Opportunity for Pictorial Art in Modern Medicine: An Example in San Francisco".

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[4]For SERA--State [of California] Emergency Relief Administration--(April 1934-July 1935).

[5]Actually the PWAP--Public Works of Art Project (November 1933-June 1934).

The other is the preface and the summary for "California's Medical Story in Fresco: An Illustrated Account of the Fresco Decorations on the Walls of Toland Hall, University of California Medical Center, San Francisco" (1939), with a note on the inside cover stating: "The publication of this illustrated account of the Toland Hall Murals at the University of California Medical Center was arranged by one who is interested in staff and student response to the project. One thousand copies have been printed for private distribution." (Years later Dr. Leake signed the artist's daughter's--and present author's--copy: "Issued by C.D. Leake, 1939".) Why the anonymity connected with a project to which Dr. Leake obviously felt very close? One might conjecture that the seeds of dissent and controversy might have been sending up very tender tendrils even as the frescoes took shape during the four years that the artist devoted to their execution. Already there was uneasiness in some quarters that Zakheim's strong style (unexpectedly labeled "grotesque" in one letter) and his strong and rather unorthodox--for that time--portrayal of California history (e.g., the role of the California missions, of the Catholic church, of the treatment of Indians, of early prominent San Francisco doctors and events like the outbreak of plague, and even some recognizable contemporary portraits in the murals) might cause trouble for UCSF. There were factions among the faculty that felt the murals were out of place in the hall, seemed a distraction from the lectures, and appeared too overwhelming for the average viewer. Nine years after their completion, certain members of the academic staff accomplished the supreme act of censorship: the covering by wall paper of the ten panels in Toland Hall. The frescoes languished thus for some fourteen years, until Dr. Leake returned to the campus after an absence of twenty years.

Dr. John B. deC. M. Saunders as Provost (later Chancellor) had quietly ordered the uncovering of the frescoes in 1962. Gradually Dr. Leake helped repair the "psychic" damage, paved the way for the reappearance and restoration of the murals in 1977 and by now publicly acknowledged his connection with the inspiration for the Zakheim's fresco mural projects in old Cole and Toland Halls.

Dr. Leake's original faith has been validated, for time has vindicated both the subject matter and expressionistic style of Bernard Zakheim in the frescoes. In today's eclectic art world these works seem both tame and timely--and certainly prophetic, as we shall see. And Dr. Leake has emerged a hero--with a 101 X 201 mural in the Ambulatory Care Center at UCSF painted in 1976 by the summer students of the Lincoln High School Creative Arts Project under the supervision of local painter and sculptor Ruth Asawa in which Dr. Leake figures prominently. There is even an Environmental Day celebrated in his name every spring at UCSF!

The University of California, Medical Department

Historic Manuscript
Edited by Robert S. Sherins, MD
UCSF School of Medicine, Class of 1963

In the course of researching material for this manuscript, I came upon documents about the earliest graduating classes at UCSF.[10] It was the story of ***Lucy Maria Field Wanzer*** that first captured my attention. She not only graduated from the first class of UCSF School of Medicine, but also she was the first woman graduate. Additionally, I have been able to assess the number of women graduates every year since the founding of the Toland Medical College in San Francisco in 1864 and the formation of the University of California Medical Department following the gifting of the Toland Medical College to the Regents of the University of California in 1873.

The life of Dr. Lucy Wanzer was so inspiring to me that I decided to publish an updated iteration of her biography. A post-script also has been added that summarizes my analysis of the women graduates of UCSF School of Medicine, "UCSF School of Medicine Gender Trends: 1864-2012."

First woman graduate, UCSF[11]

As a child in 1840s Wisconsin, ***Lucy Maria Field Wanzer*** played nurse to her mother, who was ill with lung fever (tuberculosis). It was then that she realized she wanted to be a physician.

But, it was many years before Wanzer's dream was realized. Her parents prized education and she received excellent schooling. When her family moved to California in 1858, Wanzer supported the entire family as a dressmaker, teacher and postmaster. In 1865, at the age of 23, she married county clerk James Wanzer. But she divorced him three years later, determined to take steps toward fulfilling her plan to become a doctor. For the next six years she prepared financially by teaching and saving pennies to pay for medical school. At the same time, she prepared mentally by studying Latin, French, algebra and literature.

Finally, at the age of 33, Wanzer applied to Toland Medical College, which had just come under the administration of the new University of California Department of Medicine. She was rejected because of her gender. But, she appealed and after four months won admission because the Regents could find no reason to bar her entrance,

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[10] From Michael Eccles, UCSF Director of Alumni Relations; Gary Bernard, UCSF Director of Alumni Development/School Programs; and Polina Ilieva, UCSF Library Senior Archivist.
[11] From, Medical Alumni Magazine, vol 50, No. 2, Fall 2009, printed with permission.

as the law creating the state university provided for the education of both sexes.

The dean, opposed to her admission, encouraged the male students to haze Wanzer. One professor told her that a woman had no business studying medicine. "If she does, she ought to have her ovaries removed." Wanzer quietly replied, "If that is true, the men students ought also to have their testicles removed!" Impressed by the young woman, the famed physician Beverly Cole, MD, offered to be her mentor.

When Wanzer graduated in 1876, Cole presented her name for membership in the San Francisco County Medical Society. A blackball was threatened, but when he did not withdraw her name, she was accepted as the first woman member. She opened her first medical office in gynecology and obstetrics on Geary Street. Wanzer also specialized in pediatrics and was one of the founders and original directors of UCSF Children's Hospital.

Fortunately, the Constitution and By-Laws of the Alumni Association of the Medical Department of the University of California were discovered in the UCSF archives. A copy of the 1885 iteration has been preserved at UCSF in the Lucy Wanzer' files. Dr. Wanzer was an astute woman and way ahead of time. Dr. Wanzer's election to the San Francisco Medical Society in 1876 was followed a decade later when she was elected to the Office of the Vice-President of the Alumni Association in 1885-86. It was no surprise to see her name listed among the officers as Vice-President of the Alumni Association in 1885-1886. Lucy Wanzer was a respected physician and obstetrical surgeon in San Francisco, but she did not have the right to vote until August 18, 1919, after the 19th Amendment to the U.S. Constitution was ratified by Congress.

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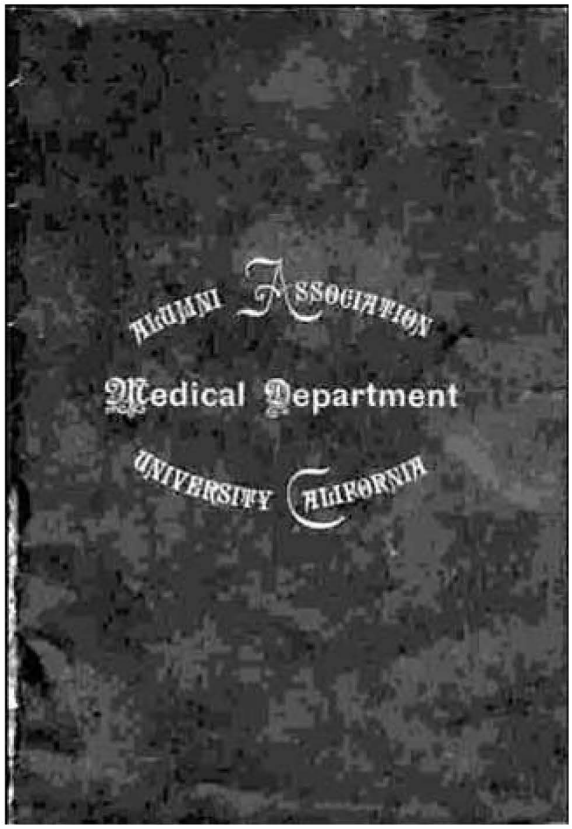
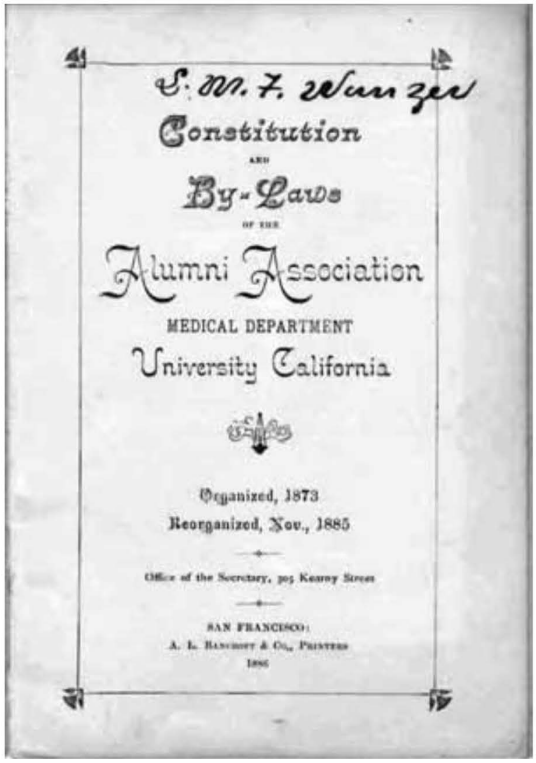
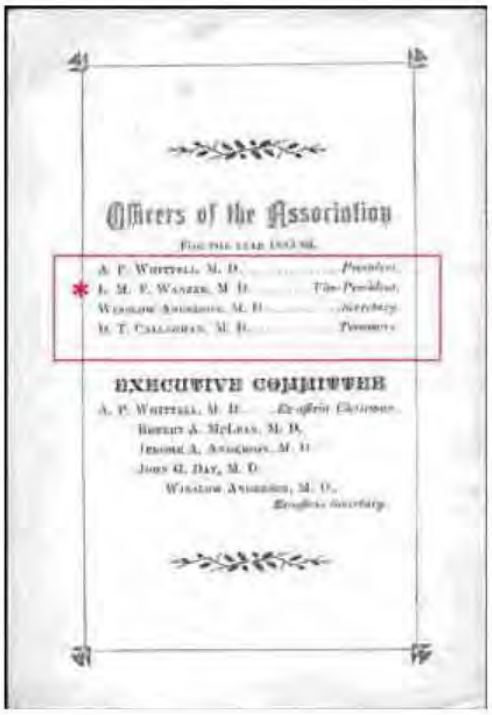
The following illustrations are copied from the scanned original documents at the UCSF Kalmanovitz Library archives.


Alumni Association
Medical Department
University California


E. M. F. Wurzer
Constitution
AND
By-Laws
OF THE
Alumni Association
MEDICAL DEPARTMENT
University California
Organized, 1873
Reorganized, Nov., 1885
Office of the Secretary, 305 Kearny Street
SAN FRANCISCO:
A. L. Bancroft & Co., Printers
1886



Officers of the Association

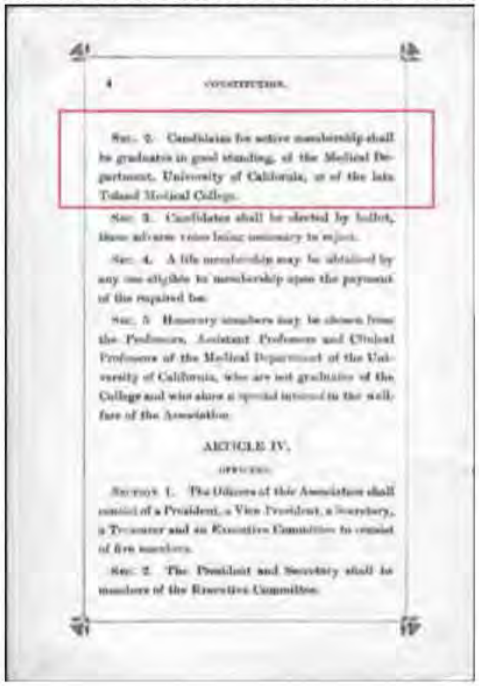
FOR THE YEAR 1883-84.

A. P. WHITTELL, M. D., ... *President.*
L. M. F. WARNER, M. D. ..... *Vice-President.*
WILLIAM ANDERSON, M. D. ..... *Secretary.*
H. T. CALLAGHAN, M. D. ..... *Treasurer.*

EXECUTIVE COMMITTEE

A. P. WHITTELL, M. D. ..... *Ex-officio Chairman.*
BARTLEY A. MCLEAN, M. D.
THOMAS A. ANDERSON, M. D.
JOHN G. DAY, M. D.
WILLIAM ANDERSON, M. D.,
Ex-officio Secretary.

The following illustration from the Constitution of the Alumni Association, page 4 (Article III, Section 2), confirms the merging of all the medical students from ***"...the Medical Department, University of California or of the late Toland Medical College."***



4 CONSTITUTION.

SEC. 2. Candidates for active membership shall be graduates in good standing, of the Medical Department, University of California, or of the late Toland Medical College.

SEC. 3. Candidates shall be elected by ballot, three adverse votes being necessary to reject.

SEC. 4. A life membership may be obtained by any one eligible to membership upon the payment of the required fee.

SEC. 5. Honorary members may be chosen from the Professors, Assistant Professors and Clinical Professors of the Medical Department of the University of California, who are not graduates of the College and who show a special interest in the welfare of the Association.

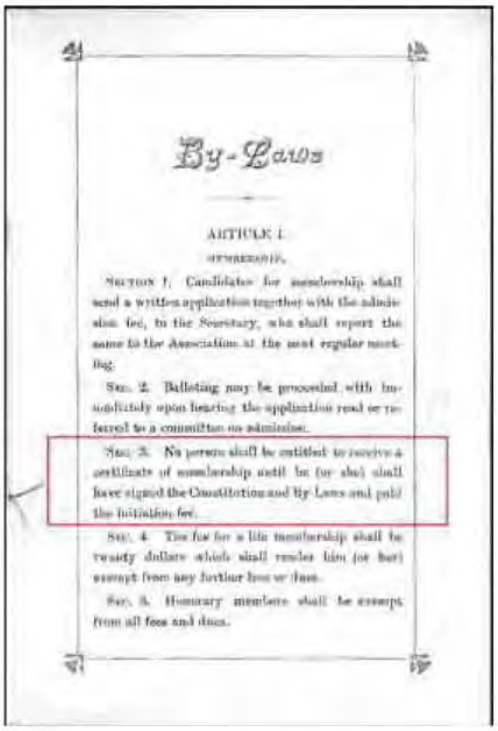
ARTICLE IV.

OFFICERS.

SECTION 1. The Officers of this Association shall consist of a President, a Vice President, a Secretary, a Treasurer and an Executive Committee to consist of five members.

SEC. 2. The President and Secretary shall be members of the Executive Committee.

Proof of the acceptance of female physicians as full members of the Alumni Association was confirmed in the By-Laws, Article I, Section 3.



By-Laws

ARTICLE I.

MEMBERSHIP.

SECTION 1. Candidates for membership shall send a written application together with the admission fee, to the Secretary, who shall report the same to the Association at the next regular meeting.

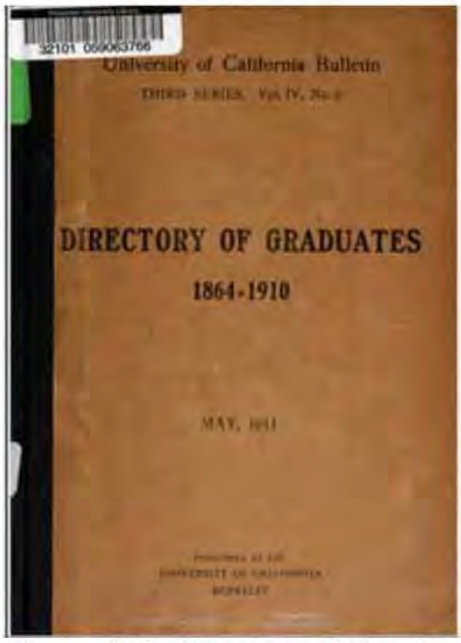
SEC. 2. Balloting may be proceeded with immediately upon hearing the application read or referred to a committee on admission.

SEC. 3. No person shall be entitled to receive a certificate of membership until he (or she) shall have signed the Constitution and By-Laws and paid the initiation fee.

SEC. 4. The fee for a life membership shall be twenty dollars which shall render him (or her) exempt from any further fees or dues.

SEC. 5. Honorary members shall be exempt from all fees and dues.

From UCSF Archives:



Title Page: U.C. Directory of Graduates

Lucy F. Wanzer, MD, Class of 1876

Lucy F. Wanzer, M.D., Front Row – 2nd from Right
U.C. School of Medicine, First Graduation Class of 1876
San Francisco, California

From the UCSF Archives and Special Collections:
http://www.library.ucsf.edu/collections/archives

Dr. Lucy Maria Field Wanzer (1841-1933)
First Woman Graduate of a Califomia Medical School and Grande Dame of San Francisco's Medical Community[12]

It was the suffering and poor health of both her parents that led Lucy Maria Field Wanzer to her history-making career as a physician. Lucy Maria, the first of six children of Storer and Lucy Ann Field was born on October 11,1841, in Milwaukee, Wisconsin. When Lucy was still quite young, her father was advised to move to Madison for his health, and her mother became ill with what was called lung fever (tuberculosis). In spite of the family's health problems, education was prized and Lucy received excellent schooling in Madison and Hartford, Connecticut.

In 1858, the Field family moved to California, again for health reasons. Lucy supported the entire family upon their arrival in Oakland as a dressmaker and later by teaching at Temescal School. A year later, the Fields moved to Santa Cruz where Lucy's father opened a general store and was appointed postmaster. Although her father held the title officially, Lucy actually filled the postmaster position and drew the salary-an acceptable practice at the time. She also took over the operation of the telegraph office nearby when that position became vacant. Despite her success at work, Lucy Maria Field Wanzer did not lose sigh t of her desire to become a physician and engaged private instructors to study Latin, French, algebra and literature.

In 1865, at the age of 23, Lucy Maria married county clerk, James Wanzer, but divorced him three years later determined to take steps towards fulfilling her plan to become a physician. For the next six years Lucy Maria Wanzer taught in Santa Clara and San Francisco to earn enough money for her medical education. Finally, at the age of33 and with excellent credentials and the backing of influential friends, Lucy Maria applied to Toland Medical College in San Francisco, which had just come under the administration of the new University of California. Her admission was summarily rejected by the medical school because of her sex. It was then that her two advisors and allies, John Swift and Rev. Horatio Stebbins, both Regents for the University, engaged their attorneys and demanded that her case be reviewed. Four months later her rejection was overruled on the finding that the charter of the University provided for access to education by both sexes, and that the Medical Department was an integral part of the University. This landmark decision has since provided opportunities for many women medical students who followed in Lucy Maria's footsteps.

Once at Toland Hall, Lucy Maria Field Wanzer faced prejudicial attitudes and hazing by the male students, some of which was directly encouraged by the Dean in an effort to force her to resign. But she also had supporters and friends among the faculty and students and a great deal of confidence in herself and her mission. Dr. Hugh Toland, medical school founder and then Professor of Diseases, welcomed Lucy, but felt she would be shocked by working in the venereal disease wards. She replied, "I know the work is hard, but I want to see everything, otherwise I would not be fit to be a medical student." When she first visited the eye disease ward, another physician told her that "a woman had no business to study medicine; that if she did she ought to have her ovaries removed." She replied, "If this were so, then the men students ought to have their testicles removed."

The famed physician, Dr. Beverly Cole, was very impressed with Lucy Maria and became her mentor, a move that served to dispel further prejudicial actions by any other faculty members. Some hazing incidents followed, including one in which fellow students rearranged the dissecting room, and when she entered the next morning to work, she found they had positioned the cadaver in a manner calculated to shock and embarrass her. It did not; she ignored the whole prank and continued her work as if nothing had happened. From that day on, Lucy Maria Field Wanzer pursued her medical education without further incident, having won the respect and admiration of students and faculty alike.

In November of 1876, Lucy Maria graduated with an excellent record and proudly received her medical diploma. Shortly thereafter, Dr. Beverly Cole presented her name for membership in the San Francisco County Medical Society, and she

[12] From the Oakland Exhibit, August to December 1888, submitted to Dr. Robert Sherins by Margaret Hughes, Assistant Archivist, UCSF Archives and Special Collections: http://www.library.ucsf.edu/collections/archives.

became its first woman member. The doors were then opened to other distinguished women physicians featured in this exhibition.

Dr. Wanzer's first medical office was at 130 Geary Street where she had six rooms. Gradually her practice expanded from treating poor women from Tar Flat to society matrons' servants, and ultimately to the society matrons themselves. She also became associated with The Pacific Dispensary for Women and Children and continued clinical work there when it became San Francisco Children's Hospital. By the end of the 19th century, she had moved her private offices to 2970 California Street, a few doors down from the hospital.

As an honored guest at the dedication of the new University of California Medical Center in 1898, Dr. Wanzer was pleased and amazed that 22 women were studying medicine that year, and that women had graduated in each of the 22 years since her own historic graduation in 1876. At a dinner in 1924 on her 83rd birthday, honoring Dr. Lucy Maria Field Wanzer's remarkable accomplishments and long and successful career, Dr. Emma Merritt spoke of "her unflagging zeal to duty, of her many deeds of charity, and of her rare devotion to the cause of women in medicine. " Dr. Merritt ended her speech by saying, "possessed of all her faculties, may she live to be a 100”. Dr. Lucy Maria Field Wanzer almost made it, living until she was 93 years old.

From: Women Physicians Banquet, San Francisco, 1924
Honoring Dr. Lucy Wanzer's 83rd Birthday

ADDRESS DELIVERED BY DR. EMMA L. MERRITT AT A BANQUET GIVEN BY WOMEN PHYSICIANS, OCTOBER 11, 1924, IN HONOR OF THE EIGHTY-THIRD BIRTHDAY OF DR. LUCY MARIA FIELD WANZER.

Women in medicine have come into their own in California to a degree probably not equaled elsewhere. There cannot be, of course, a set line in the practice of medicine, and all fair-minded persons have long since recognized that fact. That it is a fact in practice, at least in California, was well demonstrated when the American Medical Association was our guest. For that great convention the women physicians themselves requested to serve on mixed committees rather than have separate committees.

*It is interesting and significant in medical progress that more than three score women physicians recently gathered at the banquet table to eulogize Doctor Lucy Maria Field Wanzer, one of the pioneer women physicians. It was at this banquet that Doctor Merritt presented the following bit of medical history.—*THE EDITORS.

IT WAS in the year 1873 that our revered and honored guest of the evening applied at Toland College for admission as a medical student.

You women of the present day do not realize the struggles and hardships undergone by the women who first tried to get a proper medical education. To have lived in the time of those of us who are over 60 has been like living in a dream, so unreal and extraordinary have been the changes that we have seen.

The struggle to practice medicine was only a branch of the great struggle for the general enfranchisement of women. To get even a higher education, with no thought of making use of it outside the home circle, was considered unwomanly, and she who possessed any degree of learning was ridiculed as being a blue-stocking.

I was not one of that pioneer medical group. By no time the path had already been blazed and made easy, but I am old enough to have had the privilege of knowing many of these brave women—Dr. Emily Blackwell, Dr. Maria Zakrzewska, Dr. Alida C. Avery, Dr. Helen Webster, Dr. Mary Putnam Jacobi, and others who had immediately followed them in the East; in this state I knew Dr. Buckle, Dr. Curran, Dr. Follansbee, Dr. Charlotte Blake Brown, and the first woman to graduate from a California Medical College and the first to enter the San Francisco Medical Society—Dr. Lucy Maria Field Wanzer.

Toland College was at the corner of Stockton and Francisco streets, the City and County Hospital down a street by the side of it. Dr. Toland had donated the college to the University of California. About one year after it was turned over, Dr. Wanzer, together with her friend, Miss Mary Frazer McDonald, applied for admission.

They had two friends to advise them, Mr. John Swift and Rev. Hurlbut Stebbins, regents of the university, who [illegible] nothing, but first to apply to the Medical Department, and if they were turned down, then to apply to the regents. They sought the Medical Department, and were refused. They then went to the regents, who referred the matter to their attorney, who looked it up and said there was no law against it, as the organic law of the state was that both sexes were to be educated if they so desired in the university, and as Toland College was an integral part of the university, the two women could not be kept out. Four months had been consumed in arriving at this decision.

Miss McDonald did not go in. She got tired of waiting—Cupid took her off. She got married and that ended her medical career. Dr. Wanzer told her it was an awful thing thus to desert her, but once her path has been clearly defined, Dr. Wanzer has never been known to turn aside, whatever the obstacles. She is born of fighting stock—her mother of New England revolutionary ancestry; her father of early Colonial period.

Her father as a boy apprenticed himself to Jones, a watchmaker and jeweler in Greenfield, Massachusetts, where he learned his trade. In 1837 he took to Milwaukee, then little more than an Indian village, a stock of cheap jewelry, showy brass beads, glass beads and the like. He was so successful in selling these to the Indians, that Jones finally broke up his business in Greenfield and moved to Milwaukee, where Storer Field married his daughter Lucy Ann and where their first child, Lucy Maria, was born October 11, 1841.

Field continued in the jewelry business till he fell ill, and was advised by his physician to seek life in the open. He became a farmer in Dane County, six miles out from Madison, where the howling of the wild wolves could be heard outside their house, built of rude logs, and with blankets at the openings for doors. He was justice of the peace for Dane County and member, from there, to the legislature.

Her father declared his girls must be capable women. So at the age of 10 Lucy was sent to her mother's sister, Mrs. Brooks, who lived in Milwaukee, to school. Afterwards she went to Madison to boarding school; later to Hartford, Connecticut, where she graduated from the high school. She would go no higher because college courses were not open to women at that time.

The mother was ill in those days, of what was called lung fever, and many a time the little daughter mounted a box and kneaded the bread for the baking under the mother's direction from her sickbed. She nursed her mother as well. Her mother would praise her for the care. The little girl thought how fine it would be to do things when anyone was suffering. And the years of her mother's illness to follow, as likewise that of her father, only served to feed the flame of her desire some day to become a physician.

In 1858 the family came to California on account of the mother's health; eight in all—the parents, two brothers, and four sisters. The father's money was pretty well gone. He could find nothing to do and was much discouraged. So Lucy, then in her seventeenth year, took the burden of support upon herself by making sleeves in a [illegible] shop till she got a position teaching in the public school at Temescal, in Oakland, about where Idora Park now is.

The parents moved to Santa Cruz. The father opened up a general store, with one corner parti-

tioned off for the postoffice. He had been appointed postmaster. Though he was officially such, Lucy filled the position and drew the salary.

All the time she was working she was studying. She had private instructors in Latin, French, literature, algebra. She took Latin under a Presbyterian clergyman. Likewise she was saving up money some day to become a physician.

Walter Thorne, afterwards Dr. Thorne, and Lewis Glass had at the time a telegraph office in their drug store. They wanted to give it up so Lucy, to add to her income, took it over.

She was 23 years of age when she married. She became a teacher in the public school at Santa Clara

Lucy Hobbs Palm Wagner

and finally the Lincoln grammar school, the best known boys' school at that day in San Francisco.

And now at 33 she stood alone—the one woman in the whole state of California demanding admittance to Toland College.

She went in prepared for trouble, but she did not care. The dream of her life was about to be realized. Some of the professors welcomed her, but the dean told the class that a woman was going to appear and for them to have her on the "build 'em up." "Of course, she will complain. We will tell her we are very sorry, but we cannot lecture to two classes. You are the women we are going to start in on."

The first day she spent from 8 to 12 going through the hospital. Before she got through some of the boys were edging away and pulling other boys to one side, so she could see the patients. But some of the "last links" were trying to carry out the dean's instructions.

The first clinic was a medical one by Dr. Bates. He had a Southern way with him, and he made a nice speech when she entered. That gave her a little standing with some of the boys.

Then came Dr. Toland's clinic. She followed him through one of the wards, and then came the syphilitic and gonorrheal ward. He thought perhaps that was too strenuous, that perhaps she would not care to go, but she said, "Oh yes, doctor, I know the work is hard," but she told him she wanted to see everything, otherwise she was not fit to be a medical student.

Then she saw Dr. Martinache and the eye ward. Dr. Martinache told her a woman had no business to study medicine; that if she did she ought to have her ovaries removed. She replied if this were so that the men students ought to have their testicles removed.

Dr. Beverly Cole had the obstetrical clinic. He sent for her, told her he would not like to place her in an unpleasant position, but that he could not be sure to a mixed class without making it very embarrassing to her; that as he was about to commence his course, it she thought best he would excuse her. She told him she wished to be excused from nothing. He was rather pleased, and said if she wanted a preceptor he was perfectly willing for her to be his student. She asked him, "What would be the expense?" He said it would be nothing, but that he could give her advantages that he could not give a young man. So when there was no lecture going on she was in his office. Sometimes he would give her the most trying things to do and would think it a joke. No matter what it was she did it.

She was dissecting for hernia when the boys decided it was about time to haze her. The next morning when she went to the dissecting room she noticed an unusual number of students around. The cadaver had been arranged in a manner that they thought would shock her very much. She took no notice of it and went on working as if nothing had happened.

Then came one of the students' birthdays. The boys planned to give him beer enough till he fell asleep. They then carried him after dark into the dissecting room and tied him onto the table. About midnight he woke up and screamed so, the whole neighborhood was aroused. It created such a commotion the faculty had to take note of it. They sent for every student, herself among the number. She told them she was not a detective. The students afterwards said they thought that every woman would faint. That sort of made a comradeship between them, and by the time she graduated there was not one who would not do anything for her.

She graduated in November, the Centennial year, 1876. Dr. Cole presented her name to the California Medical [illegible] as the first woman to graduate in medicine on the Pacific Coast. She was advised to withdraw her name. She replied: "My name stands; blackball me if you will." They put her name through, the first woman ever presented. There were previously two

Charlotte Blake Brown had applied for admission, but her name was withdrawn before the time came for voting.

Dr. Warner set up immediately an independent office over a plumbing shop at 130 Geary street, right opposite where the City of Paris is now.

She had six rooms for about $45 a month, and rented out three for $15, with the understanding that the tenants must clean up the office and answer all calls that might come.

When she graduated the papers were full of all sorts of nonsense, ridicule, and praise, and her friends told her she would make a great success, and that they would help her. But very few sent other than their servant girls. At first she had to practice among the very poorest persons from Tar Flat. Gradually she got a better class. When the mistresses found their servant girls did not die, they came themselves.

That same year she entered the Pacific Dispensary. It was in the basement of the Synagogue on Taylor street, near Post. The next year the dispensary started the Hospital for Children on Post street, between Stockton and Dupont. They had four beds.

Dr. Warner remained on the staff of the hospital till the University of California took it over and made a teaching institution of it.

Twenty-two years after her graduation, Toland College was moved to its present site on Parnassus avenue. At the dedication, Dr. Warner was amazed at the number of women studying medicine in the building—twenty-two—and each year they had been graduating them for twenty-two years.

Tonight we are over sixty women physicians assembled to do her honor to show our appreciation of her unflagging zeal to duty, of her many deeds of charity, and of her rare devotion to the cause of women in medicine, which has done much to bring about the standing and success of the present-day woman physician.

She was beyond any professional jealousy, which all too often for a personal aggrandizement lessens another's achievements. She always tried to help other women up the ladder, and to push them forward beyond where she had been able to go. She took them to see her cases; she rejoiced in their four years as against her two; their European advantages as against her local; their internships in a hospital, even their professorships in the medical school, as against her struggle to enter.

Possessed of all her faculties, may she live to be 100.

From: the San Francisco Medical Society, Vol 3, No. 11, November 1930:

Vol-3, No 11, November 1930

BULLETIN OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY

LUCY MARIA FIELD WANZER

On October 13, 1930, Dr. Lucy M. F. Wanzer died at her home on California Street at the age of 89 years.

Born on October 11, 1841, in Milwaukee, Wisconsin, she came to California with her parents in 1858, and in order to assist in the maintenance of the family she began making laces in a dress making shop until she obtained a teaching position in the public schools to this end.

Later the family moved to Santa Cruz, where her father was appointed postmaster. Lucy Field did the work and drew the salary, studying at the same time Latin, French, algebra and literature. She was also saving money to study medicine, toward which her interest had turned as a result of the long illness of her mother. At 23 years of age she married.

In 1873 she applied for admission to Toland Medical College, which had shortly before been given to the University of California by Doctor Toland. She was refused admission to the school by the Medical Department, but the regents of the university could find no bar to her entrance, as the law creating the state university provided for the education of both sexes. It took four months to arrive at this decision.

After some difficulties with some of the faculty and students, who did not believe in women in medicine, she won the liking and respect of all and graduated in November, 1876.

Dr. Beverly Cole presented her name to the County Medical Society where a movement was begun to refuse her admission. When advised to withdraw her name she replied that her name stood and they could blackball her if they wished. She was accepted—the first woman to be voted upon by the Society.

She immediately opened an office over a plumber's shop at 130 Geary Street and began her practice, which became a large one.

She served in the Pacific Dispensary when it was in the basement of the synagogue on Taylor Street near Post and she was on the staff of the Children's Hospital for many, many years.

The first woman to enter and graduate in medicine in the University of California, she lived to see women take a great part in medical practice and her effort was always to help them further along their chosen road, rejoicing in the added advantages given to women physicians by the passing years. San Francisco and medicine lost, in her passing, a loved and respected woman and physician upon whose life we can look with deep appreciation of its devotion to duty, charity and the advance of women in medicine.

History Of The Palace Hotel

We are the 100th graduation class of the UCSF School of Medicine. As you have read, the origin of UCSF School of Medicine began in 1873 having taken over the role of the Toland Medical College. It is precisely the 140th anniversary of our medical school, because the date of origin was April 1, 1873. The 50th Reunion gala of our Class of 1963 was held at the famous Palace Hotel of San Francisco on April 27, 2013. As a result of my research, I learned how famous the hotel had been in our medical school history. Archival documents from the University of California Department of Medicine were uncovered that revealed the long-forgotten secret that the ***first school banquet of the graduating Class of 1896 also was held at the Palace Hotel in 1896***. The venue was that of the original Palace Hotel, which was destroyed by fire after the great earthquake of 1906. So far, only two records have been discovered regarding that occasion: a photo of the graduation class of 1886 and the elaborate menu from the Palace Hotel banquet of the graduation Class of 1896. However, there are some fascinating historical records about the hotel that I wish to share.[13]

From Gray Brechin, "Historical Essays":
"…William Ralson's Palace Hotel was to be the opulent capstone of his career and ego. When completed in 1875, it was quite literally the grandest hotel in the world." It was said that the Palace Hotel compared to the finest hotels of Europe and much of California's business had been conducted from the hotel's grand bar. The following illustration of Market Street in 1865 shows the location of the future hotel.

Site of Future Palace Hotel, Market Street
San Francisco, 1865

By the time that the Palace Hotel was completed and ready for occupancy in 1875, horse-drawn carriages still were the mode of conveyance of the hotel's guests. As such,

[13] Victorian San Francisco Essay: Gray Brechin. Illustrations from the Bancroft Library, University of California, Berkeley, California.

they created a carriage entrance and unpaved lane through the hotel. The carriage lane corresponds to the present lengthy carpeted concourse that one traverses. In its heyday, the carriage lane brought the finely adorned ladies to the protected hotel entrance where the famous garden restaurant is presently located under the elegant glass ceiling. The following illustration depicts the "trolley" rails on Market Street, which was still unpaved. The "trolleys" were horse-drawn.

Palace Hotel, Market Street
San Francisco, 1876

Palace Hotel Carriage Entrance, Circa 1880s. The trolleys on Market Street were motorized with electric engines.

The original Palace Hotel was destroyed by fire following the San Francisco earthquake in 1906. It was rebuilt and opened for occupancy on April 20, 1909. Sadly, the remaining

bricks and debris was transported to the Marina and used to fill-in the bay for further development.

Palace Hotel Ruins, 1906

K

University of California School of Medicine

First Class Reunion at the Palace Hotel, 1896.

UCSF School of Medicine, Graduation Class, 1886
https://digital.library.ucsf.edu/archive

From the limited number of archival records available, the photo illustrated above was obtained of the celebration at the Palace Hotel in 1896. Shown are 4 female doctors at the 10th Reunion of the ***Class of 1886***. No other records were found listing their names or medical specialties of this elegant group of men and women physicians. The graduating class was the guest of the University of California Alumni Association.

Not only did the graduating doctors know how to dress in the most fashionable attire, but also they were gourmands and knew how to dine with sophistication. They feasted at this sumptuous banquet upon caviar, hors oeuvres, Coquille and Cresta Blanca wine. There were bass, lamb, veal and chicken entrées with a Claret wine served with all the trimmings. Desert included fresh fruit, petit fours, biscuit tortoni and black coffee. In keeping with the elegance of the occasion, the menu was printed in French. The only item missing from the menu were Havana's best cigars. I hope that those fine gentlemen offered the ladies a cigar… Trés chic!

BANQUET GIVEN TO THE

Graduating Class of 1896.

BY THE

ALUMNI ASSOCIATION

WITH THE COOPERATION OF THE

FACULTY OF THE MEDICAL DEPARTMENT

OF THE

UNIVERSITY OF CALIFORNIA.

MENU

Huitres · de · Californie · sur · Coquille

Windsor á · l'Anglaise.

Caviar · sur · Canape. Olives. Radis. Saucisson.

Amandes · Salées.

CRESTA BLANCA.

Grenadine de Boss · Royée. Hermande.

Pommes de Terre · á · la · West End

Quartier d'Agneau · Renaissance.

Croustade · de Ris · de · Veau · á l'Impérial.

Punch · Parfait · Amour

EVERETT RANCH CLARET.

Poulet · Roti · au · Jus

Salade · Romaine · aux · Tomates · Mayonnaise

Pois · Nouveaux · Choufleur · au · Gratin · Florentine.

Biscuit · Tortoni

Petits · Fours

Dessert. Fruit.

Café · Noir.

Palace Hotel.
Jeudi, le 21 Mai, 1896.

Palace Hotel, San Francisco 2012

Market Street Entrance, Palace Hotel

Garden Room Dining, Palace Hotel

UCSF School of Medicine
Gender Trends: 1864-2012

Robert S. Sherins, MD
July 24, 2013

Data excerpted from the UCSF School of Medicine enrollment/graduation records revealed exceptional information regarding the gender trends of the School of Medicine.

In 2014, UCSF will celebrate the Sequa-Centennial anniversary of the School of Medicine. In the 1920s, the U.C. Regents determined that the official date of origin of the School of Medicine would be 1864 – the date of origin of Toland Medical College in San Francisco. In 1873, Dr. Hugh Toland gifted the Medical College, which included faculty, students and property, to the Regents of the University of California, then called the ***U.C. Medical Department***. The facilities were located downtown near the SF Embarcadero and across the street from the San Francisco City and County Hospital at Stockton and Francisco Streets.

- UCSF School of Medicine graduates, 1864 -2012:
  - Total 10,916
  - Men 7557
  - Female 3559

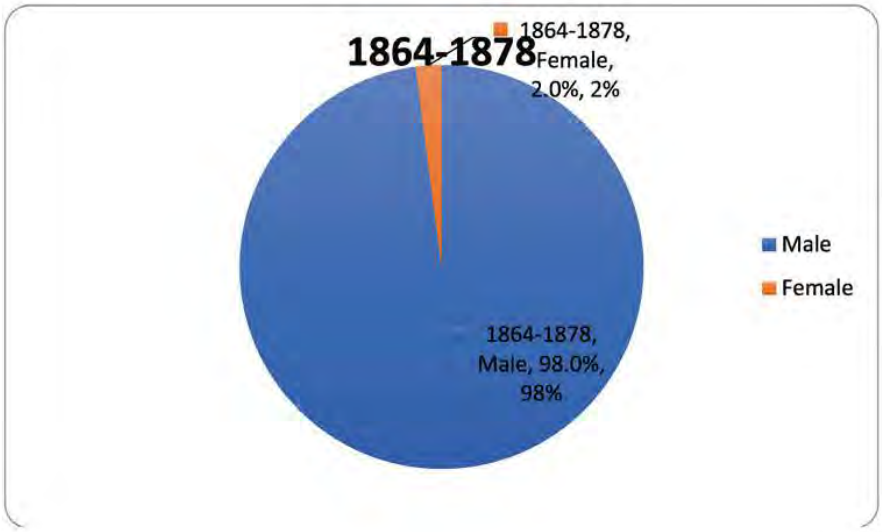
- UCSF School of Medicine graduates, first 15-years,1864-1878:
  - Total 98
  - Men 96
  - Women 2

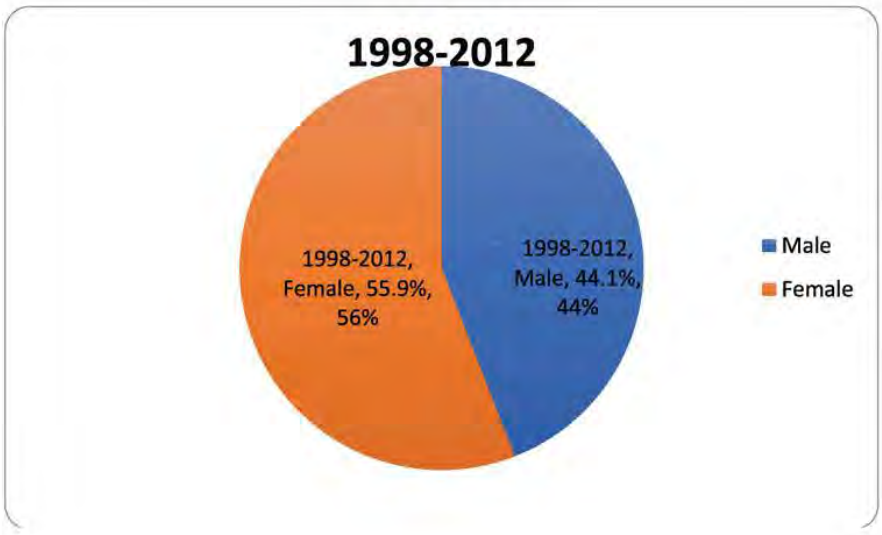
- UCSF School of Medicine graduates, most recent 15-years, 1998-2012
  - Total 2591
  - Men 1143
  - Women 1448

The following data and graphics show the calculations and ratios of the men and women at UCSF School of Medicine.

Group	Percent	Number Graduates 1864-2012
Total	100.00%	10916
Male	69.23%	7557
Female	30.77%	3359
		1998-2012
Total	100.00%	2591
	1998-2012	

Male	44.1%	1143
Female	55.9%	1448
		1864-1878
Total	100.00%	98
	1864-1878	
Male	98.0%	96
Female	2.0%	2





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My calculations from this data showed the important trends:

- oK Pioneer women graduates of the UCSF School of Medicine gained professional status 5-decades before women received the right to vote in America (19th Amendment to the US Constitution August 18, 1920).

- oK Comparing the first 15-years (1864-1878) to the last 15-years (1998-2012) at the UCSF School of Medicine, demonstrated a remarkable gain in equality of female admissions. In fact, female graduates in the most recent 15-year period exceeded males by 27% (female = 1448; male = 1143).

Robert S. Sherins, MD
UCSF School of Medicine, Class of 1963

Bridget Biddy Mason

Former Slave
Attained California Real Estate Wealth
Nurse, Mid-Wife, Assisted Dr. John Griffin, Los Angeles
Attended Shooting Victim James King, San Francisco

From Slave to Millionaire Philanthropist: The Biddy Mason Story

BY DAVE ROOS FEB 1, 2019

As a slave, Biddy Mason trekked 1,600 miles on foot across the U.S. while herding livestock and nursing a baby. JUNKYARDSPARKLE/WIKIMEDIA/HOWSTUFFWORKS

On Aug. 15, 1818, a baby girl named Bridget was born into slavery in Georgia. She was sold as an infant to new masters who called her Biddy. When Biddy turned 18, she was presented as a wedding gift to Robert Marion Smith and his wife Rebecca in Mississippi. This was the life of an enslaved black woman in the Deep South. She was property to be bought, sold, punished and even violated if the master so pleased.

But Biddy's story is different. It's the story of a strong and humble woman who endured terrific hardships before bravely fighting for her family's freedom and winning. Biddy's story takes us from the muggy cotton fields of Mississippi to the frontier boomtown of Los Angeles, where Biddy becomes one of the city's most sought-after midwives and parlays her earnings into a small real-estate empire.

But before we arrive at that happy ending, there are decades of degradation to endure and thousands of miles of country to cross. In Mississippi, Biddy lived the typical life of a slave woman. She was expected to labor in the cotton fields, but also assist in the home, primarily as a midwife during the births of Rebecca Smith's six children. Biddy likely learned the duties of a midwife — which included the use of medicinal herbs and basic nursing skills — from fellow slaves steeped in traditional knowledge.

Robert Smith was an early convert to the fledgling Mormon faith and in 1847 decided to relocate his family, including his slaves, to the Utah Territory. By this time, Biddy had three daughters of her own. While the Smith family traveled in wagons and on horseback, Biddy walked behind, tending the livestock. For seven months, she trekked the 1,600 miles (2,754 kilometers) from Mississippi to Utah with her 10-year-old daughter, 4-year-old daughter and an infant on her breast.

The Smiths stayed only a few short years in Salt Lake City before setting out for San Bernardino, California, in 1851 where the Mormon church was building a missionary outpost. California was the newest state in the Union, admitted in 1850 as a free state. The California Constitution was rare in its powerful denunciation of slavery, promising, "Neither slavery nor involuntary servitude unless for the punishment of crimes shall ever be tolerated in this state." During her time there, Biddy befriended other free blacks who told her about this law, although she seems to have been unsure as to whether it applied to her as she continued to serve the Smith family.

Enter the Cavalry

Nervous that the authorities would try to take away his 14 slaves, Smith moved his family and slaves to an encampment in the Santa Monica Mountains and planned an escape to slavery-friendly Texas.

But a cavalry led by Robert Owens, a black *vaquero* who owned several stables in Los Angeles, tracked Smith down and the local sheriff presented a writ of *habeas corpus* demanding that Biddy and her fellow slaves be released. Smith fought the decree and the case ended up in front of Judge Benjamin Hayes of the First District Court in Los Angeles.

Even with California's strong anti-slavery stance, the law was very much in favor of whites over blacks and other people of color. In fact, it was illegal for a person of color to testify against a white person in court. And Smith had bribed Biddy's lawyer not to

appear in court. Despite these unfavorable conditions, Judge Hayes took a particular interest in Biddy's case and met in private with Biddy and other Smith slaves to hear their side of the story.

A shot of Biddy Mason Park in Los Angeles on Spring Street.
JIM WINSTEAD/FLCKR/CC BY 2.0

Rather than accepting Smith's claims that the slave women and children were "members of his family" who left Mississippi on their own consent, Judge Hayes chose to believe Biddy, who confessed that she was terribly afraid to be taken to Texas. In a landmark decision heralded in California newspapers, Judge Hayes wrote that "all of the said persons of color are entitled to their freedom and are free forever."

Historian Dolores Hayden writes that Biddy's decision to stand up to Smith was an act of profound bravery.

To understand Biddy's courage in going to court against her master, it is first necessary to think of her lifetime in Mississippi, her complete immersion in the culture of the southern plantation, where physical torments such as whipping and being hosed down in brine would have been common punishment for both male and female slaves' minor infractions ... Any slave's loved ones could be put on the block — husband, wife, child — and sold, never to be seen again. In this context, all slaves' courage in risking a public test of white men's justice is striking.

Wealth and Service

One of the first things Biddy did as a free woman was choose a last name for herself. For the rest of her life, she was known as Biddy Mason. She and her daughters lived alongside the Owens family, who continued to be a terrific support and close friends. With the press coverage from the court case, Mason caught the attention of Dr. John Strother Griffin, a prominent white physician who offered her work as a midwife. Mason also acted as a nurse to inmates in the county jail.

A shot of Biddy Mason Park in Los Angeles on Spring Street.
JIM WINSTEAD/FLCKR/CC BY 2.0

With her decades of experience, she soon became one of the most in-demand midwives in Los Angeles, catering to the needs of both wealthy residents and impoverished new arrivals. After saving for 10 years, she followed the examples of Robert Owens and Dr. Griffin, both real estate investors, and bought a piece of land on the outskirts of town among the vineyards and orange groves.

Her homestead on Spring Street would become a refuge, not only for her growing family, but for all Los Angelenos in need of a helping hand. As she slowly amassed more wealth with investment properties, Mason freely gave to community members in need. In 1872, the First African Methodist Episcopal Church was organized in her living room and she put up the funds to pay the minister and pay the church's property taxes.

(The church now has 19,000 members.) In 1884, after flash flooding destroyed homes across Los Angeles, Mason opened a tab at the Spring Street grocery store and instructed the owners to provide free food to anyone who needed it, black or white.

As she grew older, she became lovingly known as "Auntie Biddy" or "Grandma Mason" throughout Los Angeles. By the time of her death in 1891 at age 73, she had amassed a fortune of $300,000(more than $8 million in 2019 dollars), which, as we saw earlier, she generously used to help others.

"If you hold your hand closed, nothing good can come in," Biddy Mason famously said. "The open hand is blessed, for it gives in abundance even as it receives."

Is that Biddy Mason in a UCSF Toland Hall fresco?

By Laura Voisin George

I first saw a photo of this mural during my Ph.D. research on U.S. Army Surgeon John S. Griffin. This remarkable scene shows Dr. Griffin being assisted by a black woman as he treats a soldier with malaria. While additional archival sleuthing is needed to definitively identify her, the assistant appears to be Biddy Mason. Beginning in 1856, she was employed in Dr. Griffin's civilian medical practice as a nurse, as well as being a renowned midwife and an expert in herbal medicines.

The image is one of ten frescoes on the walls of the Toland Hall auditorium, located on the Parnassus campus of the University of California, San Francisco. (A mural is an image painted on a wall or ceiling, while "fresco" refers to the technique of painting on wet plaster.) Together, the Toland Hall murals portray the history and development of medicine in California, from the healing practices of indigenous peoples through the first decades of the twentieth century. Toland Hall was built in 1917, and the murals were created between 1936 and 1938, with funding from the Federal Art Project, part of the WPA.

In 1934, at the height of the Great Depression, a group of San Francisco artists had lobbied for murals depicting contemporary San Francisco life on the recently-constructed Coit Tower. One of the artists who organized this local Public Works of Art Project, was Bernard Zakheim. Another Zakheim fresco, "Community Spirit" at the Alemany Health Center, inspired UCSF professor of pathology Isabella Perry to recommend the commissioning of Zakheim to paint murals in Toland Hall; this proposal was championed by UCSF professor (and medical historian) Chauncey Leake. Zakheim, a Jewish native of Poland, had been a prisoner of war during WW I and sought political asylum in the U.S., moving to San Francisco in 1920. Ten years later he met Diego Rivera, who – after creating

a series of large-scale public murals in post-Revolution Mexico City – painted a number of murals in San Francisco in the early 1930s. Zakheim subsequently studied with Rivera in Mexico, and also in Paris.

Zakheim was assisted in the Toland Hall frescos by the artist Phyllis Wrightson, whose sketchbook for the project captures her extensive research into California's medical history. In part, she relied on Henry Harris' *California's Medical Story* (1932). Wrightson also designed some of the details in the murals, transferred them to the auditorium walls prior to the application of the plaster, and did some of the painting.

But the murals were controversial. Zakheim's Social Realism style and left-leaning politics led to protests about the murals (as well as faculty comments that the murals distracted students from lectures in the auditorium). Following Dr. Leake's departure from UCSF in 1942, the murals were covered with wallpaper, which was subsequently painted. Leake returned to the campus in 1962 and worked to have the murals uncovered; they were restored in the mid-1970s by Zakheim's son Nathan.

Zakheim's description of the murals, particularly of the panel of the history of medicine in 1840s-1860s Southern California with Dr. Griffin and the African-American woman, did not mention Biddy Mason. So how and why was she included? A tantalizing clue is that George D. Lyman was among the collaborative team of UCSF doctors involved in the Toland Hall murals. Dr. Lyman wrote the "Foreword" of *A Doctor Comes to California: The Diary of John S. Griffin, Assistant Surgeon with Kearny's Dragoons, 1846-47*, which was edited by George Ames and published in 1943. Lyman served as the President of the California Historical Society and he had an extensive private collection of historical sources. Although Dr. Griffin's diary only extends to 1847, Lyman may have done further research about him, including Griffin's post-1856 collaboration with Biddy Mason. The photograph of this panel that I first saw is included in the first of Viola Lockhart Warren's

1954-1955 series of articles about "Dr. John S. Griffin's Mail, 1846-1853." Warren's work (after Lyman's death in 1949) is the most extensive biography of Dr. Griffin to date, and she refers to "Bitty Mason" assisting him by providing nursing care to new mothers. Warren was a lecturer in medical history at the University of California, Los Angeles from 1953 to 1958, and she was the wife of Dr. Stafford L. Warren. They both received their bachelor's degrees at U.C. Berkeley in 1918 and married in 1920. Stafford went on to complete a medical degree at UCSF in 1922 and he was named the first dean of the UCLA Medical School beginning in 1947. Viola Lockhart Warren's later research about Griffin suggests that the Warrens knew Dr. Lyman – and that Biddy's identity (if not the correct spelling of her name!) was known among the doctors involved with the Toland Hall murals in the 1930s. This awareness of Biddy's importance to medical history likely led to her inclusion in the mural.

Once COVID-19 restrictions allow libraries and archives to re-open, perhaps Phyllis Wrightson's sketchbook for the Toland Hall murals in UCSF Special Collections will confirm that the name of the woman portrayed assisting Dr. Griffin is indeed Biddy Mason. Yet even if there is no further information there, the documentation of Biddy Mason's work with Griffin and the connections among the doctors and lecturers consulting on the UCSF murals who were familiar with it, make a case for this being a representation of Biddy's role in the development of medicine in 1850s and 1860s Los Angeles.

Sources

Allen J. Balderson, "Memorial Service for Artist Bernard Zakheim at UC-San Francisco, January 21," University of California San Francisco News/Public Information Services, published online, https://books.google.com/books?id=n_c2AQAAMAAJ&pg=RA1-PA11&lpg=RA1-PA11&dq=alemany+public+health+center+zakheim&source=bl&ots=pQF0rQ1m0h&sig=ACfU3U0qx-rTznDIqTv0o4BKVkYwg8eUvw&hl=en&sa=X&ved=2ahUKEwiazsDXk5nqAhWTJzQI

HQ6FCF8Q6AEwA3oECAoQAQ#v=onepage&q=alemany%20public%20health%20center%20zakheim&f=false, accessed June 23, 2020.

"Bernard Baruch Zakheim" record, Bernard Zakheim Collection, 1902-2010, UCSF Library, https://ucsfcat.library.ucsf.edu/search~S0/?searchtype=t&searcharg=bernard+zakheim+&SORT=D&extended=0&SUBMIT=Search&searchlimits=&searchorigarg=tzakheim+bernard, accessed June 23, 2020.

"Diego Rivera," *Encyclopaedia Britannica*, published online by Encyclopaedia Britannica, https://www.britannica.com/biography/Diego-Rivera, accessed June 23, 2020.

Polina Ilieva, "Recent Acquisition: Bernard Zakheim Collection," published online by Brought to Light, UCSF Archives & Special Collections, https://blogs.library.ucsf.edu/broughttolight/2015/02/24/recent-acquisition-bernard-zakheim-collection/, accessed June 23, 2020.

Chauncey Leake, "Toland Hall mural tour by Chauncey Leake" video recording, 1976, published online by University of California, San Francisco, https://archive.org/details/cum_000015, accessed June 23, 2020.

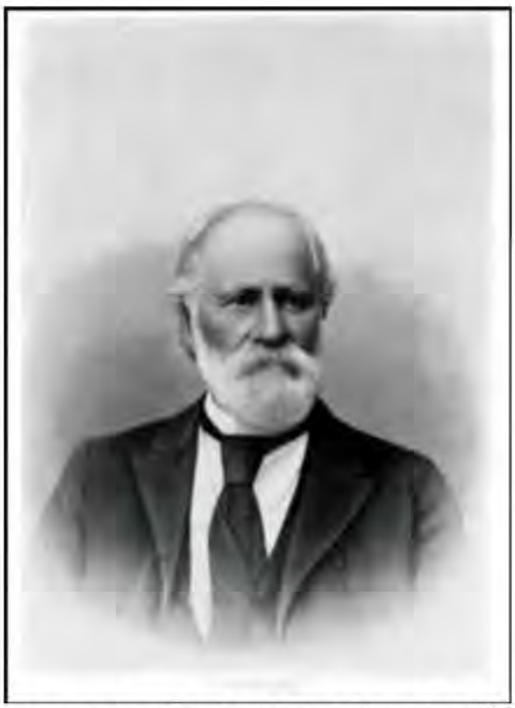
Robert Schindler, "Toland Hall Murals: An Oral History" video recording, 1996, published online by University of California, San Francisco, https://archive.org/details/cum_00001, accessed June 23, 2020.

Jean Shiffman, "Restoration of Coit Tower's Murals: SF's Monument to the Fresco," published online by San Francisco Travel, https://www.sftravel.com/article/restoration-coit-tower-murals-sf%E2%80%99s-monument-fresco, accessed June 23, 2020.

Robert S. Sherins and Bernard Zakheim, *History of Medicine in California, Articulated in Frescoes: The Story Behind the Murals of Toland Hall*, UCSF, manuscript published online, http://robertssherinsmd.com/files/books/7-Toland%20Manuscript.4.pdf, accessed June 23, 2020.

Viola Lockhart Warren, "Foreign Doctors in the Pueblo of Los Angeles," *The Historical Society of Southern California Quarterly*, Vol. 34, No. 4 (December 1952), 309-326.

John S. Griffin, MD



Portrait of John S. Griffin, MD[14]

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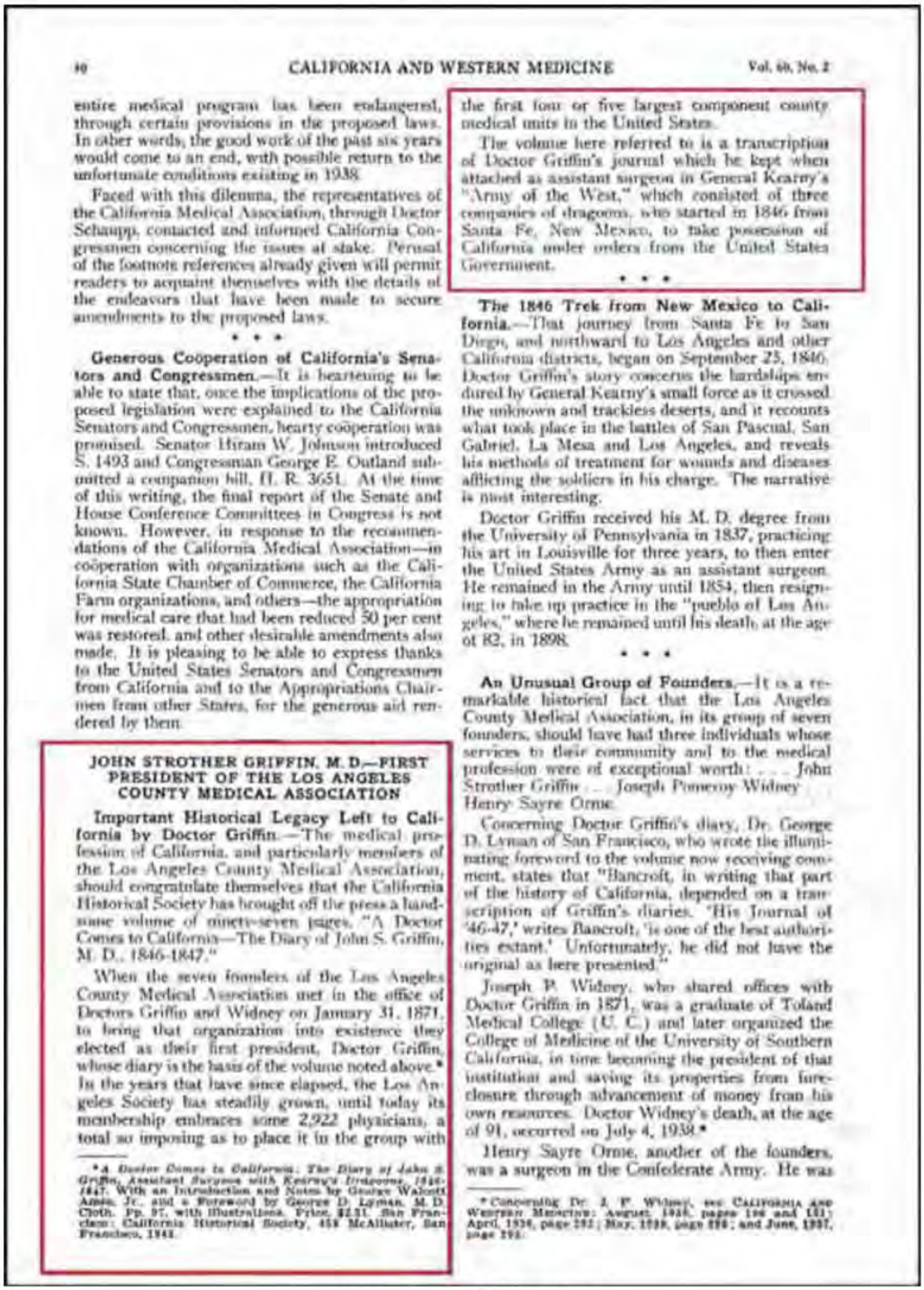

entire medical program has been endangered, through certain provisions in the proposed laws. In other words, the good work of the past six years would come to an end, with possible return to the unfortunate conditions existing in 1938.

Faced with this dilemma, the representatives of the California Medical Association, through Doctor Schaupp, contacted and informed California Congressmen concerning the issues at stake. Perusal of the footnote references already given will permit readers to acquaint themselves with the details of the endeavors that have been made to secure amendments to the proposed laws.

* * *

Generous Cooperation of California's Senators and Congressmen.—It is heartening to be able to state that, once the implications of the proposed legislation were explained to the California Senators and Congressmen, hearty cooperation was promised. Senator Hiram W. Johnson introduced S. 1493 and Congressman George E. Outland submitted a companion bill, H. R. 3651. At the time of this writing, the final report of the Senate and House Conference Committees in Congress is not known. However, in response to the recommendations of the California Medical Association—in cooperation with organizations such as the California State Chamber of Commerce, the California Farm organizations, and others—the appropriation for medical care that had been reduced 50 per cent was restored, and other desirable amendments also made. It is pleasing to be able to express thanks to the United States Senators and Congressmen from California and to the Appropriations Chairmen from other States, for the generous aid rendered by them.

JOHN STROTHER GRIFFIN, M. D.—FIRST PRESIDENT OF THE LOS ANGELES COUNTY MEDICAL ASSOCIATION

Important Historical Legacy Left to California by Doctor Griffin.—The medical profession of California, and particularly members of the Los Angeles County Medical Association, should congratulate themselves that the California Historical Society has brought off the press a handsome volume of ninety-seven pages, "A Doctor Comes to California—The Diary of John S. Griffin, M. D., 1846-1847."

When the seven founders of the Los Angeles County Medical Association met in the office of Doctors Griffin and Widney on January 31, 1871, to bring that organization into existence they elected as their first president, Doctor Griffin, whose diary is the basis of the volume noted above.* In the years that have since elapsed, the Los Angeles Society has steadily grown, until today its membership embraces some 2,922 physicians, a total so imposing as to place it in the group with the first four or five largest component county medical units in the United States.

The volume here referred to is a transcription of Doctor Griffin's journal which he kept when attached as assistant surgeon in General Kearny's "Army of the West," which consisted of three companies of dragoons, who started in 1846 from Santa Fe, New Mexico, to take possession of California under orders from the United States Government.

* * *

The 1846 Trek from New Mexico to California.—That journey from Santa Fe to San Diego, and northward to Los Angeles and other California districts, began on September 25, 1846. Doctor Griffin's story concerns the hardships endured by General Kearny's small force as it crossed the unknown and trackless deserts, and it recounts what took place in the battles of San Pascual, San Gabriel, La Mesa and Los Angeles, and reveals his methods of treatment for wounds and diseases afflicting the soldiers in his charge. The narrative is most interesting.

Doctor Griffin received his M. D. degree from the University of Pennsylvania in 1837, practicing his art in Louisville for three years, to then enter the United States Army as an assistant surgeon. He remained in the Army until 1854, then resigning to take up practice in the "pueblo of Los Angeles," where he remained until his death, at the age of 82, in 1898.

* * *

An Unusual Group of Founders.—It is a remarkable historical fact that the Los Angeles County Medical Association, in its group of seven founders, should have had three individuals whose services to their community and to the medical profession were of exceptional worth: . . . John Strother Griffin . . . Joseph Pomeroy Widney . . . Henry Sayre Orme.

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* Concerning Dr. J. P. Widney, see CALIFORNIA AND WESTERN MEDICINE: August, 1918, pages 106 and 111; April, 1926, page 293; May, 1938, page 396; and June, 1938, page 493.

John S. Griffin, MD
First President Los Angeles County Medical Association[15]

[15] California and Western Medicine, Vol. 60, No 2.

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Faced with this dilemma, the representatives of the California Medical Association, through Doctor Schaupp, contacted and informed California Congressmen concerning the issues at stake. Perusal of the footnote references already given will permit readers to acquaint themselves with the details of the endeavors that have been made to secure amendments to the proposed laws.

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Generous Coöperation of California's Senators and Congressmen.—It is heartening to be able to state that, once the implications of the proposed legislation were explained to the California Senators and Congressmen, hearty coöperation was promised. Senator Hiram W. Johnson introduced S. 1493 and Congressman George E. Outland submitted a companion bill, H. R. 3651. At the time of this writing, the final report of the Senate and House Conference Committees in Congress is not known. However, in response to the recommendations of the California Medical Association—in coöperation with organizations such as the California State Chamber of Commerce, the California Farm organizations, and others—the appropriation for medical care that had been reduced 50 per cent was restored, and other desirable amendments also made. It is pleasing to be able to express thanks to the United States Senators and Congressmen from California and to the Appropriations Chairmen from other States, for the generous aid rendered by them.

JOHN STROTHER GRIFFIN, M. D.—FIRST PRESIDENT OF THE LOS ANGELES COUNTY MEDICAL ASSOCIATION

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John S. Griffin, MD
Trek From New Mexico, 1846[16]

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president of the California State Board of Public Health, and in 1878 had the honor of being the first physician from Southern California to be elected president of the Medical Society of the State of California. The next two presidents from the southern section of California were Dr. Walter Lindley in 1888, and Dr. William LeMoyne Wills in 1895. These notations are given to indicate that in the last half of the preceding century the Medical Society of the State of California—our present State Association—secured its members and officers largely from counties north of the Tehachapi; the Southern California Medical Society of that period filling a somewhat similar rôle in the southern section of the State.

These comments are made here to remind the three thousand members of the Los Angeles County Medical Association concerning the high character and achievements of the physicians who brought their Society into existence.

EDITORIAL COMMENT[1]

ACQUIRED HEPATIC SENSITIVITY

Clinically suggestive new data regarding the topographical distribution of specific antibodies and related local anaphylactic phenomena are reported by De Gara and Angevine[1] of the Department of Pathology, Cornell University.

The New York pathologists first studied the presumptive origin and topographical distribution of specific antibodies resulting from intracutaneous injections of nonviable Streptococcus hemolyticus or Type I Pneumococcus in rabbits, these two vaccines being selected largely because they had been previously neglected in similar studies. Within five to twelve days following a single intracutaneus injection of these vaccines, both specific agglutinins and specific precipitins were detected in relatively high titer in extracts from the site of the injection, from the regional lymph nodes, and from the spleen, bone marrow, and liver. During this time the serum titer usually remained negative. Two to three weeks later, however, the titers of the blood serum and organ extracts became practically identical. After the fourth week, the serum titer decreased more rapidly than the titer of the tissue extracts. The spleen, liver, and bone marrow yielded relatively high titer extracts long after the blood stream had become negative. During all this time extracts from the kidney, anterior wall of the stomach (smooth muscle), and noninjected parts of the skin remained of negligible titer.

From this evidence the Cornell investigators concluded that specific antibacterial antibodies are formed mainly or solely in the locally injected skin area, regional lymph nodes, spleen, liver, and bone marrow. The fact that macrophages accumulate in these parts gave plausibility to their belief that macrophages are the cells mainly responsible for local fixation of bacterial antigens and local antibody formation.

De Gara emphasizes the bearing of these data on current theories of acquired regional sensitivity. The degree of sensitivity of the injected skin for example was estimated from the diameter and height of the local wheal resulting from intracutaneous injection of 0.1 cubic centimeter of homologous vaccine. Under nembutal-ether anesthesia, similar quantitative tests were made with the exposed liver, spleen kidney, and anterior wall of the stomach, the apparent severity of the resultant local anaphylactic reaction being confirmed by histological methods. De Gara was able to demonstrate no correlation between local tissue sensitivity and serum titer, strong reactions occurring both in the presence and absence of circulating antibodies. Moreover, there was no correlation between skin sensitivity and the severity of the local hepatic anaphylaxis, necrotizing hepatic reactions occurring in many rabbits whose skin was entirely negative.

This hepatic sensitivity is reminiscent of the experimental focal necroses of the liver reported by Hartley and Lushbaugh.[2] Hartley found that crystalline egg albumin injected into the mesenteric vein of rabbits previously sensitized to egg albumin caused massive areas of coagulative necrosis of the liver, presumably due to local antigen-antibody reactions. De Gara found that after the thirty-second day specific antibodies could not be detected in extracts from hypersensitive livers. During the later stages of sensitivity, locally formed hepatic antibodies are apparently not readily dissociated from the hypersensitive hepatic cells.

Whether or not the early dissociable and late nondissociable parenchymatous antibodies are otherwise identical has not yet been determined.

P. O. Box 31.

W. H. Manwaring,
Stanford University.

REFERENCES

1. De Gara, P. F., and Angevine, D. M.: Jour. Exp. Med., 78:27, 135, 1943.

2. Hartley, G., and Lushbaugh, C. C.: Amer. Jour. Path., 18:323, 1942.

REFRACTORY BACTERIA IN HOUSE DUST

That bacteria in house dust are often refractory to germicidal vapors is currently reported by Puck[1] and his co-workers of the Department of Medicine, University of Chicago.

Following the successful air-borne transmission of streptococci, staphylococci, H. influenzae and influenza virus to laboratory animals, a method of preventing air-borne infections by the use of sodium hypochlorite mists was proposed by Trillat.[2] Puluertaft[3] afterward suggested the use of certain resorcinol mists, which he found equally effective

[1] This department of California and Western Medicine presents editorial comments by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to all members of the California Medical Association to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

John S. Griffin, MD
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[18] California and Western Medicine, Vol. 60, No 2.

History UCSF School of Medicine Chaptered Vignettes[19]

Kalmanovitz Library Archives & Special Collections

Research Resource

[19] www.history.library.ucsf.edu

A History of UCSF

1868–1898 The Origins of the University of California and Affiiated Colleges

Introduction

The story of UCSF's nineteenth-century beginnings provides a distinct contrast to more conventional accounts of the development of America's health professions in the long-established medical centers of the East and Midwest. This is especially true in light of its early development in Gold Rush San Francisco, which in five decades developed from an isolated village into a heterogeneous American metropolis of more than 300,000 inhabitants. San Francisco's founding decade of the 1850s was marked by the arrival of hordes of immigrant gold seekers of many

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A History of UCSF

1919–1939 The Formation of Schools and the Rise of Clinical Science Instruction

Strengthening Clinical and Science Instruction at Parnassus

William J. Kerr, LeRoy Briggs, Harold Brunn

In 1937, John Saunders became chair of the Anatomy Department and continued his role as a popular instructor and authority on the history of anatomy.

Clinical training expanded under the tutelage of full-time chair in Medicine William J. Kerr, a Harvard trained physician with a strong

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1919–1939 The Formation of Schools and the Rise of Clinical Science Instruction

Debates over Medical Education

In the postwar years, as the nursing school flourished and strengthened its ties with Berkeley academics, university and medical school officials again turned their attention to the problem of the split medical school. Their interest was prompted by rumors that the General Education Board, an organization backed by Rockefeller philanthropy and committed to rebuilding American medical education, wished to endow a school of public hygiene at Berkeley, on par with those already created and endowed at Johns Hopkins and Harvard. As part of this plan, they indicated that they would financially assist the UC Medical School in upgrading instruction and reconsolidation. The main requirement of the Rockefeller donors, however, was that the UC Medical School be relocated at Berkeley in close proximity to established academic programs in anatomy, bacteriology, immunology, and biochemistry.

In 1920, University President David P. Barrows, who was anxious to meet the criteria for this potential multi-million dollar donation, traveled east to speak with the Rockefeller board members in person. In consultation with Abraham

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1940–1958 The Growth of Organized Research and Consolidation of the Parnassus Campus

Wartime and New Opportunities

Langley Porter Clinic, 1942

The quickening of the American economy that came with war in Europe and then Pearl Harbor began to alter the status quo at the San Francisco campus, and the first signs of change occurred at the state level. As early as 1937, while the nation was still in the grip of the Depression, Dean Langley Porter began a campaign to cooperate with the State Department of Mental Hygiene to build a psychiatric hospital on land belonging to the university at the Parnassus campus. State officials, concerned with indigents and migrants flocking to California, were persuaded that a state acute psychiatric hospital was necessary.

Dean Porter wisely proposed to operate the facility jointly with the state, thereby obtaining psychiatric teaching beds for the medical school. After long negotiations, the state and the UC Regents reached agreement, and a cornerstone was laid in 1941, a symbol, according to local

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Special Topics

CURRICULUM REFORM: A COMPARATIVE CHRONOLOGY OF UCSF IN THE CONTEXT OF NATIONAL REFORMS by Nancy Rockafellar

1860s: The Proprietary Years
1870s: University Affiliation
1880s: Innovations and Accountability through Exams
1890s: Bacteriology and the Advent of Laboratory Instruction
1900s: Full-time Instruction in Preclinical Sciences
1910: The Flexner Report Provides Momentum for Reform

1860s: The Proprietary Years

In 1846 the first National Medical Convention (forerunner of the American Medical Association) convened to study American medical education. At this time, all medical schools, even those connected with Harvard University and the University of Pennsylvania, were proprietary, relying upon student fees for faculty salaries and overhead costs. At mid-century all that was needed to open a school was an interested group of potential lecturers and a suitable lecture hall. The National Medical Convention recommended that proprietary schools admit only those who had completed a satisfactory apprenticeship with a practitioner, require two terms of courses taught by at least seven different professors, and provide three months of dissecting work.

In San Francisco, on November 5, 1864, Toland Medical College joined the ranks of the hundred or so proprietary medical schools in the nation, opening its doors and offering instruction to a class of eight students.

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R. BEVERLY COLE (1829-1901)

Richard Beverly Cole was born in Manchester, Virginia in 1829. His family moved to Philadelphia soon thereafter. His early education took place at Delaware Collegiate Institute. At the early age of sixteen, Cole began the study of medicine under the preceptorship of Professor Benjamin Dudley of Kentucky. His medical education continued at Transylvania University at Louisville. After one year, Cole transferred to Jefferson Medical College in Philadelphia from which he graduated in 1849. Cole may have chosen his specialty because of his famed professor of obstetrics, Charles D. Meigs. His graduation thesis discussed the controversial use of ether anesthesia in surgery.

He married Eugenie Bonaffon in Philadelphia in 1848. They had five children; all but two daughters died in infancy. At the age of twenty, Cole was in charge of the Pine Street Cholera Hospital where he saw more than 3,000 cases of cholera. He practiced three years in Philadelphia.

Cole was advised for health reasons to move to California. He did so during the "gold rush" period, sailing to a Panama crossing, then arriving in San Francisco aboard the steamship Cherokee in 1852. At the age of twenty-three, he was an accomplished surgeon, and San Francisco's first practitioner of the new specialty of obstetrics. Cole had performed

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People

HUGH HUGER TOLAND (1806-1880)

Hugh Huger Toland was born April 16, 1806, the son of a South Carolina planter and banker. At age sixteen he "read" medicine and worked in the local apothecary shop with a town doctor. He entered medical school at Transylvania University at Lexington Kentucky, graduating in 1828, first in a class of 160. Following graduation he became "circuit medical rider" until he could afford to continue his surgical training. In 1832 he traveled to Paris for postgraduate study at the Salpetriere. Oliver Wendell Holmes was among Toland's fellow American physicians studying at the prestigious Paris school. In 1833 Toland returned to Columbia, South Carolina, where he began a highly successful surgical practice, reportedly earning as much as $15,000 per year. The lure of California caught hold of Toland and in 1852, at the age of forty six, he left Independence, Missouri, for California, making the trip in a few months. He set up a quartz mill on a claim at Mokelumne Hill in Calaveras County, but his wife died a few days after their arrival, and after only a few weeks of unsuccessful mining he moved on to the more populous San Francisco to set up a medical practice.

Toland located his office near the waterfront at Montgomery and Merchant Streets and soon became the city's foremost surgeon. He

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1868–1898 The Origins of the University of California and Affiliated Colleges

San Francisco's First Medical Institutions: Hospitals and Pesthouses

Well before individual practitioners succeeded in organizing themselves into professional societies, the needs of the public's health prompted official government action on behalf of the San Francisco citizens. The task of removing the seriously ill or indigent from the streets and the threat of major epidemics prompted the city to provide for hospital care, first in tents and board sheds under supervision of contracting physicians. In 1850 a state bill appropriated $50,000 to build a State Marine Hospital in San Francisco.

U.S. Marine Hospital, created by Congress and built in 1852

Meanwhile, in 1851 the U.S. Congress created a U.S. Marine Hospital in San Francisco, which was completed in 1853 and provided accommodations for an additional 500 patients. In 1855 the State Marine Hospital building was transformed into the City and County Hospital of

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1868–1898 The Origins of the University of California and Affiliated Colleges

Building the Parnassus Campus

View of Cole Valley looking east from Parnassus in 1892.

By the mid 1890s, as the content of medical science expanded, faculty and trustees of the three colleges were concerned, for, despite the fact that they were affiliated in name, their teaching facilities were scattered throughout the city, and the schools were rapidly running out of room to expand. In 1893 the Medical College Dean Robert McLean complained to the UC President that Toland Medical Building "has become unfit for the teaching of modern medicine." The President in turn reported to the Governor that "the professional colleges in SF are still suffering for want of suitable accommodations…[they] are better housed and equipped than three years ago, but ask for ampler rooms." In his 1893 report, Medical College Dean Robert McClean appealed to the UC President and the Regents, asking for support for a building for all the colleges, declaring that "Its influence upon the esprit de corps of the Faculties of the various affiliated colleges upon the university as a whole and upon the public at large could not be overestimated." A committee comprised of faculty and

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Growth of the Affiliated Colleges

The 1880s marked a period of growth and transition for all three affiliated colleges. The foremost feature of this change was the move towards more elaborate clinical and laboratory instruction. Although UC President Daniel Coit Gilman left for Baltimore in 1875, his legacy was reflected in the educational tone of the University of California's affiliated colleges throughout the nineteenth century. Gilman had urged that medical training include "the habits of observation, manipulation, and reasoning," and over the next two decades, the three affiliated colleges developed curriculum that gradually reduced the number of didactic lectures and stressed direct clinical experience. Laboratory instruction expanded as wet preparations and vivisection were added to the physiology courses, the use of surgical tools was demonstrated on cadavers, and quantitative and qualitative chemical analysis were taught in all three colleges. Dental, medical, and

Closeup of Toland Medical Building; the three story City County Hospital is on the right. The hospital moved to its Portrero site in 1872, making clinical training more difficult for students who had to travel four miles for clinical sessions.

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Beginnings of Fulltime Academic Chairs

An imposing view of the completed Affiliated Colleges from Golden Gate Park, photographed in 1904.

The Affiliated Colleges faculty had no sooner moved into their new quarters on Parnassus Avenue in late 1898 when it became apparent that changes in the content and form of professional education would require changes in intellectual geography and architecture. The first move toward significant structural change came from Arnold D'Ancona, a former physiology professor who became Dean of the Medical Department in 1899. With the cooperation of UC President Benjamin Ide Wheeler and several wealthy donors, he began transforming the Medical Department from an affiliated proprietary college to a University-supported institution. In 1900, he requested that the Regents provide financial support to the Medical Department for equipment and maintenance. In his appeal, he acknowledged the changes occurring within the University itself as it matured as an institution, and pointed out that "it has been the misfortune of the Medical Department that it was established as a private institution. It became an integral department of

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Buildings

BRICKS AND MORTAR: BUILDING THE AFFILIATED COLLEGES
by Nancy Rockafellar

In 1895, the California Legislature appropriated $250,000 for the "Affiliated Colleges" of the University of California to be located on a 13-acre site overlooking Golden Gate Park. The land was donated by the city's mayor, Adolph Sutro, and the site was designed by architects Krafft, Martens and Coffey to house Sutro's extensive library collection, and to be used for the University of California's colleges of medicine, dentistry, pharmacy, veterinary medicine, and law.

The cornerstone of the medical school was laid on March 27, 1897, in a driving spring rainstorm. Beverly Cole, who by this time had been elected President of the American Medical Association, passed out champagne bottles. Reporters noted

that the rain and blowing sand did not dampen the celebration attended by Mayor James Phelan and former Mayor Adolph Sutro. Lieutenant Governor Jeter declared that the raindrops are "nature's tears of joy" for the occasion. "Spread out before us," he proclaimed, "we behold as beautiful and lovely a landscape as one could imagine:

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Buildings

BRICKS AND MORTAR: TWO NEW HOSPITALS FOR SAN FRANCISCO
by Nancy Rockafellar

In the years after the 1906 earthquake, San Francisco rebuilt with remarkable speed, but the disaster and epidemics that followed reinforced the need for adequate hospitals. The old City County Hospital on Potrero had been burned down in 1908 after the discovery of plague-infected rats within its walls. Patients were moved to converted horse stalls, and surgery, kitchen, and supply rooms were set up in the grandstand at the Ingleside Jockey Club Race Track. The drafty racetrack buildings were not adequate for acute medical and surgical cases and city officials quickly worked to restore the city's most important public health facility.

The cornerstone for the new 512-bed San Francisco Hospital was laid at 22nd and Potrero in 1909 and the completed buildings were dedicated by Mayor Rolph on May 1, 1915. The series of brick buildings were designed by architect Newton J. Tharp with a plan based upon European pavilion style, designed to maximize ventilation and prevent cross infection. The external walls were decorated with Renaissance terra cotta and elegant arches; each ward building

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Special Topics

DANIEL COIT GILMAN AND THE EARLY YEARS OF THE UNIVERSITY OF CALIFORNIA by Nancy Rockafellar

> "...This is the University of California. It is not the University of Berlin or of New Haven which we are to copy; it is not the University of Oakland or of San Francisco which we are to create, but it is the university of this state. It must be adapted to this people, to their public and private schools, to their peculiar geographical position, the requirements of their new society and their undeveloped resources....It is 'of the people and for the people,' not in any low or unworthy sense, but in the highest and noblest relations to their intellectual and moral well-being."
> Inaugural Address of President Daniel Coit Gilman, November 7, 1872

Plans for a public university were developed at the first Constitutional Convention in 1849, when the Gold Rush was well underway. When California became a state in 1850, however, public funds were not available for a state university, and in its place several private schools and academies were founded. In 1853 a group of missionaries sent west by the American Home Missionary Society of New York founded Contra Costa Academy in Oakland, and in 1855 it was transferred to the state and incorporated as the College of California. Congressional action in 1853 and the Morrill Act of 1862 brought gifts of public lands for colleges of agriculture and the mechanical arts, and California responded by establishing an Agricultural Mining and Mechanical Arts College in 1866. On March 23, 1868, Governor H. H. Haight signed a new act creating the University of California out of the combined resources of the College

A History of UCSF

Special Topics

THE SPONGE CASE by Joseph LaDou, M.D.

In 1856, surgeon Hugh Toland was called to attend James King of William, the editor of the Daily Evening Express, who was shot in the chest by an assassin. Suspecting that the left subclavian artery was injured, Toland and other physicians crowding around the patient agreed with the first physician to reach the patient, Dr. R. K. Nuttall, who proposed inserting a large sponge to plug the wound. They disregarded the objection of another prominent physician, R. Beverly Cole, a close friend of King's. When King regained consciousness, he reportedly said, "Oh, Cole, in the name of God, stay by me!"

Dr. Hugh Huger Toland (b. 1806, d. 1880).

King's death five days later triggered a call to arms by the San Francisco Vigilance Committee, and his funeral was the largest public gathering in the history of San Francisco. Beverly Cole reported to the Medical Society of the State of California that the sponge left in King's body for five days caused his death. The treatment recommended by Toland was, in his view, "gross malpractice." At the trial of a man implicated in King's murder, Toland and Cole played leading roles in the drama. If Cole was right, King's doctors caused his death and the man accused of his assassination should be set free. Toland's opinion prevailed, supported by autopsy findings that the death was caused by post-traumatic

A History of UCSF

Special Topics

UC STANFORD RIVALRY, 1858-1917 by Joseph LaDou, M.D.

Cooper Medical College, ca. 1880

Elias Samuel Cooper, a surgeon from Illinois, sailed to San Francisco in 1855. He soon was active in organizing a state medical society, and in 1858 started the first medical school in the West. The faculty consisted of four doctors and one lawyer, Cooper being Professor of Anatomy and Surgery. R. Beverly Cole was Professor of Obstetrics and Diseases of Women and Children, as well as Physiology. Cole was also dean of the new school. Lacking a charter, the school derived its right to issue diplomas from the University of the Pacific, a Methodist institution in nearby Santa Clara, and was named the Medical Department of the University of Pacific. The first course of instruction was offered in 1859 and consisted of five months of lectures, repeated in the second year. The fee of each professor was $20 payable in advance, matriculation fee of $5 paid but once, with a graduation fee of $50. In 1859, Cooper's nephew, Dr. Levi Cooper Lane, joined the faculty as Professor of Physiology. The school graduated two students that year, and one the following year. Dr. Cooper died at age 40 in 1862.

In 1864, Hugh Huger Toland founded a new medical school in San Francisco.

A History of UCSF

Special Topics

THE HOOPER FOUNDATION by Joseph LaDou, M.D.

The Hooper Foundation

The Hooper Foundation was the first medical research foundation in the United States incorporated into a university. On Commencement Day, May 14, 1913, Mrs. Sophronia Hooper transferred to the Regents of the University of California certain valuable property to serve as a foundation for an institute of medical research. The institute endowed in memory of her husband, George Williams Hooper, San Francisco lumber merchant and philanthropist, was formally opened on March 7, 1914. Later, the entire Hooper estate became an endowment for the administration of the Hooper Foundation.

The Declaration of Trust stated:
"The George Williams Hooper Foundation, which shall be conducted and maintained in San Francsico, California and shall be managed as a department of the University of California." . . . . "The net income of the Endowment Fund shall be extended in the maintenance and conduct of said School of Medical Research which shall conduct and carry on investigations in the sciences and arts of hygiene, medicine and surgery; also in the nature and cause of diseases and in the methods of its prevention and treatment, and shall disseminate gratuitously all

A History of UCSF

Special Topics

UCSF STANFORD MERGER by Joseph LaDou, M.D.

UC and Stanford shared the staffing of San Francisco Hospital for nearly one century. Collegial competition between the two schools was beneficial to patient care and to the institutions. In the years leading up to World War I, UC had its great diagnostician, Herbert Moffitt, Stanford was ably represented by Harold P. Hill; UC's surgeon Wallace Terry was matched by Stanford's Emmet Rixford. When LeRoy Briggs assumed the leading role in medical training at SFH, Stanford produced George Barnett. When Surgery at UC passed to Harold Brunn, Stanford found Leo Eloesser. And so it went for many decades.

By 1926, the visiting staff of Laguna Honda consisted of 34 physicians, the staff provided equally by UC and Stanford. In 1946, Stanford and UC jointly took over the professional staffing of the Fort Miley Veteran's Hospital. At each location, including SFH, the two schools administered separate faculties and separate clinical faculties. The two schools were considered the best medical schools in the west. Despite their many similarities, the two medical schools were still parts of public and private universities. Their growing faculties were independent and proud, and often wary of the other's intentions. The two medical schools were intensely separate and distinct.

Both UC and Stanford discussed for decades bringing their medical schools back to their undergraduate campuses. For UC it was a damaging debate that went on far too long. For Stanford, it was quite another story. In 1943, Stanford Chancellor Ray Lyman Wilbur, at his retirement dinner, said, "Stanford is a great university standing on the

A History of UCSF

Special Topics

THE DEVELOPMENT OF THE UCSF MEDICAL CENTER by Nancy Rockafellar

Prelude: Unrealized Plans for a University Teaching Hospital

Maybeck's plan for a teaching hospital at Parnassus proposed an elaborate facility with separate buildings for the training school for nurses to include classrooms and dormitories, a main administration building, a surgical and laboratory building, in addition to six two-story ward buildings designed hold 240 beds.

Although the first University of California Hospital did not appear until the 1906 earthquake and fire brought urgent hospital needs to the city, plans for a university hospital for the Medical Department had been taking place since the turn of the century. In 1902 University President Benjamin Ide Wheeler appealed to the Regents and the California public for support to build a dedicated teaching hospital for the medical school to create a reservoir of free hospital beds for the city, and "to provide for the education of those to whom the health of the community must in future years be entrusted." In an effort to create a significant endowment for construction and maintenance of such an institution, a medical faculty committee hired architect Bernard Maybeck to design an elaborate hospital to be built on the pavilion style. Depending on the funding they could raise for the purpose, the committee estimated the cost at from $400,000 to five million in 1900 dollars, an amount that would allow UC to duplicate the hospital that

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Special Topics

THE HOOPER FOUNDATION by Joseph LaDou, M.D.

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San Francisco, 1850s panorama

Panoramic View of San Francisco, ca 1850s. Left to right: Nob Hill, Russian Hill, Telegraph Hill; and far right: a harbor full of abandoned ships.

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Artist's depiction of lodging conditions in San Francisco, ca. 1850s.

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Buildings

BRICKS AND MORTAR: BUILDING THE AFFILIATED COLLEGES
by Nancy Rockafellar

In 1895, the California Legislature appropriated $250,000 for the "Affiliated Colleges" of the University of California to be located on a 13-acre site overlooking Golden Gate Park. The land was donated by the city's mayor, Adolph Sutro, and the site was designed by architects Krafft, Martens and Coffey to house Sutro's extensive library collection, and to be used for the University of California's colleges of medicine, dentistry, pharmacy, veterinary medicine, and law.

The cornerstone of the medical school was laid on March 27, 1897, in a driving spring rainstorm. Beverly Cole, who by this time had been elected President of the American Medical Association, passed out champagne bottles. Reporters noted

that the rain and blowing sand did not dampen the celebration attended by Mayor James Phelan and former Mayor Adolph Sutro. Lieutenant Governor Jeter declared that the raindrops are "nature's tears of joy" for the occasion. "Spread out before us," he proclaimed, "we behold as beautiful and lovely a landscape as one could imagine:

A History of UCSF

1959–1989 Modernization and the Expansion of Scientific and Clinical Training

An Emerging Identity for the Health Sciences Campus

The period 1959-1989 witnessed a revolution in the health sciences and biomedical industries. At the beginning of the period there was no recombinant DNA technology, no biotechnology industry, no genetically engineered human growth hormone, interferon or hepatitis B vaccine, no "transgenic" mice to serve as disease models for everything from cancer to obesity, no proof for oncogenes, no genetically altered food, no gene therapy, no gene patents, no DNA fingerprinting. It was a revolutionary period for genetics research, and faculty at UCSF became leaders in multiple fields. Whether in research, teaching or community service, each school during this era of UCSF's history made substantial innovations and contributions.

The San Francisco campus of the University of California was given full administrative independence to control its educational and financial matters in 1964. In 1970, the University of California, San

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1959–1989 Modernization and the Expansion of Scientific and Clinical Training

Innovations in Professional Education

In 1964, Provost John Saunders became UCSF's first chancellor. A veteran of the medical school faculty, Chancellor Saunders came to the University in 1931 as an anatomy professor and was chair of the department from 1938-1956. He also served as chair of the History of the Health Sciences department from 1942-1975, Dean of the School of Medicine from 1956-63, University Librarian from 1943-1971, and the first provost from 1958-1964. Saunders resigned as Chancellor in 1966 and took a special Regents Chair in History of Medicine on the San Francisco Campus.

Saunders believed that training students and healing patients were the paramount duties of the medical center, with research ranking third. There was a well-documented perception that Saunders expressed his priorities by allocating resources to clinicians while stalling on approving appointments and allocating space to meet the needs of research-minded department chairs.

In November 1964, frustrated by this lack of support for research, a group of ten professors from the School of Medicine, including Dean Reinhardt, sent a letter to UC President Clark Kerr asking for an urgent

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Photos

PORTRAITS

A – C
D – M
N – Z
Groups

N – Z

Naffziger, Howard C, 1917

Naffziger, Howard C

Nahm, Helen
Owyang, Eric

Pickering, Mary May

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People

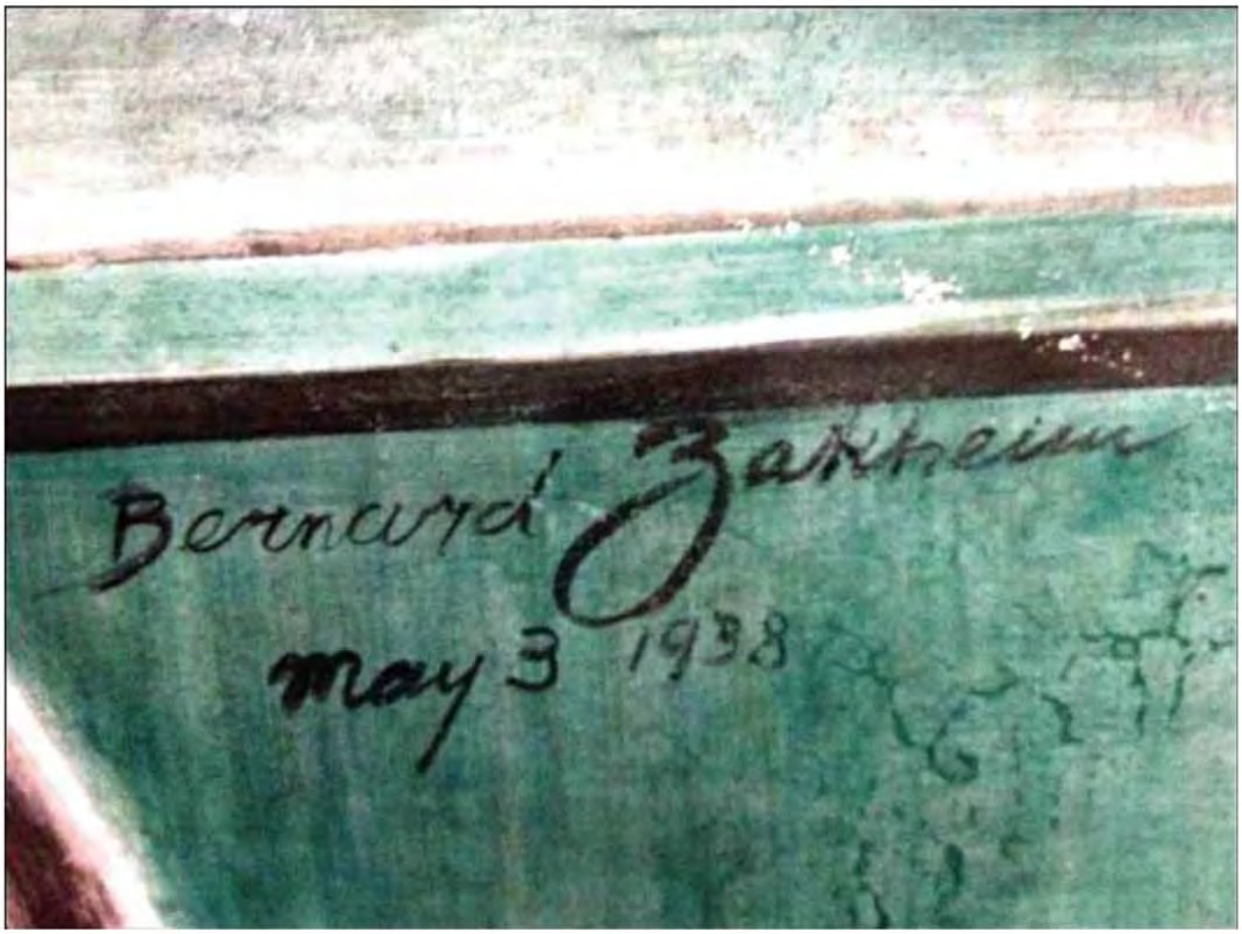
R. BEVERLY COLE (1829-1901)

Richard Beverly Cole was born in Manchester, Virginia in 1829. His family moved to Philadelphia soon thereafter. His early education took place at Delaware Collegiate Institute. At the early age of sixteen, Cole began the study of medicine under the preceptorship of Professor Benjamin Dudley of Kentucky. His medical education continued at Transylvania University at Louisville. After one year, Cole transferred to Jefferson Medical College in Philadelphia from which he graduated in 1849. Cole may have chosen his specialty because of his famed professor of obstetrics, Charles D. Meigs. His graduation thesis discussed the controversial use of ether anesthesia in surgery.

He married Eugenie Bonaffon in Philadelphia in 1848. They had five children; all but two daughters died in infancy. At the age of twenty, Cole was in charge of the Pine Street Cholera Hospital where he saw more than 3,000 cases of cholera. He practiced three years in Philadelphia.

Cole was advised for health reasons to move to California. He did so during the "gold rush" period, sailing to a Panama crossing, then arriving in San Francisco aboard the steamship Cherokee in 1852. At the age of twenty-three, he was an accomplished surgeon, and San Francisco's first practitioner of the new specialty of obstetrics. Cole had performed

Gallery



Bernard Zakheim Fresco Signature - 1938

UCSF, Toland Hall Amphitheater

Toland Hall With Redesigned Ceiling Sunburst Lighting[20]

Toland Hall Ceiling Redesigned Sunburst Lighting

"The space now being decorated by frescos is a large lecture amphitheater with a curved wall something over one hundred feet in circumference, a straight wall across the front to accommodate a screen and blackboard, and a low ceiling broken by skylights and supported by large beams radiating from the center of the front wall in sunburst fashion".

[20] From Phyllis Wrightson, who travelled widely in California to research the history of medicine in California to accurately base the fresco designs of Bernard Zakheim.

Robert Sherins UCSF Medical Student, Top Left Row, 1961
Toland Hall Frescos Covered Up

Toland Hall Exhibited 1961
Zakheim Fresco Superimposed Over Blank Wall
Image of 2nd-Year Medical Student, Robert Sherins, Back Left Corners

Principle Fresco Panels

From: Description by Phyllis Wrightson

"The story told by the murals begins with the domestic life and hygiene of the California Indians. A young Indian, symbolizing his race, reaches out in greeting to the sun as he dries himself after and sweat bath and cold plunge in the river. Two sweat houses, or temescals, appear near him used for ceremonial as well as healing purposes, and a mother and child sun themselves in the foreground".

"With his back to his ship [Golden Hind], he [Sir Francis Drake] grimly supervises an autopsy, which the ship's surgeon is performing upon Drakes' younger brother, thus proving his death due to natural causes rather than to the vengeance of a wrathful deity. To the right, four sailors finish burying those of their comrades who perished of the same disease, while to the left, the chaplain prayer book in hand but manacled, and wearing a humiliating badge,

suffers the displeasure of the captain for spreading superstition among the crew".

"Completing this panel, three Indians offer to Padre Junipero Serra the three most important herbs contributed by California to modern medicine: yerba santa (criodictyon glutinosum), cascara sagrada rhamnus purshiana) and grindelia robusta".

Father Junipero Serra Receiving Native Medicinal Herbs

Sir Francis Drake, Spanish Commander, Supervising Autopsy of Brother Proving Death by Natural Causes; Nearby Priest Praying

From Description by Phyllis Wrightson

"…Pioneer courage of 'Peg-Leg' [Tom] Smith, famous trapper and prospector of the pioneer west, who is painted in the act of severing his own leg after being wounded in a fight with Indians. Tied near him, and acting as support to

the edge of the panel is his pack burro, loaded with traps and skins. In the rock on which Smith supports himself is carved the old proverb: *'De medico, poeta y loco, Todos temenos un poco'* (of medicine, poetry and insanity, we all have a little).

From: Description by Phyllis Wrightson

"...Invasion of California by a strange people, a new religion and the foreign diseases that almost exterminated the native population. Heading the band of soldiers in the background is Juan Bautista de Anze, leader of the expedition of 1775 bearing his name. The central figure of the main group is a bewildered Indian, standing helplessly between a padre who baptizes him and a soldier who offers him an acquaintance with alcohol. Half hidden behind the priest is a soldier who had roped the Indian woman in the foreground".

From: Description by Phyllis Wrightson

…Native Indians in ceremonial dance during birthing of child… Midwives push bulging uterus to express afterbirth, mother clutches rope above, assistant expresses afterbirth…

From Description by Phyllis Wrightson

"A young Indian, symbolizing his race, reaches out in greeting to the sun as he dries himself after and sweat bath and cold plunge in the river". To the left, a warrior sucks a wound, a shaman or medicine man mixes blood mud and herbs for a poultice, another digs bulbs used in making magic against snake bites.

From Description by Phyllis Wrightson

"The third and last panel on this side of the central division is devoted to doctors of the 'Gold Rush' period. The first incident is an illustration of the type of adventure often met in the gold fields. Dr. Edward Willis is shown shooting the quack doctor Hullings, his predecessor at Placerville, in a duel after Hullings had torn up Willis's diplomas in a drunken rage at having a rival appear in his territory. A glimpse of the doctors surgery is shown beside hm, including the bottled monstrosities that are being examined by two curious miners."

"A solitary figure in this composition is that of Dr. Hugh Toland, founder of the Toland Medical School which was later absorbed by the university of California. He appears on a lively mustang, as he might have looked on his arrival in 1852, after crossing the plains. In his hand he holds a drawing of the quartz mill he brought with him, by which he no doubt expected to become wealthy."

"Lightening the central background and supporting the upper part of the composition, is a group of covered wagons, drawn by red oxen. The center foreground below this is devoted to the courageous Dr. Fayette Clappe, who in 151 at Rich Bar on the feather River risked his professional reputation to save the life of a young miner whose leg he successfully amputated after the case had been pronounced hopeless. One of the two miners watching the operation is pouring out the whiskey that was used instead of an anesthetic".

Early Medical History San Francisco;
Dr. Hugh Toland, Surgeon, Rides Mustang
Dr. Clapp's Office; Patient With Injured Leg

Dr. Hugh Toland on Mustang Horse
From Description by Phyllis Wrightson
"The most distinguished of the Spanish Surgeon-Generals, Dr. Don Pablo Soler, appears in the center of this panel, attending an Indian that had been badly

gored by a bull (about 1898). The patient's recovery added to his name for humanity and kindness to all in need of his services. The bull appears behind him, held by two Indians, and illustrates the artist's intention of having each incident as self-explanatory as possible. The bull with bloody horns accounts for the disemboweled Indian in the foreground, Spanish and English flags identify the nationality of figures in other scenes, while some characters are explained by the presence of books diplomas, or other articles appropriate to their functions in the scene.

"Slightly to the left of this central group is. The uniformed figure of General Castro, who is shown persuading the famous Indian doctor, Petronio, to cure a wounded soldier. Although Petronio's reputation was that of curing his friends and killing his enemies, there were few doctors to choose from in 1844.

Abdominal Surgery Without Anesthesia Indian Gored by Bull;
Foreign Military Campaign

Spanish Soldier Receiving Smallpox Vaccination; Native Victims

From Description by Phyllis Wrightson

"The last third of the panel is occupied with early San Francisco doctors. The first group consists of three figures, that of Dr. Victor j. Fourgeaud and his wife and little boy, who came to California in 1847. He holds the title page of his monograph on diphtheria, a notable contribution to. The study of the disease, which he wrote after the epidemic of 1856. Beneath this paper is another, which lists some of his other achievements as a citizen and physician".

"Three more figures fill the remaining space. Dr. John Townsend is shown hanging up his sign in 1846 announcing the first medical office in San Francisco. In front of him is one of the typical oddities of this period, 'Dr.' Elbert P. Jones, for whom Jones Street was named. He was a jack of all trades, including medicine, law and newspaper publishing, but his consuming passion was for gold, in which he would literally wallow. In the upper left hand corner, Dr. Felix P. Wierzbicki, a native of Poland, is painted writing the book that made him famous, "California As It Is And As It May be", published in 1849".

Dr. Hugh Toland on Mustang Horse; Examination Sick Child

UCSF Medical Alumni Class 1963 Witnessing Toland Hall Frescos

Lucy Wanzer, MD, First Woman Medical Class of 1876
Scene UCSF, Medical Staff, Hooper Foundation Research

Lucy Wanzer - First Woman Physician Graduate
UCSF Class 1876

From Description by Phyllis Wrightson

"In the corner corresponding to that occupied by the Barbary Coast figure is a portrait of Lucy Wanzer, the first woman to enter the U.C. Medical School, who dared to sacrifice her feminine dignity in order to obtain entrance to what was then an exclusively masculine career".

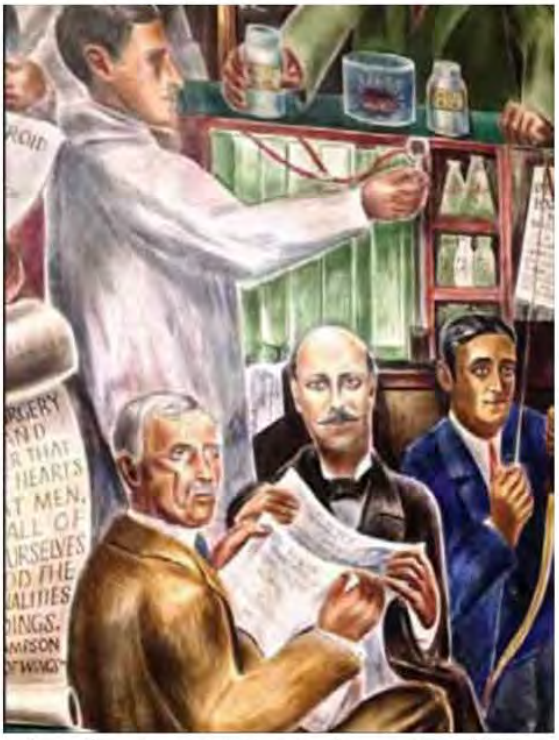
Dr. Lucy Wanzer Holding Bull's Testicles and Ovaries

Karl Meyer, MD, Hooper Foundation UCSF
Examining Rodent for Fleas With Plague

San Francisco Mayor Adolf Sutro Donates 26-Acre Mt. Sutro
Gifted to UCSF For New Campus Site, Parnassus Heights

From Description by Phyllis Wrightson

"Holding a map of the present University of California Medical Center is [San Francisco Mayor] Adolph Sutro] donor of the group upon which this group of buildings stands".



Langley Porter, MD; Herbert Moffitt, MD

Future Medicine: Research, Surgery With Sophisticated Anesthesia; Vaccinations; Advanced Dental Care

Sponge Case Death and Trial: Drs. Nuttall, Cole, Toland & Griffin

From Description by Phyllis Wrightson

"…Dishonesty in the medical profession is demonstrated in the section immediately above the figure of the doctor, where dr. Albert Abrams is shown operating one of his many machines for curing all ailments. In the design only a suggestion of the actual appearance of the machine is given. /also shown is the Ionoco Belt of Dr. Wilshire".

From Description by Phyllis Wrightson

"The constructive side of San Francisco's medical development is represented by the row of buildings tilting away from the center of the design, the first medical schools and hospitals in the city. An old-fashioned yellow building in the center bears the name of Toland Medical School, the germ of the present U.C. Medical School; to the right is an imaginary likeness of the old County Hospital; at the left are the two buildings associated with the Stanford Medical Department - the Gothic angles of the Cooper Medical School which stands at Sacramento and Webster Streets, and the more modern red brick of the Lane Hospital. These provide the background for the likenesses of Dr. Elias Samuel Cooper and his nephew, Dr. Levi Cooper Lane, who are shown with a shelf of medical books written by pioneer San Francisco physicians.

Scourge - Plague Epidemic - San Francisco "Cover Up"

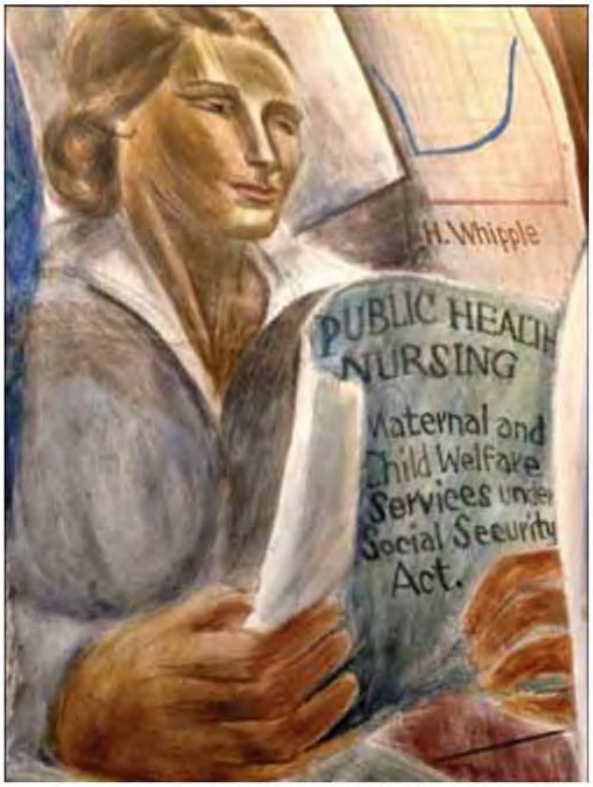
Casey Killing Fraudulent Dr. Hullings, San Francisco

San Francisco Prominent Physician Dr. Felix P. Wierzbicki

Modern Founders UCSF Faculty - Herbert Moffitt, MD; Langley Porter, MD

Herbert C. Moffitt, MD

Herbert Moffitt, MD and Langley Porter, MD



Honoring UCSF Public Health Nursing School

Chauncey Leake, PhD - Dean UCSF School Pharmacy;
Bricking In Residence to thwart plague carrying rats.

Wallace Terry MD

Sciences of the Future

UCSF New Medical Technologies and Quacks

From Description by Phyllis Wrightson

"Above the door, and to the right of the screen is the last panel of the series, symbolizing the entire field of science, past, present and future. The circular motif of the previous panel has been developed, with the addition of more circles, into the more spacious pattern of a spiral, which carries the eye through the painting in more generous lines suggesting the perpetual

development and change characteristic of all organic activity. This is in contrast to the design of the Hooper panel, where the circular shape returns upon itself indicating one isolated cycle or generation of science viewed separately from its place in the whole sweep of scientific history".

"The wheel in the center revolving on its huge bearings, symbolizes the early development of modern science, called into existence by the necessity of the troubled humans in the foreground. The muscular figure representing human energy provides the power by which tis body f science is caused to revolve."

"The bearings upon. Which this massive structure moves are engraved with the names of those men who laid the foundation for present scientific knowledge; Galileo, the celestial physicist; Newton , physicist; Lavoisier, who discovered the fundamental laws of modern chemistry; Einstein, physical astronomist who contributed the theory of relativity; roentgen discoverer of X-rays; Pasteur, who opened up the world of microbiology; Hegel, father of modern scientific philosophy; and Darwin, whose concept of change in the world of biology was one of indefinite progress or evolution."

"This first wheel is not complete in itself. It is connected by a belt to another smaller wheel, which revolves upon the same axis on which a huge wheel in the distance is slowly turning; and the rhythm of the picture suggests that these turns are spiraling into the future endlessly".

"The revolutions of the small wheel, intermediate between the past and the immensity of the future, are spinning out consequences remote from the intention of those whose names are lettered on the bearings. Laboratory chemists have produced poisonous gases; engineer have developed bombing planes; destruction as well as benefit has been produced from the labors of scientists. Thus, the physician must repair the damages which the destructive forces of misapplied principles have produced. His future task is that of guiding new discoveries along constructive and beneficent channels".

Postscript

In the manuscript, the author placed copies of original articles, commentaries and photographic images of the fresco murals. During 2010, digital images were taken of each fresco, as well as of individual vignettes described in the paintings. Additional views of special parts of the murals were also included.

I have composed this guide to the details of the textual and visual information contained among the Toland Hall frescos as an additional means to immortalize their content.

Robert S. Sherins, MD
Author

Addendum

The author, Robert S. Sherins, MD and his classmates of the UCSF School of Medicine, Class of 1963 were deprived of the knowledge about the Toland Hall frescos due to the "cover up" incited by Neurosurgery Nafziger in 1948. The murals were lost to view from 1948 to 1977, when former Dean Chauncey Leake, PhD retuned to the staff of UCSF. Leake and his assistant, Isabell Perry, MD established initial funding and selected Bernard Zakheim as the artist to create the frescos which reflected the History of Medicine in California.

In 2010, during our preparation for the celebration of our 50th Class Reunion (2013), members of our executive committee toured Toland Hall and Cole Hall witnessing the magnificent Zakheim' murals for the first time. We were joined by our hosts, Gary Bernard, Director of the UCSF School of Medicine Development Office; Michael Eccles, Assistant Director to Gary; Mrs. Polina Ilieva, Senior Archivist, UCSF Kalmanovitz Library; and Margaret Hughes UCSF Assistant Archivist.

Dr. Sherins created a special docuent, "guide to the Zakheim frescos and artworks, located in both Cole Hall and Toland Hall buildings. The gallery of our first experience touring the magnificent artworks is displayed below. Hundreds of photo images were taken at this momentous occasion by: Gary Bernard, Michael Eccles and Robert Sherins, the best of which are included in this addendum. Additional images taken during the UCSF School of Medicine Class of 1963's 50th Reunion in 2013 are included.

UCSF Campus, Parnassus Heights, San Francisco

Ron Bachman, MD; Weyman Wong, MD; &
Gary Bernard Director Alumni Development

Weyman Wong, MD with Gary Bernard, UCSF

Toland Hall: Robert Sherins, MD (Rt) Advising Classmates Regarding Tour of the Frescos

UCSF Medical Alumni Class 1963 Preparing For Tour of Toland Hall Frescos

Robert Sherins, MD Describing Zakheim Fresco Painting from Cole Hall

Polina Ilieva, Pat Tsang, MD with Robert Sherins, MD
UCSF Toland Hall

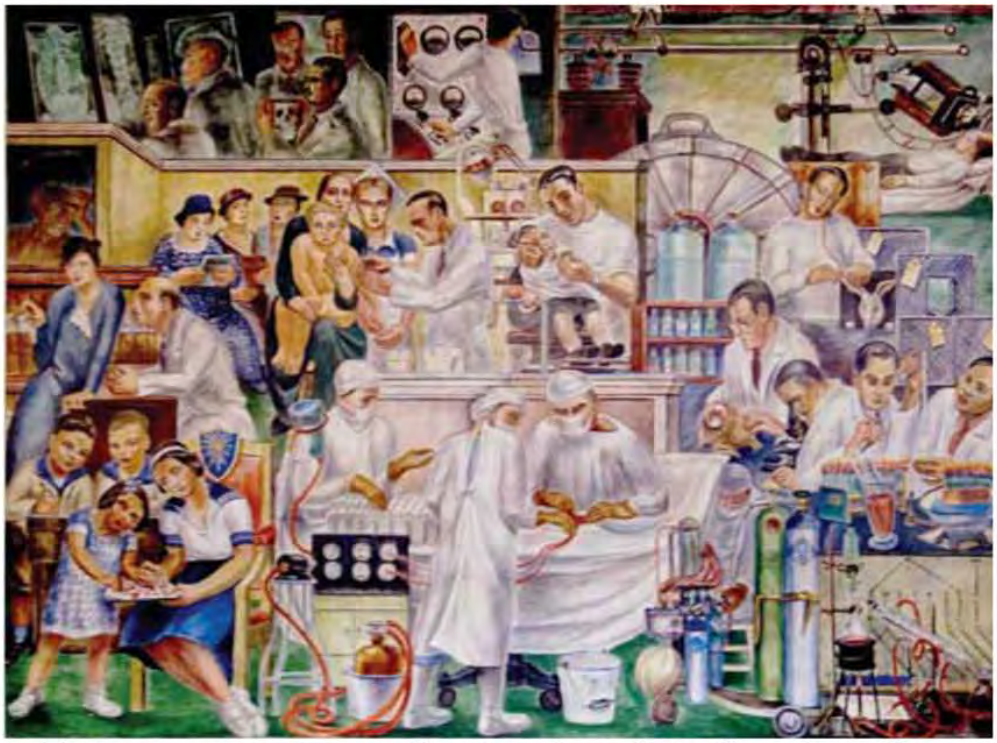
Bernard Zakheim Sculpture, "Genius of Healing" - UCSF Cole Hall Building

UCSF Medical Classmates (1963) Admiring Zakheim Sculpture
Barbara/Ted Shapas; Margaret Hughes, UCSF Assistant Archivist;
Weyman/Yvonne Wong, MD; Pat Tsang, MD; Marlene/Robert Sherins, MD

Robert Sherins, MD Views Zakheim Sculpture
UCSF Cole Hall Building

"Superstitious Medicine" - Fresco Cole Hall, 1925

Robert Sherins, MD Admiring Bernard Zakheim Painting,
Superstitious Medicine



Zakheim Fresco Painting - "Rational Medicine" - Cole Hall 1925
Daughters Masha and Ruth Zakheim - Bottom Left Corner

Robert Sherins, MD Admiring Fresco Portrait of Lucy Wanzer, MD

Group Admiring Zakheim Fresco With Lucy Wanzer, MD (Vignette)

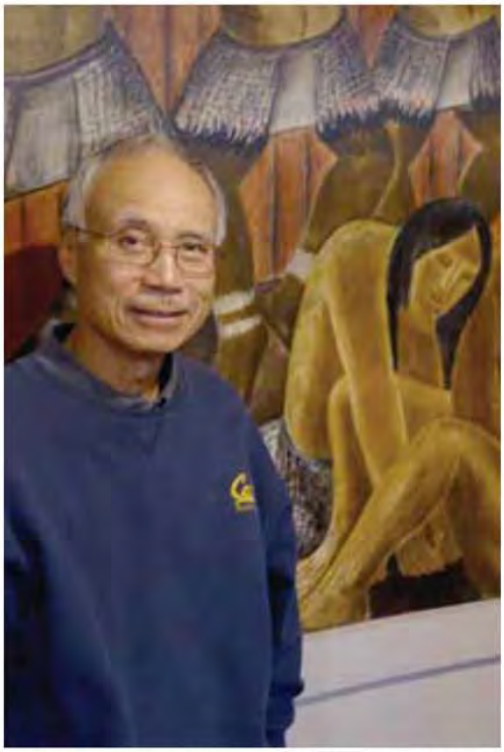
Guest Admiring Frescos:
Margaret Hughes, UCSF Archivist; Ron Bachman, MD and Yvonne Bachman; and Polina Ilieva UCSF Assistant Librarian Archives/Special Collections

Mike Eccles, UCSF Alumni Development; Polina Ilieva, UCSF Assistant Librarian Archives/Special Collections

Ron Bachman, MD - Toland Hall

Gary Bernard, Director UCSF Alumni Development
Admiring Zakheim Fresco, UCSF Toland Hall

Gary Bernard, Director UCSF Alumni Development



Weyman Wong, MD Admiring. Zakheim Fresco - Toland Hall

Robert Sherins, MD Discussing Fresco Scene, Native Herbal Treatmen

Herbs Gifted to Fr. Junipero Serra

Ron Bachman, MD Admiring Fresco Scene of Life-Saving Self-Amputation "Peg-Leg" Pete. (Tom Smith)

Pat Tsang, MD Touring Toland Hall

Ron Bachman, MD

Polina Ilieva, UCSF Assistant Librarian Archives/Special Collections

Ron Bachman, MD

Zakheim Fresco of Modern Pharmacology Research at UCSF

Medical Research UCSF Hooper Foundation

Dr. John Townsend, First Medical Office, San Francisco - 1846

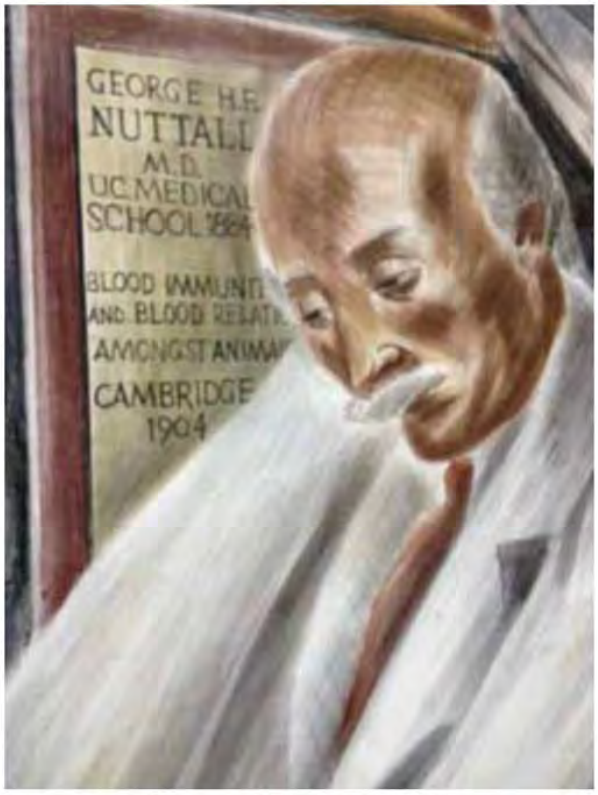
Toland Proprietary Medical School, San Francisco - 1875

Langley Porter, MD, UCSF School of Medicine

Chauncey Leake, PhD, Dean UCSF School of Pharmacy

Sponge Case:
Politician James Casey Shot News Editor, James King of William in Chest George Nuttall, MD & Beverly Cole, MD opined Placing Sponge In Wound to Halt Bleeding Artery; Hugh Toland, MD Consulted To Remove Sponge Avoiding Suppuration; John Griffin Los Angeles Surgeon Consulted; Patient Died Of Sepsis

Former Slave, Nurse Bridget Biddy Mason Assisting Dr. John S. Griffin of Los Angeles, Caring for a Victim of Malaria



George Nuttall, MD

City Corruption Over Denying Bubonic Plague in San Francisco

Beverly Cole, MD - Obstetrician/Gynecologic Surgeon
Became Dean UCSF School of Medicine After Toland (Background)

Beverly Cole, MD Early Ob/Gyn Surgeon San Francisco

EXHIBIT 3

ADVERTISEMENT FOR PROPOSALS

Subject to conditions prescribed by the University of California, San Francisco, sealed proposals for a design build contract are invited from prequalified proposers for the following work:

PH UCH 1ST FLR MURAL REMOVAL
Project Number PRJ-000293/ Contract Number: PRJ-000293-CC-001
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

DESCRIPTION OF WORK:
The Design Build Team shall design and construct a complete mural removal project in UC Hall, Room 142 Toland Hall. The Work consists of the removal of the History of Medicine in California murals and the relocation of these murals to a UCSF storage facility at Oyster Point. It includes the following:

- Construction of any platform required to facilitate the removal of the murals once the seating has been removed
- Conservation required to stabilize the murals for removal per Exhibits 10-A and 10-B
- Safe off electrical as required
- Stabilization of murals
- Saw cutting around the murals
- Construction of any framing required to secure the murals for removal and relocations
- Any type of crane required to move the murals
- Relocation of the murals from the building
- Transport to Oyster Point
- Unloading to an area within the UCSF Oyster Point Storage Facility

This list is not all inclusive. Please refer to Exhibits 10-A, 10-B and 10-C for additional information and detailed scope to assist with the design/build proposal

The Work excludes the following, and will be completed by others:

- Demolition of the existing seating
- Removal of A/V equipment
- Build back of partition where mural was removed
- Partial removal of interior partitions to facilitate removal of the murals from Room 142 Toland Hall
- Removal of exterior partitions, windows or doors to facilitate removal of the murals from the building

PROCEDURES:
Bidding Documents will be issued through an electronic system called BuildingConnected. Bidders will be sent an invite to view Bidding Documents on **August 4, 2020 10:00 AM.** Contact Beatrix.Balais@ucsf.edu and Asha.Kalra@ucsf.edu for any BuildingConnected questions. Subject line of the email should state *UC BuildingConnected Question.*

Support is available by emailing support@buildingconnected.com. Please identify yourself as registering for **UCSF Projects**.

Proposals will be received in the BuildingConnected electronic system on or before 12:00 Noon, August 28, 2020 (the "Bid Deadline"). LINK: www.buildingconnected.com

Mandatory Virtual Pre-Proposal Conference. A mandatory virtual pre-proposal conference will be conducted on August 6, 2020, beginning promptly at 8:30AM. *Only proposers who participate in the pre-proposal conference, in its entirety, will be allowed to propose on the project.*

For further information, contact the University's Representative, Patti Mitchell at 415.203.2708 or email at Patti.Mitchell@ucsf.edu

Participants shall meet via Zoom:
Meeting ID: 919 2757 5410
Password: 727031
Phone or Conference room password: 727031

One Click Join from a PC, Mac, Linux, iOS or Android device:
https://ucsf.zoom.us/j/91927575410?pwd=L0FMdjJQUVpUZ1hBeUhpVndEZzgwdz09

One tap mobile (iPhone)
+16692192599,,91927575410#,,,,1#,,727031# US (San Jose)
+16699006833,,91927575410#,,,,1#,,727031# US (San Jose)

Dial by your location
+1 669 219 2599 US (San Jose)
+1 669 900 6833 US (San Jose)
+1 213 338 8477 US (Los Angeles)
000 800 040 1530 India Toll-free
000 800 050 5050 India Toll-free
Meeting ID: 919 2757 5410
Password: 727031

Connecting from a room system:
IP: 162.255.37.11
SIP: 91927575410@zoomcrc.com
Meeting ID: 919 2757 5410
Password: 727031

UCSF Zoom instance is approved for use with restricted data.

For more information on Zoom:
https://it.ucsf.edu/services/zoom-web-conferencing

Proposal Security in the amount of 10% of the Lump Sum Base Proposal, excluding alternates, shall accompany each bid. The surety issuing the Bid Bond shall be, on the bid deadline, an admitted surety insurer (as defined in the California Code of Civil Procedure Section 995.120)

All insurance policies required to be obtained by Design Builder shall be subject to approval by University for form and substance. All such policies shall be issued by a company rated by Best as A- or better with a financial classification of VIII or better, or have equivalent rating by Standard and Poor's or Moody's.

The successful proposer and its subcontractors will be required to follow the nondiscrimination requirements set forth in the proposal documents and to pay prevailing wage rates at the location of the work.

Every effort will be made to ensure that all persons have equal access to contracts and other business opportunities with the University within the limits imposed by law or University policy. Each Proposer may be required to show evidence of its equal employment opportunity policy. The successful Proposer and its subcontractors will be required to follow the nondiscrimination requirements set forth in the Proposal Documents and to pay prevailing wage at the location of the work.

The work described in the contract is a public work subject to section 1771 of the California Labor Code.

No contractor or subcontractor, regardless of tier, may be listed on a Bid for, or engage in the performance of any portion of this project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 and 1771.1.

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

REGISTER AT THIS LINK: http://www.dir.ca.gov/Public-Works/PublicWorks.html
[The contractor registration link is on the right side.]

The successful Bidder shall pay all persons providing construction services and/or any labor on site, including any University location, no less than the UC Fair Wage (defined as $13 per hour as of 10/1/15, $14 per hour as of 10/1/16, and $15 per hour as of 10/1/17) and shall comply with all applicable federal, state and local working condition requirements.

The Bidding mode will be a Design Build contract. Selection shall be based upon a “best value” approach which will be calculated on a “cost per point” basis. The proposer with the lowest cost per point “Best Value” will be selected by the University as the lowest responsible proposer.

The successful proposer will be required to have the following California contractor's license at the time of the proposal opening:

LICENSE CLASSIFICATION: **General Building Contractor**
LICENSE CODE: **B**

Target Contract Amount: $1,500,000
Maximum Acceptance Cost: $1,800,000

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
University of California, San Francisco
August, 2020

EXHIBIT 4

NATHAN ZAKHEIM ASSSOCIATES

September 8, 2020

By Email: *EIR@ucsf.edu*
Ms. Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Zakheim Murals and the Comprehensive Parnassus Heights Plan Draft Environmental Impact Report

Dear Ms. Wong:

I write to comment on the discussion of the "Zakheim Murals" in the Draft Environmental Impact Report for the Comprehensive Parnassus Heights Plan (DEIR). These murals are frescoes created and painted by my father, Bernard Zakheim.

The DEIR concludes that it is technically and financially infeasible to preserve and remove the murals, starting:

> in 2020, UCSF completed two independent studies that include detailed technical assessments on how the Zakheim murals could be physically preserved, removed and relocated from their current location in UC Hall. (Page & Turnbull, 2020; Architectural Resources Group 2020.) Given the nature of the frescoes and their vulnerability to cracking, the physical condition of some of the panels which have experienced water damage over the years, the murals' large size, the curved shape of the walls on which most of the panels are painted, ground movements, and the aging of UC Hall (all described in the above noted studies), UCSF has determined that it may be infeasible to remove and relocate the Zakheim murals as there is no guarantee that any effort to remove the Zakheim murals would be successful. Based on those independent studies, there is a likelihood that removal of the Zakheim murals may potentially cause serious damage to at least some of the panels such that the integrity of the entire series is destroyed (Page & Turnbull, 2020). In addition, UCSF has determined that the estimated $7.6 million cost of physical preservation, removal and relocation is prohibitive in light of UCSF's primary responsibility to support its academic health care mission.

(DEIR 4.4-14, 15; pdf 328-329.) This conclusion is incorrect. Also, the DEIR's conclusion is not supported by either of the two studies cited (i.e., "Page & Turnbull, 2020" and

"Architectural Resources Group 2020") because neither study presents any conclusion or expert opinion that it is infeasible to conserve, remove, and preserve these murals.

My Qualifications

I have been, and I have been recognized as, one of the leading art conservators in the world for over 50 years. My CV is attached.

From 1953-1966 I worked with my father as an apprentice. As a result, I am intimately familiar with the techniques and materials my father used to create the Zakheim murals. Please see the section of my CV entitled "A Brief Summary of the Core Contributions of NZA to the Field of Mural Conservation."

Over the past 50 years I have performed maintenance and restoration conservation work on the Zakheim murals under contract with UCSF on many occasions, including repairing broken fresco plaster and retouching faded or missing fresco paint.

I have also successfully conserved, removed, and preserved many large-scale fresco murals similar to the Zakheim Murals. These projects include the removing and preserving eight major large-scale frescoes, including removal and conservation of the two Cole Hall Frescos (named "Ancient Medicine" and "Rational Medicine") at the University of California, San Francisco. These frescoes were also created and painted by my father, Bernard Zakheim. Over fifty years ago, I successfully relocated these frescoes from Cole Hall to the Health Sciences West building at UCSF. For this conservation project, I developed the techniques for using AIC Conservation Consolidant Resins to stabilize the three layers of plaster in the frescoes. These frescoes remain on display to this day, in fully stable condition and with no need for periodic conservation. These conservation techniques have not changed over the last 50+ years.

I have done major conservation work on the (Victor Arnautoff) Coit Tower Frescoes, the City Club Rivera Fresco, the City College Rivera Frescoes, the Jewish Center Fresco, Jose Clemente Orozco fresco (Pomona College), Rico Lebrun Fresco (Pomona College), four major Ramos Martinez frescoes (removed and re-installed), and the Peter Hurd fresco (Houston MD Anderson Building (removed and transported to Artesia Public Library). NZA has also done extensive conservation work in India on Frescoes in Jaipur, and Nanda Kunj, and Kusham Sarova, and I have done extensive conservation studies on the frescoes in the Taj Mahal, the Govinda Deva Temple in Jaipur, and the Jaipur City Palace. Please see the section of my CV entitled "Partial List of Murals and Out of Door Art Conserved."

A. REMOVING AND PRESERVING THE ZAKHEIM MURALS IS TECHNICALLY FEASIBLE.

Bernard Zakheim created the frescoes on the interior concrete walls of Toland Hall by installing a wire mesh (also known as an expanded metal lath) across the entire surface of the

concrete wall to be plastered and painted. To this mesh, the artist applied two layers of base plaster (known as the "Arriccio" layers), then a third, surface layer of lime plaster (known as the "Intonaco" layer), on which the artist painted the murals.

The Intonaco layer was plastered a few square feet at a time on each day for 12 hours (open time) for the artist to paint using only earth pigments in water into the fresh lime plaster. Each completed daily section is known as the "Giornata."

The frescoes are held in place and secured to the concrete wall of the building by thin baling wire running through and attached to the exterior surface of the concrete wall. Thus, the frescoes are "floating" on the concrete wall.

There are three structural challenges to be met in order to safely remove the frescoes without damages.

1. There will be areas of "delamination" (separation) of the 1/8-inch-thick marble dust/lime plaster finish layer from the rough plaster layer immediately beneath the finish layer.

The Intonaco plaster layer is hard and brittle, and tends to "separate" from the Arriccio layers when dry. This dynamic is exacerbated by the fact that only a few square feet are plastered for the artist to decorate each day (each completed daily section is known as the "Giornata").

This delamination can and must be treated by both wet saturation (with low viscosity AIC Conservation Resin) of the Intonaco layer, as well as injection by syringe of a higher viscosity AIC Conservation Resin into the gap between the Intonaco and Arriccio layers. This treatment will prevent them from ever separating regardless of shock, weather conditions, temperature variations, storage conditions, etc.

2. There will be a tendency for the two Arriccio (substrate) layers of rough plaster to crack, crumble or be eroded by water exposure, which will weaken these two layers beneath the Intonaco (white lime plaster).

This crumbling and cracking will be consolidated by the AIC Conservation Resins applied by spray and brush. Any remaining separated or crumbled areas can be treated with a further application of AIC Conservation Resins prior to applying Conservation Plaster to the damaged or crumbled areas.

The procedure for addressing these concerns and successfully removing the murals is well-established and technically feasible, as follows:

Conserving the Front Surface, Lime plaster Layer and Underlying Plaster Layers.

1. Before removing a fresco, the surface must be cleaned with water miscible cleaners as well as carefully chosen solvent based cleaners. (The cleaning removes, grime, wax, dust and other pollutants from the pristine surface of the 1/8 thick lime plaster surface.)

2. As soon as the surface of the fresco has been carefully cleaned, a saturation of an AIC Museum Grade Conservation Resin in Conservation Solvent is applied, either by brush, spray, or both. This treatment allows the resins to absorb into (or even completely penetrate through the lime plaster/ fresco- paint layer. The resins also fill and strengthens any visible, or even invisible cracks in the lime plaster, so that pieces of painted lime plaster will not fall away from the surface.

Injection of a higher viscosity AIC Conservation Resin in Solvents can be accomplished using a conservation grade syringe with a metal injection tube. The tube introduces the resin between the Arriccio and Intonaco layers.

3. Loss areas (of any size) caused by physical or water damage are then saturated with Conservation Resins to penetrate damaged, underlying plaster layers so that crumbly or shattered areas become quite solid. Loss areas can now be filled with tooling plaster, topped with fresh fresco lime plaster. All such areas are then saturated with the same Conservation Resin in Solvents used on the front surface of the fresco.

4. When completely dry, a "non-woven" fabric is applied in two or more layers to the surface of the conserved fresco, using easily removable adhesives.

Supporting the Front of the Fresco.

5. A wooden platform "drawbridge" is built in front of each fresco panel using 2x12 lumber faced with 5/8" plywood on each side glued in place. Each "drawbridge" platform will have "pivots" below the fresco level so that the "drawbridge" can be raised and lowered easily with chain hoists. A curved plywood shape will be installed on each of the drawbridges to match the curvature of the curved fresco panels (12" from flat by 14' wide.) The curved support above the drawbridge will be padded with a solid piece of 3" soft foam rubber.

6. The hollow white plaster columns on either side of each curved fresco panel will be removed using fine toothed power saws (and vacuum cleaners). All other white plaster surrounding the frescoes will be removed at this time as well.

7. The drawbridge is then raised from horizontal to vertical (using a chain hoist) and then placed firmly against the fresco surface (with the 3" foam rubber in place.) Each

drawbridge is then bolted with threaded rod to the solid concrete structural wall behind the frescoes.

Separating the Fresco from the Support Wall.

8. Using a long-handled tree trimming hand saw with a metal blade, all wires and thin channels holding the fresco panel to the structural concrete wall will be separated from the frescoes until each Fresco Panel is standing free.

9. Using the chain hoists, each fresco panel will be lowered on the drawbridge to a horizontal position, fully cushioned by the 3" foam rubber over the drawbridge curve.

10. At this point all redundant plaster "globs" poking through the expanded metal lath can be mechanically removed, and all extra metal channels removed in order to make the back of the fresco as smooth as possible without weakening its infrastructure.

Consolidating the Back and Substance of the Fresco.

11. All dust and gravel residue will be vacuumed from the back of each curved fresco panel.

12. Using a wide tapered drill bit, carefully drilled holes (usually 8"x8" from hole to hole) will be drilled through the expanded metal lath and the first two layers of plaster from the rear forward, and all dust will be vacuumed away.

13. A 3/4" inch carbon steel drill bit will be used, very carefully by hand, to "twist down" through the last of the rough plaster until the "white" of the 1/8" lime plaster is encountered, but not penetrated. All dust will be vacuumed away.

14. Thin Viscosity AIC Conservation Resin (Paraloid B-66 or B-44 or B-72) will then be applied to the two rough plaster layers with a brush until full saturation has been accomplished. (Several layers must be applied, and when soaked in, several more layers applied, until the surface will accept no more solvent based resin).

15. When fully dried (to the core) the drill holes are then painted with a high index Acrylic emulsion, and when still wet, the holes are filled with a high-grade tooling plaster such as Hydro Stone, or Ultra Cal.

Completing the Infrastructure and Readying for Transport.

16. A steel grid (composed of galvanized 20-gauge 2"x4" or 2"x6" "wall studs" bolted "back to back") is then applied to the back (and flat) of each curved fresco piece.

17. Polyester resin (or low viscosity epoxy resin) is then used to saturate fiberglass cloth and fiberglass matting that will then adhere the steel structure to the now "solid as a rock" consolidated back each of the curved fresco panels.

18. Plywood will then be attached to the steel studs attached to the fiber-glassed back of each panel with heavy sheet metal screws.

19. Double plywood will then be attached to all four sides of the now encapsulated Fresco Panel, joining the plywood at the back of the panel to the drawbridge at the front of the panel.

20. The drawbridge will remain on the fresco panel during transport and storage. The drawbridge will be removed only when the frescoes are in front of the new installation location, at which point it can be discarded.

Results.

21. The fresco panels are now virtually indestructible. They could be dropped from a truck without damage. They can also be stored without regard to temperature or moisture control.

22. The life expectancy of the frescoes saturated with AIC Conservation Resins should extend (without maintenance or further aesthetic treatment) for at least several hundred years.

23. When re-installed, no maintenance will be required, other than occasional dust removal.

Notes.

The Conservation Resins used to treat the Toland Hall Frescoes will be the same AIC Conservation Resins used more than 20 years ago to consolidate the Sistine Chapel Frescoes of Michelangelo Buonarroti.

The 10'x12' Cole Hall Frescoes (now in HSW 2) were successfully conserved in place, removed, and reinstalled using the exact same techniques described above. In over 55 years, no further conservation work or even routine maintenance has been required, and the two frescoes have endured many earthquakes with absolutely no damage.

B. REMOVING AND PRESERVING THE ZAKHEIM MURALS IS FINANCIALLY FEASIBLE.

In my opinion, the work described above to safely and successfully conserve, remove, store, and reinstall the Zakheim Murals can be done by a competent and properly supervised art conservator for less than the $1,500,000 "Target Contract Amount" or the $1,800,000

"Maximum Acceptance Cost" set forth in the Advertisement for Proposals for UCSF Project No.: PRJ-000293; Contract No.: PRJ-000293-CC-001, that I received in early August, 2020. In fact, before UCSF issued its RFP in August, 2020, NZA submitted a bid proposal to UCSF offering to conserve and remove the murals for an amount not to exceed $1,000,000.

Considering the cultural, historic, and artistic value these murals have provided for over seventy years to UCSF, the City of San Francisco, the state of California and the entire country, and considering the vast expenditure that UCSF is undertaking to carry out the Comprehensive Parnassus Heights Plan, the relatively small expense required to preserve these works of art is eminently feasible.

Thank you for your attention to this matter.

Nathan Zakheim
Director, NZA

NATHAN ZAKHEIM ASSSOCIATES

CURRICULUM VITAE FOR NATHAN ZAKHEIM
DIRECTOR: NZA (REVISED 2020)

Since 1966, NZA has led the field of mural conservation with innovative conservation techniques and state of the art treatment of murals.

NZA has conserved more murals of every type, including fresco, oil, marouflage, tempera, and acrylic than any other firm in the United States.

ACADEMIC BACKGROUND:

1962
Graduated Santa Barbara High School.

1962 –1965
Attended San Francisco State College Major in Music; Minor in English Literature, (later BA Degree in English Literature, minor in Psychology).

1968–1977
Vedic Studies culminating in Bhakti Shastri Degree and Bhakti Bhaibava Advanced Degree.

1966–Present:
Independent Study in Solvency Parameters, Adhesives, Advanced Conservation Techniques, Product Development, Surface Preparation, Coatings and Paint Systems.

APPRENTICESHIP:

1953–1966
Apprenticed to Bernard Zakheim, in Fresco, Oils, Tempera, Wood and Stone Sculpture, Machine Shop, Wood Shop, Color Analysis, Upholstery, Draping, Egg Tempera, Ceramic and Bronze casting, Chemical Applications, Art History, Art Theory, Arranged Workshop Education with known contemporary artists of WPA and later periods. Curation and Preparator studies.

1953–1962
Studied with Phyllis Wrightson: Watercolor Techniques, Tempera, Block Printing, Fabric Printing and Painting, Linoleum Printing, Art History, Museum Studies, Field Studies, Lives of Great Artists, Art as a Medium for Social Action.

1966–1970
Private study of the new field of Scientific Conservation, utilizing State-of-the-Art Industrial Resources in the field of Chemistry, and modern conservation techniques.

1980–1984
Studied the works and techniques of Gustav Berger and apprenticed with the famous conservator Franz Trevors. During this time NZA developed several unique conservation procedures that are in general use today.

Areas of Conservation Expertise: Fresco, Marouflage, Contemporary Acrylic Mural Paintings, Egg Tempera, Casein Murals, Easel Paintings, Objects, Sculpture, PVA Murals, Church Interiors, Architectural Ornamentation, Decorative Painting.

PROFESSIONAL PAPERS PRESENTED TO WAAC AND MURAL CONSERVANCY SYMPOSIA:

1. Conservation of Orozco's Prometheus Fresco.

1. Conservation of Rico Lebrun's Genesis Fresco.

2. Numerous papers on Wall Preparation for Fresco and Acrylic Murals.

3. Conservation Study for "Los Streetscapers" Mural lawsuit.

4. Conservation of six Arthur Mathews murals at the State Capitol.

5. Conservation study for "Lilly Ann" mural lawsuit.

6. Column, "The Mural Doctor" for Mural Conservancy of Los Angeles Magazine

7. Numerous lectures on Wall Preparation, Pigment Use, Paint Systems, Coatings, Consolidation of Murals, etc., to Artists Groups as well as Conservator Meetings.

8. Conservation Parameters for City of Inglewood, (Helen Lundeburg Petrachrome wall)

9. Complete Salvage, Conservation, Re–installation Procedures for 1800 categories of items for the House of Hospitality. Balboa Park, San Diego.
   (Supervised complete conservation of this $26,00,000.00 Project.

10. **Fauxcademy** weeklong presentation at the Venetian Hotel in Las Vegas for 400 attendees at the Fauxcademy Convention Las Vegas Nevada.One-week Power Point discourse on Fresco Technique and Conservation to four hundred symposium participants. PowerPoint presentation on NZA innovative Fresco Conservation techniques as well as innovative use of modern chemistry for the treatment and consolidation of Out-of-Door Acrylic Wall Murals.

11. **City Of Bishop California**:
    Extensive presentation on innovative mural techniques showing a lengthy PowerPoint demonstration of all techniques. Panel discussions, field demonstration of techniques, seminar participation.

12. **City Of Lindsay California**:
    PowerPoint presentation, field demonstration of techniques, and panel discussions.

13. **City Of Lompoc California**:
    Presentation of innovative NZA mural techniques.

A BRIEF SUMMARY OF THE CORE CONTRIBUTIONS OF NZA TO THE FIELD OF MURAL CONSERVATION:

1. NZA has developed a number of innovative varieties of "stacco" removal of very large frescoes by 1967 and at the age of 23, garnering international acclaim in the rarified field of Fresco Conservation.

2. NZA selected to conserve the famous Arthur Mathews murals for the California State Capitol Restoration Project in 1980.

3. NZA was employed by the City of San Diego (through the offices of the prominent Restoration Architect Wayne Donaldson) to completely supervise and manage the salvage, conservation and re-installation of 1,800 categories of historic and artistic features from the Historic House of Hospitality (From 1915 Balboa Exposition) situated in Balboa Park in San Diego in 1996.

   NZA created work procedures for the Salvage of the House of Hospitality, and directly supervised and participated in the removal of complete rooms without damage.

   These rooms, once conserved were replaced in the reconstructed building, as well as a very large proscenium arch in the main theater of that building. (The house of Hospitality is the first and only National Historic Reconstruction Project to be designated as one of approximagtely1800 Historic Monuments)

4. **NZA has performed innovative conservations techniques during the treatment by NZA, of frescoes painted by Orozco, Diego Rivera, Ramos Martinez, Bernard Zakheim, Ralph Stackpole, Victor Arnautoff, Millard Sheets, Albert Herter, Claire Falkenstein, Tanaka, Kent Twitchell, Judith Baca, Lorenzo Davis, Willy Herron, Rubin Brucelin, Rico Lebrun, and over 100 other artists.**

5. NZA developed a Proprietary Strappo Process for the removal of Acrylic Murals painted on concrete, stucco, and other masonry surfaces .

   This revolutionary technique resulted in a major change in state and federal law.

   Prior to the NZA Proprietary Strappo Acrylic Mural Removal technique, Out of Door Acrylic murals were not considered protected artworks under law, due to the fact that They could not be removed without also removing the masonry wall on which they were painted.

   Now by the NZA Strappo method, murals can be easily removed from their masonry walls without damage to the mural or unacceptable damage to the wall.

   On the basis of NZA's Strappo Technique, California Assemblyman Alan Sieruti was able to put through passage of legislation that then included Murals painted directly on Masonry surfaces as protected under California and then under Federal Law.

   NOTE:

   NZA developed a method of Consolidating Acrylic Murals painted over unstable and de laminating multiple paint sub-layers in such a way that all the paint layers become fused into one thick paint layer, **with the result that the longevity of the mural can not only be assured for over fifty years, but subsequent Consolidant applications can increase the longevity of a Treated Mural into perpetuity.**

6. NZA innovated its proprietary "Strappo" method of removal of very large Acrylic, Oil, and Fresco murals, involving removal of only the layer of mural paint from the masonry surface on which it has been directly painted, subsequently transferring this paint layer to a support surface, and then to another wall for permanent or temporary display.

7. **As a result of this process developed by NZA, Alan Sieroty, a member of California Legislature, facilitated the inclusion of out-of-door murals as protected under California Law, such that murals could now be removed**

from a building without substantially altering the surface of the building. NZA invented this technique for the Howard Warshaw, Channing Peake murals in Santa Barbara (13' x 25' x2 murals in 1976).

8. In 2003-2005, NZA removed the Kent Twitchell "7th St Altarpiece" double mural **painted directly on a concrete overpass support (55' x 20' each)** perfectly, using the Strappo Method invented by NZA.

9. In 3003-2005, **NZA removed 26 figures** of the Kent Twitchell Marathon Mural (250 ft long) and conserved them at the Playa Vista Howard Hughes aircraft hangar Studio of NZA.

10. In 2002, NZA perfected the greatest breakthrough technology for the conservation and maintenance of Acrylic out-of-door Murals in the history of the genre.

By this technology, involving **deeply penetrating Consolidant application of Paraloid B-72, both very old and very damaged Acrylic Murals** as well as brand-new Acrylic Murals (utilizing innovative wall preparation protocols designed by NZA) **can now be preserved into perpetuity,** at a low cost, using relatively low cost labor not requiring significant technical skill levels.

This method, which involves using the same technical-grade consolidant (used to consolidate Michaelangelo's Sistine Chapel Murals), fully complies with the letter as well as the spirit of the Code of Ethics of the AIC, IIC, and WAAC.

11. Up until 2009, NZA operated out of two large studio/labs (one for large works of art, and one for museum quality easel art, sculpture, objects etc.), NZA has maintained an extensive practice for museums, collectors and galleries using advanced conservation techniques.

12. NZA documents all of its projects, and all methods used and materials and chemicals used are fully noted and open for peer review as desired.

13. In addition to the mural projects completed by NZA, NZA has also conserved thousands of fine easel paintings by very prominent artists in the NZA Conservation Facility. NZA conserves paintings for many prominent galleries and collectors as well as museums in the Los Angeles area.

14. NZA, awarded thirteen mural panels out of a total of sixteen murals selected for conservation by Cal Trans, and **contracted by Cultural Affairs Department of Los Angeles, has been in the fortunate position to clearly demonstrate the new standards established by NZA for Continuously Renewable Mural Conservation, with spectacular success**.

PARTIAL LIST OF MURALS AND OUT OF DOOR ART CONSERVED:

1960's

1. **Removal of Cole Hall Frescos:** ("Ancient Medicine and Rational Medicine" University of California San Francisco - by Bernard Zakheim. (Relocated to HSW 2 at UCSF**. NZA introduced Proprietary Stacco method which revolutionized Stacco removal of Frescoes in Florence as well as Israel**.

1970's

1. "Ancient Jewish Wedding" Fresco: San Francisco Jewish Community Center Partial conservation of Bernard Zakheim Fresco in Courtyard of CCSF. San Francisco

2. "Almaden Indians" Panel Egg Tempera**: De Saisset Museum (University of Santa Clara) - by Clay Spohn**

3. Fresco: Piedmont High School - Claire (Von) Falkenstein

4. Celotex Mural: Piedmont High School

5, Fresco: Piedmont High School - by Tarada

6. Mural Piednont High School by Ralph Stackpole

7. Conservation of very large Earthquake Damaged Council Chamber Stenciled Ceiling for **Santa Barbara County Courthouse by** Dan Grosbeck

8. Removal of Historic "Eagles Gate Facade" from "Eagles Gate, Salt Lake City for Church of the Latter Day Saints.

9. Full Conservation of 12 Toland Hall Frescos "History of Medicine in California": University of California San Francisco - by Bernard Zakheim (These Frescoes had been wallpapered, the wallpaper painted with Oil and Alkyd paints, as well as holes drilled in each panel to hang portraits of UCSF Dignitaries.

10. **Richmond Post Office**: removal of **Victor Arnoutoff** Marouflage mural.

11. **Removal of Eagles Gate Terra Cotta Façade**: Salt Lake City Mormon Church for re-installation in lobby of new high rise office bld. (Time of Brigham Young)

12. **Reinstallation of 2 Cole Hall Frescos:** University of California San Francisco by Bernard Zakheim.

13. **Carved Wooden Polychrome Double Doorway Façade** in Barcelona Design: Santa Barbara County Library. (remove, consolidate friable wood, replicate polychrome, and re-install with rubber snakes to ward off pigeons).

14. **"Spirit of the Sea"** Sandstone Sculpture: Santa Barbara County Courthouse - **Revolutionary barium hydroxide reconsolidation of loose sandstone particles**

1980's

1. **"Prometheus" Fresco:** Pomona College Claremont- **by Jose Clemente Orozco.** All adjacent walls to mural were injected with low viscosity epoxy. A chimney behind the mural had a brick wall directly attached to the mural plaster. The bricks were removed, and the back of the mural fiberglassed with steel supports. Extensive consolidation of front of mural and Inpainting with Fresco Pigments. (3 year project)

2. **2 Frescos: Scripps College**, Claremont - **by Ramos Martinez.** (Clean and consolidate)

3. **"Genesis" Fresco Secco**: Pomona College Claremont- **by Rico Lebrun.** Painted with Poly Vinyl Acetate, the mural paint layer had been pushed away from the surface of the Keane Cement. A mist custom, Barium Hydroxide was applied with a Bonzai Sprayer, and the efflourescence dissolved, bringing the shreds of the Mural Paint Layer back in perfect alignment on the mural surface. B-72 was used to re-adhere the mural to the Kean Cement support. (3 year project)

4. Elaborate Conservation of deteriorated Sandstone Sculpture in front of Santa Barbara Courthouse. (**Consolidated deteriorated Sandstone with a proprietary formulation of Barium Hydroxide).**

5. **6 Historic Marouflage Murals: California State Capitol Building - By Arthur Mathews.** (Remove very darkened varnish, consolidate with Paraloid B-72, build 12 curved Aluminum Honeycomb Panels, apply Murals with vacuum and BEVA 371 Reversible Heat Seal adhesive, transported from Los Angeles to Sacramento and **installed by NZA into Designated Spaces in the Interpretive Museum of the Restored State Capital Museum). (8'x10' each)**

6. **6 Marouflage Murals**: Santa Barbara High School, (Clean, remove graffiti, in-paint, Museum Varnish).

7. **2 Marouflage Murals**: Santa Barbara Public Library **- By Albert Herter** (Remove Murals from library walls, conserve, and prepare hollow wooden mounting support, adhere with Beva 371, remount on library wall, install

conserved historic picture frame, create replica lower section of picture frame for one of the panels).

8. **2 Acrylic (Don Quixote) Murals** removed by Strappo: Santa Barbara City Library(12.5'x25' each) – One painted by Channing Peake and the other by Howard Warshaw. (This project was the inception of the NZA Strappo Technique, never before utilized for removal of Out of Door Acrylic Murals. The murals were pained directly on a previously painted wall using Shiva Color Acrylic Paint System. Each mural was consolidated with B-72, and a facing muslin was attached with rubber cement. The Mural was removed with air hammers vibrating the surface and then lined with fiberglass and re-mounted on a hollow fiberglass support. The murals were installed in the re-constructed Library entryway. The damage was so slight that all inpainting was accomplished by six assistants working a total of six hours. The Mural was then varnished and re-installed)

9. **4 Marouflage Murals**: Doheny Museum at St. John's Seminary, Oxnard California– By Detlef Samman (4'x20' each)

10. **2 Marouflage Murals**: Doheny Museum – **By Charles M Russell.** (Remove from wall, consolidate with B-72, museum varnish, mount on custom spring loaded stretcher bars designed and crafted by NZA mount in library room at Doheny Museum). (4'x20' each)

11. **1 Large Fresco** by lesser known artist: Ralph Stackpole's Studio Montgomery Street ,San Francisco.

12. **1 Small Fresco**: By Ralph Stackpole. **Ralph Stackpole's Studio**, Montgomery Street, San Francisco.

13. **Repair of Several Frescos**: Coit Tower of San Francisco – By Bernard Zakheim, Victor Arnoutoff, Tarada, Lucien Labaudt and others.

14. **Four Limestone Sculptures:** Santa Barbara Florentine Four Seasons - For Henry Andrea (Reconstruct loss areas and consolidate friable crumbled areas with **NZA proprietary Barium Hydroxide Consolidant.**

1990's

1. **Stacco removal of 3 Large Frescos**: Coronado Island - By Ramos Martinez, Using NZA proprietary "drawbridge technology" to lower the frescoes once separated from their support.

2. **I 4ft x 14ft Fresco:** Downtown LA Bullocks - By Millard Sheets (Strappo Removal mount on fiberglass support, install at Natural History Museum)

3. **8 4'x10' Oil Paintings** (painted directly on drywall): Laguna Beach High School - By Megan Jones (Strappo Removal)
   Rainforest Mural: Beverly Connection (Strappo Removal) (10'x 30')

4. **Don Bachardy Mural**: Peter Norton's House - By Kent Twitchell (Strappo Removal, then mounted on non-woven fabric.) (painted directly on Stucco Support)

5. **St. Lucy's and St. Gertrude Murals** - By George Yepes Consultation and Technical Support:

6. **World Wall Mural** Support System Design, and Preventative Conservation and Consolidation - By Judy Baca and SPARC (complete consolidation with multiple applications of B-72.) (800 gallons of B-72 applied). From completely faded, after consolidated, murals appeared to have regained 90% of "lost color" (fading was caused by loss of refractive index when the acrylic paint crumbled under UV light. The B-72 dissolved the Acrylic Mural Paint, and "re-formed" it so that the existent pigmentation was completely re-vitalized/

7. "**Guadalupe Mural"** Conserved and mounted on strong hollow wooden support) (Six Panels) - By Judy Baca of SPARC

9. **Historic Re-Construction of Marouflage Mural**: Downtown LA Federal Building - **By Lucien Labaudt** (12'x20') The Mural was re-constructed and mounted on a large custom panel that was then hung with iron clips to the wall of the Federal Building.

9. **"You Are the Star":** Hollywood, CA – Full Conservation and Consolidation of Acrylic Mural by Thomas Suraya

10. **Westminster Presbyterian Church**, Pasadena, CA – 100'x 400' Ceiling Mural Reconstruction following earthquake damage. Damaged areas of ceiling were completely re-painted using 35 shades of Mural Paint to match the original Heinsbergen patterns.

11. **Holy Cross Church**: Main St. Los Angeles – Conservation earthquake damage of 20'x 30'Apse Mural

12. **Westminster Presbyterian Church**: Fabrication of **multi-ton Replicate Spires** on top of Westminster Presbyterian Church Steeple **crafted from steel and fiberglass**. (Originals had fallen after earlier earthquakes) (Silicone casts were taken of the spire elements that had been distributed in many neighborhoods of Congregational Members in Pasadena. **Molds were taken "In Situ"** and then assembled into usable structures at a later date prior to installation on top of the Church Steeple).

13. Ventura Community Presbyterian Church: Conservation of Apse Mural. (Remove very dark varnish removed exposing vivid 22 carat gold leaf halos around saints in painting)

14. **Six church interiors:** After the 1992 earthquake in Los Angeles, NZA conserved six complete Church interiors including several Churches for the Catholic Archdiocese of Los Angeles, as well as a videography project for the installation of a George Yepes mural under the authority of Cardinal Mahoney of Los Angeles.

15. **Church of the Advent:** Adams St., Los Angeles - Conservation of Altar, Apse Mosaics, Tile, Floor, and aspects of Church Interior Design. (reconstruct apse cast glass mosaic. From several hundred shattered pieces. Replicate pottery floor tiles, move altar to face congregaton,, re-construct old altar).

16. **Transfiguration Church:** Martin Luther King Jr. Blvd., Los Angeles –Full conservation of 20'x30'Apse Murals, full conservation o6'x10' Stations of the Cross.

17. **Villa Park Murals**: Pasadena, CA – Acrylic **(15'high by 200'long)** (Clean, consolidate, apply B-72 as protective Consolidant. Apply anti graffiti coating.

18. **Brandelli's Brig Mural**: Venice Beach, CA – Innovative, state-of-the-art consolidation of totally flaked and cleaving acrylic over unspecified flaking paint – **By Art Mortimer** (Application of substantial spray coatings of B-72. so **At least ten layers of paint were laminated together so that the paint layer of the mural became more than ¼ inch thick.** Mural was pulled from wall in sections, and then reapplied to consolidated wall surface using Nova Super Gel. Although previously extremely flaked and delaminated, when consolidation process was complete, **In-painting was minimal.**

19. **Earthling Bookstore** Mural Installation: Santa Barbara – Marouflage

20. **"American Rhythm"** Marouflage Mural. By James Doherty. Full restoration of mural assembled out of a dozen torn pieces lined and then mounted on a structured wooden support in lobby of MCA Records and Universal Music

22. **Joel Silver "Flores De Mexico" Installation:** Conservation and installation of of "Flores de Mexico"Fresco by **Ramos Martinez in the Ricardo Legorreta designed home of Producer Joel Silver** - onto a 2 ton shock-mounted steel installation module designed and built by NZA. (Fresco on heavy steel support.

23. **Conservation of Still Life Fresco**: La Avenida Co. - By Ramos Martinez (installed in Coronado Library)

24. **Emergency Conservation of 2 Murals**: (Cal Trans) "Seventh St. Altarpiece" – By Kent Twitchell Los Angeles (100'x75') east exterior wall - By Kent Twitchell

25. **Wall Preparation, Product Design** and Technological Support for La Chamber Orchestra "Harbor Freeway Overture mural " By Kent Twitchell 3 panels 100' high. X 200' wide.

26. **Wall Preparation Technical Support and Installation**: White Memorial Hospital Mural - By George Yepes

27. "Mary Star of the Sea": 12' high Bronze Sculpture, San Pedro, CA - Repair extensive shattered damage to hollow cast figure caused by 1992 Earthquake . Reconstruct interior support system with expanded foam and aggregate epoxy. Prepare exterior surface with high tech epoxy coating and **apply 22 karat gold leaf.** install with Crane onto **120' tower of Mary Star of the Sea Church.**

28. **Federal building: Los Angeles, CA.** In depth cleaning and full Conservation of two Limestone Sculptures (14' high).

    Numerous Earthquake Damaged Liturgical Sculptures for Catholic and Lutheran Churches.

29. **Historic Reconstruction Of The House Of Hospitality; Balboa Park,** San Diego,California.Conservation Director for the twenty six million dollar Historic Reconstruction of the House of Hospitality in Balboa Park San Diego. NZA was hired by the City of San Diego and worked under the authority of Wayne Donaldson AIA to guide, instruct and plan the conservation of 1,800 salvageable design elements from the House of Hospitality, generate conservation parameters for the conservation of each item, and generate re- installation parameters for re-Hospitality is designated as a Historic Landmark, and its demolition and reconstruction in exact replica of the original was unprecedented in the history of Historic Preservation under the guidelines of the Department of the Interior. The project garnered more than 24 major awards for excellence in planning and execution. NZA was responsible for the salvage, conservation and re-installation segments of the project being within budget and within deadline.

30. **Santa Barbara Presidio** NZA crafted twenty wrought-iron sconces for the Santa Barbara Presidio restoration project. (The sconces were installed in the Presidio Chapel, and are fully authentic to the time, craftsmanship and patina).

31. **LA Mural Conservancy** Frank Romero Mural "Going to the Olympics": Consolidation of Mural Surface.

32. **Computer program for Michael Jackson mural**. (By Kent Twitchell) (Computer program created Pixels ¼ inch x ¼ with code in each pixel to show color to be used specific to each pixel. Result was a dramatically effective innovation in Mural Painting. Mural was to be installed on the East side of the El Capitan Theater in Hollywood. NZA designed a light show and faux smoke to be projected onto the mural the mural had Jackson with his arm on a steel mechanical strut extending beyond the wall on which the mural was to be applied. NZA invented a use for a polyester non-woven fabric on which the mural was painted as "marauflage". (Due to Mr Jackson's disastrous events in 1993, the project was abandoned after the earthquake caused significant damage to the El Capitan 0

33. **Chamber Orchestra Mural. "Harbor Freeway Overture"** (By Kent Twitchell) NZA developed the same pixel system as above, and the mural canvas was printed out on non-woven fabric and painted by a "paint by numbers" system. NZA installed the mural using Nova Gel and Nova Super Gel as adhesive. (100'x140').

34. **Veteran's auditorium**. Fresno Remove heavy overpaint from 8 large panels by **Heinsbergen.** Re-apply composition gold leaf "wave" designs around each mural segment. Inpaint and Museum Varnish.

35. **"Rainforest Mural"** (Beverly Connection) (Strappo removal of Acrylic Mural, mount on panels and transport to Ojai after conservation.

36. **"Two 12' Limestone Sculptures" Federal Building LA.** Remove discolored linseed oil Consolidant from the Indiana Limestone. (Solvent Vaccuum Treatment)

37. **"12 Garth Benton Marouflage Murals"** Parson's Technologies. (Clean, consolidate, in-paint, and final varnish.

2000'S

1. **"Theory and Science"** Fresco Secco Murals (reconstructon of lower 30%) by **Frederick Olmstead**: San Francisco City College. (Entry Staircase).

6. **Fresco: Stock Exchange,** San Francisco (Now City Club) - **By Diego Rivera**

7. **Conservation of Fresco: Art Institute San Francisco - By Diego Rivera (Designed for Rivera by Bernard Zakheim).**

8. **Applications of Consolidant Paraloid B-72 Judy Baca Great Wall Mural (½ mile long x 20' high)**

9. **Conservation and Removal of 12 Murals**: By Garth Benton for **Parson's Technologies** in Pasadena California.

10. **Conservation of Entry Way Mural and City Council Mural** in Burbank Calif. City hall**. (By Hugo Balin.)** (10' w x 20' high)

11. **Joel Silver Studios: Venice Beach Post Office** – Remove and Conserve Marouflage mural of Abbot Kinney By **Edward Biberman,** mount on 2" Aluminum Honeycomb Panel, **7'x17.' Abbot Kenney Mural for Producer Joel Silver (Producer of the Matrix Series)** (As of 3/18/2014) the fully conserved mural is **on display in the midst of three Interpretive Historic Rooms dedicated to the display of the Biberman Mural at Los Angeles County Museum of Art).**

12. **Curved Fresco Secco Mural**: MD Anderson Medical Center, Houston, TX – By Peter Hurd. **16.5' high, 48' long**, and **curved in a J-Shape on 5/8" crumbly plaster. Removed intact without damage.** Truss structure applied to back of mural, and full consolidation of friable 7/8" plaster consolidated with low viscosity Epoxy. Re-installed in City Library in Artesia Arizona .**Fresco Secco mural was painted on 5/8" friable plaster surface supported only by light expanded mesh, and ¾" "c" shape vertical rods** attached to the horizontal rods with baling wire. NZA applied an 8-ton multi-angled truss support to the front, and and an equal truss fabrication which was epoxied to the back of the consolidated mural. **The mural was removed in one piece** and shipped from Houston Texas to Artesia Arizona, where it has been installed in a new Municipal Library there

13. **Bernard Zakheim Collection**: Full conservation of over 30 large Wooden Warsaw Ghetto Holocaust Sculptures by Bernard Zakheim as well 16 full size frescoes and over three hundred oil and watercolor paintings.

14. **Ramos Martinez Mural**: Conservation And Installation of a Ramos Martinez for **The Coronado City Library,** Coronado California. NZA removed the six-ton fresco, 47' long and 8' tall, from the La Avenida Inn in 1995. In due time it was **brought to the NZA Studio Facility in the historic Howard Hughes airport buildings, in Playa Vista, California.** The conservation took two years and cost more than $250,000.00 to complete. The fresco is now installed by NZA in the City of Coronado Library facility. NZA moved the fresco from storage in North County, San Diego by air ride gooseneck truck to the Howard Hughes Airport facility, and similarly moved the fresco back to Coronado. Under the guidance and participation of NZA, in-house personnel
performed all installation work, and NZA served as consultant to the engineering staff that designed the installation framework. NZA Installed the multi-ton steel framework and expanding column systems

15. **One Block Long Mural** Los Angeles Cultural Affairs Department: Mid City Magnet School, Conserve, remove graffiti, in-paint and re-paint several sections of highly damaged areas.

16. **Judith Baca Sparc "Great Wall" Mural** Clean and consolidate **12' high mural x one half mile long.**

17. **City Of 29 Palms**: Consolidate 20 very large city murals: (we were honored celebrity guests of the City of 29 Palms.)

18. **B'nai Tikkvah Synagogue:** Remove and pack very large altar sculpture for storage.

19. **Two Marouflage Murals For Lincoln High School**, LAUSD. (5'x30' ft each Remove, conserve at **NZA Howard Hughes Airport studio**, mount on Gator Board, Apply to hallway wall with heavy Velcro.

20. **Hollenbeck High School**: Dorr Bothwell Lobby of High School Auditorium Frieze and Mural, For City Of LA. (Full conservation In Situ)

21. **Exact Replication Of Bernard Zakheim Mural**: Mineola Texas. Working from black and white photos, NZA, Nathan Zakheim working with three sons and two daughters, re-created this Mural with colors from Period Paintings by BZ. (7'x 15')(Installed in Mineola Texas with great honors and fanfare!

22. **Thirteen Banksy "Happy Coppers"**: figures. For English collecter/dealer Stuart Holt. (Remove wall composed of 2x4's and drywall, isolate and remount figures after removing total overpaint. Re-mount on display panels, and prepare to ship to England).

23. **San Diego State University:** Remove Tempera Mural From Concrete substrate and add interpretive portion destroyed during early remodel of building. Mount on custom designed panel, re-install in SDSU Library.

24. **Workman's Circle Mural**: Remove Graffiti, consolidate cracks and loose pieces of stucco on mural wall, Re-build loose structural elements behind the mural, work with original artist, Eliseo Silva, on re-touches of damaged mural (image.15'x 40')

25. **Jaya Mural for Venice Arts Council**: Consolidate and Supervise Artist repainting of Mural. Re-Consolidate after Artist's extensive restoration, and apply NZA proprietary anti-graffiti coating.

26. **"You are the Star"** Suraya (20' x 100'
Remove Urethane coating, consolidate and retouch.

27. **Los Angeles Unified School District**: 2 Bas Reliefs for Lincoln High School (consolidate, back with fiberglass, re-tone, strip and re-finish frames).

28. **Los Angeles Unified School District** : Lincoln statue for Lincoln High School. Strip multiple layers of paint, consolidate, strengthen casting from within, replace damaged segment.

29. **Workman's Circle :**(Robertson Blvd., Los Angeles). (15' x 40')
Remove Graffiti, strengthen wall, consolidate cracks with epoxy, re-touch damages, consolidate with B-72, and ply 2-part NZA AG Anti-Graffiti Coating.

30. **"Sex and Chocolate" by Banksy**. Remove from textured brick wall using NZA Strappo technique, and adhere salvaged paint layer to a 3-d fiberglass custom cast support, **(cast from original textured brick wall)** in-paint and crate for shipment to England.

31 **"13 Happy Coppers" By Banksy.**
Removed 20'x8' plasterboard wall, brought to NZA Conservation Facility, removed damagedover paint, and reinstalled on new supports as per Stuart Holt directions. Packed and Shipped to England.

32. **Conservation And Graffti Abatement Of Six Murals For City Of LA.**

33. **Conservation And Graffiti Abatement Of Four Murals For Operation Clean Sweep LA.**

34. **Two Hugo Ballin Murals For City Of Burbank** (Burbank City Hall)

35. **Lincoln High School:** Two Bas Relief Sculpture, And A Full Size Sculpture Of Abraham Lincoln.

36. **Bryce Banatyne Gallery**:
Pack and move 48' Ramos Martinez Fresco from Los Angelesto to town of Fillmore Ca.

37. **Gateway To Silverlake**:
Consolidate and apply anti graffiti sacrificial wax to eight Murals under Sunset Blvd.

38. **Jewish Center Of San Francisco**:
Conservation of Bernard Zakheim fresco. Remove mural by Stacco method, **re-mount on steel and fiberglass support,** and re-locate in stairwell of new Building for Jewish center

39. **La Cultural Affairs Department**: Conservation of Kent Twitchell's Strother Martin mural. Repair damaged stucco wall, remove graffiti, consolidate.

40. **City Of Coronado Installation of 7'x7' Ramos Martinez Fresco** for Coronado Library.

41. **Northrop Grumman**:
Conservation of 51 mural segments, mold abatement of mural segments, consolidation of mural segments and re-assembly and re-installation of 51 panel segment mural.

NZA was awarded thirteen Mural Artist' Multiple Paneled Murals located on Freeway Walls as well as Freeway Underpasses. NZA won the bids for thirteen projects, with the remaining three Mural Panels awarded to other Conservation Teams. These murals were contracted by Cal Trans and subcontracted by the Cultural Affairs Department of Los Angeles. **NZA was in a fortunate position to clearly demonstrate the new standards established by NZA for Continuously Renewable Mural Conservation with spectacular success.**

1. **Conservation of "Eye on LA**": 1984 Olympic Mural - By Alonzo Davis (Remove many layers of graffiti and "Cal Trans Grey" overpaint. Consolidate with B-72, re-touch under Alonzo Davis participation and direction. **NZA Proprietary Graffiti** Coating applied)

2. **Special Olympics Mural** LA FWY Kids" by Glenna Boltuch Avila (5,500 sq ft) **Remove all figures by "Strappo"** prepare wall, consolidate, re-apply conserved figures, paint background colors as per original intent of artist.

3. **Two Panels** by Rubin Brucelyn on 2 FWY (LA) (1,200 sq. ft. each)

4. **"Hitting the Wall"** (Two Panels by Judith Baca on 110 FW)(**3,000 sq ft total)**

5. **Two Acrylic murals painted by Kent Twitchell** with Nova Color Acrylics Artist paints directly on the concrete support for the 7th Street overpass on 110 FWY (1,200 sq ft each) using NZA Proprietary Strappo technique. Once fully conserved **(20'x50' each,** the murals were re-adhered to the Grand Avenue overpass over the 5/101 Freeway in downtown LA. Conservation consisted of cleaning the mural in situ, application of facing material, **removal of the paint layer directly painted on the concrete surface of the freeway underpass, transportation of murals to the NZA Playa Vista studio, Conservation of the murals, preparation of a new site for the murals on the 101 FWY, and reinstallation of the two murals on the 101 FWY.**

6. **26 Marathon Mural Runners** by Kent Twitchell near LAX on 405 FWY **(4,000 sq. ft.)** (Figures removed, **brought to NZA Howard Hughes Airport Studio**, conserved and re-mounted on 5 Freeway N near Stadium Way)(Conservation consisted in **Strappo removal of all 26 8'x16' mural figures,** and conservation in NZA Playa Vista studios. A new location for the mural was prepared by NZA, and the murals installed at that site. There was heavy damage by graffiti, and two years was spent in the conservation of the 26 figures).

7. **4 "Underwater Fantasy"** murals by Michelle Obregon (**Each 5,000.00 sq ft)** Remove extensive graffiti, consolidate, inpaint losses, apply NZA Anti Graffiti coating.

8. **"Struggles of the World"** by Willie Herron III (**2,500 sq ft)** Remove Graffiti, remove Cal Trans grey overpaint, consolidate, Inpaint, apply anti graffiti Sacrificial wax

9. **"Reach Out" Mural**; by Alonzo Davis (**3,000.00** sq ft. Remove graffiti, consolidate, in-paint damages and losses.

ART OF PROMINENT ARTISTS CONSERVED BY NZA:

Helen Lundeberg	Lorser Feitelson
Hans Burkhardt	Andy Warhol
Jean Charlot	Ramos Martinez
Jose Clemente Orozco	Oscar Fischinger
Edward Biberman	Lucien Labaudt
Diego Rivera	Rico Lebrun
McLaughlin	Kent Twitchell
Judith Baca	Eloy Torres
Victor Arnouto	Bernard Zakheim
Hugo Ballin	Charles M. Russell
Frederick Remington	Collin Campbell Cooper
Alexander Harmer	Albert Herter
Millard Sheets	Ralph Stackpole

CATEGORIES OF ARTWORKS CONSERVED:

Fresco Buono and Fresco Secco	Egg Tempera
Marouflage Murals	Oil Murals
Oil Easel Paintings	Limestone Sculpture
California Plein Air	Cowboy Art
WPA Art	Pre-Raphaelite

Spanish Colonial
Acrylic Murals and Paintings
Petrachrome Murals
Indian and Persian Miniatures
(in Ivory and Marble).
Paintings
Marble Sculpture
Greek and Russian Icons
Impressionist Paintings
Intaglio
Soapstone and Alabaster
Bronze Sculpture
Mosaic Murals
West African Sculpture
Patachitra(Palm Leaf) Painting Australian Bark
Cast Bronze Sculpture
Carved Wood Polychrome
Terra Cotta and Ceramic Sculpture
Craftsman/Art Nouveau
Japanese screens

EXPERT WITNESS TESTIMONY BY NZA IN ART RELATED LAWSUITS:

1. Los Streetscrapers vs. Shell Oil (Destroyed) ($450,000.00 settlement)

2. Chicano Park (Michael Schnor) (defective Coating) ($350,000.00 settlement)

3. Lilly Anne Mural (Chuy Campesano) (painted out) ($375,000.00 settlement)

4. Ed Ruscha Mural (Kent Twitchell)(painted out) ($1,100,000.00 settlement).

Appendix O-TL2

BRUNZELL
HISTORICAL

KARA BRUNZELL

Owner/Principal Historian (2009 – Present)
Brunzell Historical

1613 B Street Napa, California, 94559
707.290.2918 ♦ kara.brunzell@yahoo.com

EXPERTISE

Kara Brunzell has practiced in the fields of cultural resource management and historic preservation since 2007. She has served as a consulting historian on historical research investigations for federal, state, and municipal governments. She is proficient in the recordation, inventory, and evaluation of historic resources using the National Register of Historic Places (NRHP) and the California Register of Historic Resources (CRHR) guidelines as well as the production of historic context statements. She has acted as a cultural resource project manager since 2012. Kara is experienced in preparation of NRHP and local register nominations. Her expertise includes eligibility recommendations and findings of effects for Section 106 review and compliance. She is experienced in applying the California Environmental Quality Act (CEQA) to both large-scale survey projects and individual historic-period resources. Kara qualifies as a Historian and Architectural Historian under the United States Secretary of the Interior's Professional Qualification Standards (as defined in 36 CFR, Part 61). She is qualified to work in all California counties and has also completed projects in Nevada, Oregon, Washington, Texas, New York, New Jersey, Hawaii, and Puerto Rico.

EDUCATION

California State University, Sacramento, MA, Public History
UCLA, BA, History

VOLUNTEER

Board of Directors, Napa County Landmarks (2010 – Present)

SELECT PROJECT EXPERIENCE

Historic Context Statement Update; Carmel-by-the Sea, Monterey County, CA (current). Kara is project manager for an update of the City of Carmel-by-the-Sea's Historic Context Statement Update. Its focus is the research of historic contexts that shaped City of Carmel-by-the-Sea's development between 1966 and 1990 and integration of new information with themes in the existing historic context statement. The purpose of this effort to provide a framework for evaluation of twentieth-century resources. Kara has collaborated with City staff and local stakeholders to incorporate community input. Final deliverables will include an architectural style guide.

NRHP Nomination of Asilomar Conference Grounds, Pacific Grove, Monterey County, CA (current). Kara is preparing the NRHP Historic District Nomination of 21 buildings at Asilomar Conference Grounds on behalf of California State Parks. Her team is producing a historic context, architectural context, 10-900 form, and historic figures as well as preparing the photographic submission from existing photo-documentation. Designed by John Carl Warnecke and constructed between 1959 and 1968, the buildings were constructed outside the period of significance (1913-1936) for the Julia Morgan-designed buildings that are contributors to the Asilomar Conference Grounds National Historic Landmark. The buildings are important examples of the contextual architecture that characterized Warnecke's early career design aesthetic, and his master plan demonstrates groundbreaking sensitivity to the site and existing buildings.

Architectural History Effects Investigations for Telecommunications Projects, Ace Environmental LLC, (2019-current). Kara manages and authors effects to architectural resources studies for proposed cellular antenna installation and expansion projects located on historic-period buildings or within historic districts throughout California. Project impacts on historic properties are assessed in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, the Nationwide Programmatic Agreement for Colocation of Wireless Antennas, effective March 2001 and the Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission (March 2005) as well as subsequent relevant Report and Orders. The reports assess whether the proposed undertakings would result in direct or visual effects to historic properties. In 2019, Kara assessed more than thirty telecommunications sites throughout California in Los Angeles, Orange, San Bernardino, San Francisco, Sonoma, Stanislaus, and Ventura counties.

I-80/Ashby Avenue Interchange Improvement Project; Circlepoint, Alameda County (2019- current). Kara is preparing an assessment of the built environment resources (a radio station and tunnel) in the project study area for inclusion in a Preliminary Environmental Assessment Report for California Department of Transportation review. She conducted a field review, recorded buildings in the project area of potential effects on California Department of Parks and Recreation 523 forms, and is evaluating the recorded resources for NRHP and CRHR eligibility.

Bellflower Water Capture Project at Caruthers Park, Phase I and II; City of Bellflower California (2019). This project consistede of the design and construction of a regional stormwater project at the City of Bellflower's Caruthers Park. Kara prepared an evaluation of the existing facility for its eligibility for historic listing on the NRHP in order for the project to complete the 404 permitting process.

Adventure Park Multi-Benefit Stormwater Capture Project; Whittier, CA (2018). This project consists of the design and construction of a stormwater treatment facility at the City of Whittier's Adventure Park. Kara evaluated the park and adjacent water-control structures for eligibility as historical resources, the structures were recommended ineligible for historic listing.

Historic Resource Evaluation of Five Buildings at Oakland International Airport; Port of Oakland, CA (2018). Kara evaluated a mid-twentieth century maintenance hangar and four World War II-era buildings at the Oakland Airport for NRHP and CRHR eligibility. None were recommended eligible for historic listing.

NRHP Nomination of Capistrano Substation, San Juan Capistrano, Orange County, CA (2018). Kara prepared the NRHP nomination of the historic flour mill. Her team produced the historic context, 10-900 form, and historic figures as well as preparing the photographic submission from existing photo-documentation. Constructed as an electrical substation in 1917, the building is associated with the development of electrical power in Southern California. Additionally, the Classical Revival style building is architecturally significant as an example of the "Monumental" subtype of Southern California Edison electrical substations. The property was determined NRHP eligible in 2019, although owner objection prevented its official listing.

Interlake Tunnel Project: Monterey County Water Resources Agency; Monterey and San Luis Obispo Counties, CA (2017-2018). Kara evaluated the San Antonio Dam in Monterey and San Luis Obispo Counties for NRHP and CRHR eligibility. She produced a historic context of the water resources agency and a chronology of the dam's development, which was recommended ineligible for historic listing.

State Printing Plant and Textbook Warehouse Relocation and Building Demolition Project; California Department of General Services; Sacramento, CA (2017-2018). Kara prepared a California Public Resources Code 5024 evaluation of the mid-twentieth century printing plant as well as greenhouse and maintenance buildings located on the property. This included an evaluation for NRHP and CRHR eligibility, and eligibility as a California Historical Landmark (CHL), along with an accompanying report.

Department of Motor Vehicles Fell Street 5024 Evaluation; California Department of General Services; San Francisco, CA (2017). Kara prepared a California Public Resources Code 5024 evaluation of the mid-twentieth century building. This included an evaluation for NRHP and CRHR eligibility, and eligibility as a California Historical Landmark, along with an accompanying report. The building was found to be ineligible and the State Historic Preservation Office concurred with the determination.

NRHP Nomination of Sperry Flour Company, Vallejo, Solano County, CA (2017). Kara prepared the NRHP nomination packet including historic context, the 10-900 form, historic figures, and photo-documentation of the historic flour mill. Located on the eastern shore of Mare Island Strait, flour was milled on the site with few interruptions from 1869 through 2004. The district's most important resources are its World War I-era mill buildings, which are were designed by engineer Maurice Couchot represent an important early use of reinforced concrete in large industrial buildings. It was added to the NRHP in late 2017.

Los Gatos Creek Watershed Maintenance Program; San Jose Water Company, Santa Clara County, CA (2016). Kara evaluated elements of the San Jose Water Company for NRHP and CRHR eligibility as a non-contiguous historic district. She produced a detailed historic context of the private water company, which has been active from 1866-present, and recorded nine water conveyance structures, several of which were recommended eligible for listing because of their association with the historically significant utility.

Redwood Agricultural Inspection Station Repairs; California Department of General Services, Del Norte County, CA (2016). Kara evaluated the Redwood Agricultural Inspection Station in rural Del Norte County for NRHP, CRHR, and California Historic Landmark (CHL) eligibility. The unique building was designed by California State Architect Alfred Eichler at the start of his career and constructed in 1931, and was recommended eligible for NRHP and CRHR listing based on its significant architecture.

Jesse Unruh Building Roof Replacement Project; California Department of General Services, Sacramento, CA (2016). Kara acted as architectural historian for this project, which involved project review for a proposed roof repair project by the California Department of General Services on the NRHP-listed Jesse Unruh State Office Building on the Capitol Mall in Sacramento. She performed a field visit to and prepared a letter to SHPO detailing condition of roof skylights.

Architectural Historian for Architectural/Historical Evaluation of Eight Buildings on the Parcel Northwest of Jurupa Avenue and Cedar Avenue, Bloomington, San Bernardino County, CA (2016). Ms. Brunzell acted as Architectural Historian on an Architectural/Historical evaluation of eight historic-period buildings in Bloomington.

Section 106 and CEQA Compliance Tasks for the GRID Roads Bookends Project, American Canyon, Napa County, CA (2016). Kara acted as Architectural Historian on Section 106 and CEQA Compliance Tasks for the GRID Roads Bookends Project in American Canyon, California.

Architectural/Historical Evaluation and Review of Proposed Project for Beltane Ranch; Sonoma County, CA (2015-2016). Kara conducted an Architectural/Historical evaluation and review of proposed project for Beltane Ranch near Glen Ellen in rural Sonoma County. The ranch complex is significant under several contexts including the development of winemaking in Sonoma County. Its most important context is its association with African-American San Francisco pioneer Mary Ellen Pleasant (known as the mother of civil rights in California) who owned the property in the 1880s and built its architecturally significant ranch house. Kara reviewed a proposed alteration to the barn for conformance with the Secretary of Interior's Standards for the Treatment of Historic Properties and produced a recommended treatment plan.

Architectural/Historical Evaluation and Archaeological Survey of Santa's Village in Skyforest, San Bernardino County, CA (2015). Kara acted as Architectural Historian on an Architectural/Historical evaluation of a historic-period theme park in near Lake Arrowhead in the San Bernardino Mountains. The project also required archaeological investigation of the site.

Historic Resources Survey, NASA/Jet Propulsion Laboratory, Pasadena, California (2015). The historic resource survey was conducted for the National Aeronautics and Space Administration's (NASA's) Jet Propulsion Laboratory (JPL) Pasadena facility. Kara acted as consulting historian, participating in the survey on behalf of NASA's JPL in order to determine if the historic-period buildings and structures not previously evaluated are eligible for listing in the NRHP. In addition, Kara assisted in analysis of whether the seven previously-determined eligible buildings and structures at the JPL facility (and the 20 buildings and structures that are the subject of this survey) possess a linkage historically or aesthetically and retain their historic significance and integrity to merit listing in the NRHP as a historic district.

Historic Context Survey of Davis; Yolo County, CA (2014-2015). Kara managed a Historic Context Update Survey for the City of Davis. The project, which was funded by SHPO's Certified Local Government grant program, included a detailed historic context of the years between 1940 and 1975, field survey of previously un-surveyed neighborhoods developed before 1975, DPR 523 update, and new DPR 523 District forms for roughly 150 subdivisions. Kara collaborated with the Davis Historic Resource Management Commission in order to leverage the impact of the limited grant budget, leading a team of community volunteers in a field survey effort that covered most parcels in a seven square-mile area. The final product incorporated the results of new research and field survey with the City's three existing Historic Context Statements and updated DPR 523 forms for over 300 resources on its Historic Resource Inventory.

Historic Architectural Evaluation of the Delta Research Station; Rio Vista, Solano County, CA (2014-2015). Kara authored a historical architectural evaluation of a former USACE base located in Rio Vista, California. The site, which was originally called the U.S. Engineers Storehouse, was established in 1911 by USACE as a repair and storage facility associated with the Sacramento River Flood Control Project. Kara evaluated the 20 extant buildings and structures on the site and recommended them eligible to the CRHR as a historic district.

Historic Context Survey and Historic District Nomination for the Newton Booth Neighborhood; Sacramento, CA (2013-2014). Kara prepared a historic context statement and historic district nomination for the Newton Booth neighborhood in Sacramento. The project included extensive recordation of the primarily residential neighborhood, a detailed neighborhood history, determination of contributing status for each property within the district, DPR 523 forms for individually eligible landmarks, and preparation of a Sacramento Register nomination form for the historic district. Kara worked with interested parties including the City of Sacramento's Preservation Director, the Sacramento Old City Association, and the Newton Booth Neighborhood Association in order to incorporate community input into the project.

Cultural Resources Assessment, Monterey Peninsula Water Supply Slant Test Well Project, City of Marina and Unincorporated Monterey County, CA (2013). Kara contributed research and architectural analysis to the cultural resources assessment of a historic-period cement plant.

Historic Buildings and Structures Inventory for Fort Hunter Liggett, Jolon, Monterey County, CA (2012-2013). Kara participated in the preparation of an update to the existing Fort Hunter Liggett inventory of historic buildings. The project included the recordation and evaluation of twenty historic-period buildings located with the boundaries of Fort Hunter Liggett. None of the buildings were recommended eligible for the NRHP of the CRHR.

Schulte Road Bridge Replacement Project Cultural Mitigation Measures; Monterey County, CA (2012). Kara acted as Project Manager and Principal Historian for Cultural Mitigations of the Schulte Road Bridge Replacement Project in rural Monterey County. The project EIR recommended detailed recordation of the bridge, which dated from the immediate postwar era, as a partial mitigation for the destruction of a historic resource. Kara authored a HAER-type report on the bridge and coordinated the preparation of permanent archival photographic documentation of the bridge.

EXHIBIT 2

INSTRUCTIONS FOR RECORDING HISTORICAL RESOURCES

Office of Historic Preservation
P.O. Box 942896
Sacramento, CA 942196-0001

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This publication has been financed in part with Federal funds from the National Park Service, Department of the Interior. However, the contents and opinions do not necessarily reflect the views or policies of the Department of the Interior, nor does mention of any trade names or commercial products constitute endorsement or recommendation by the Department of the Interior or the California Office of Historic Preservation.

PREFACE

This manual is the result of many hours of effort by a diverse consortium of preservation professionals and other interested persons. The effort was coordinated by the California Department of Transportation through an agreement with the California Office of Historic Preservation. The goals of the effort were to:

- Facilitate the integration of the Historic Resources Inventory and the California Archaeological Inventory;
- Encourage the collection of information about all types of historical resources;
- Permit more flexibility in the way information is collected; and
- Improve access to information about historical resources.

This manual builds on the knowledge and practical experience gained from the development and use of the Handbook for Completing an Archaeological Site Record (Office of Historic Preservation 1989b) and the Instructions for Completing the California Historic Resources Inventory Form (Office of Historic Preservation 1990). The procedures and forms described in this manual are designed to eventually supersede both existing manuals and their respective recording forms (DPR 422 and 523). The new forms in this manual have been assigned temporary designations within the DPR 523 series. The forms will be considered and labeled as the new DPR 523 series when these procedures are formally adopted.

It is recognized that the adoption of the recording procedures in this manual will also require ancillary changes in the California Historic Resources Inventory Survey Workbook (Office of Historic Preservation 1986) and California Archaeological Site Inventory: Information Center Procedural Manual (Office of Historic Preservation 1989a).

Please direct any questions or comments about this manual to the California Office of Historic Preservation at:

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INTRODUCTION

Access to information about historical resources is a prerequisite for preservation efforts. Informed planning hinges on the use of that data and information about historical resources also plays an important role in research and education. In the absence of such information, historical resources may be harmed by development or even natural deterioration without consideration of the public loss. For that reason, managing information about historical resources is a fundamental role of the California Office of Historic Preservation (OHP).

The new recordation procedures described in this manual comprise a single system for documenting the full range of values present in a given location. As such, they are similar to the National Register of Historic Places (NRHP) nomination form. Like the NRHP form, California's new historical resource recording system provides for the collection of certain fundamental information about every resource on a simple one page form called a Primary Record. The Primary Record is designed to be used by anyone wishing to record a resource. A variety of more specific forms can then be used to supplement that information with further descriptive data and a statement of significance where appropriate.

This manual establishes guidelines regarding the kinds of resources that merit recordation and the different levels of information it may be appropriate to gather about them to meet a variety of user needs. The scope and organization of the information managed by the OHP is first explained in this introductory section. Detailed instructions are then provided for recording all kinds of historical resources. Other OHP publications are being developed to explain changes in how that information will be managed.

The Scope of OHP's Filing System

For the longest time historical resources have been conceived of as buildings, structures, objects, and archaeological sites. That perspective has changed recently as more is learned about peoples of differing ethnic and economic backgrounds and their relationship to historical resources. A broader spectrum of resource types are now recognized, and awareness also has increased regarding the diverse values associated with historical resources. Both factors have contributed to the development of a more comprehensive and holistic view of the historic environment embodied in the use of concepts such as "cultural landscape."

The California Office of Historic Preservation (OHP) is committed to developing an increasingly comprehensive and integrated system for managing information about all types of historical resources in order to accommodate this holistic view of the historical landscape. The scope of the information the OHP manages will continue to broaden to meet the diverse legal, educational, research, and other needs of its many users. Integration of the files will contribute to the efficiency of that filing system, facilitating access to information and enhancing awareness of all aspects of California's diverse cultural landscape.

The information currently managed by the OHP and its regional Information Centers includes a variety of specific information about historical resources, as well as reports describing how those resources were identified, evaluated, and treated. The files for specific resources have been divided historically between the Historic Resource Inventory (HRI) and the Archaeological Inventory (AI). That separation has created a number of management problems, as discussed by the National Park Service (1990c) and the OHP (1991a). One solution to those problems is to integrate the HRI and AI files--a process now underway. The recordation procedures described in this manual are designed to facilitate that integration.

The OHP's filing system also manages reports documenting survey, treatment, and registration activities. Survey reports provide crucial information about the adequacy of efforts to identify historical resources and thus constitute another important source of information managed by the OHP. While this manual does not provide detailed instructions for conducting surveys, the forms explained here do provide mechanisms for cross-referencing reports, registration programs, and decisions about the significance and treatment of each

resource.

Information about how to conduct and report survey activities can be found in National Register Bulletin 24 (National Park Service 1985), the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (National Park Service 1983), and California Historic Resources Survey Workbook (Office of Historic Preservation 1986). Appendix 6 summarizes the fundamental topics that the Secretary of the Interior recommends covering in reports describing reconnaissance and intensive surveys, while more detailed suggestions are offered in Archaeological Resource Management Reports (ARMR): Recommended Contents and Format (Office of Historic Preservation 1989a).

What Kinds of Resources Merit Recordation?

A broad threshold is set here for the kinds of resources that may be recorded for inclusion in the OHP's filing system. That threshold is designed to encompass resources that have been formally evaluated, as well as those whose importance has not yet been determined. **Any physical evidence of human activities over 45 years old may be recorded for purposes of inclusion in the OHP's filing system**. Documentation of resources less than 45 years old also may be filed if those resources have been formally evaluated, regardless of the outcome of the evaluation**.**

The 45 year criteria recognizes that there is commonly a five year lag between resource identification and the date that planning decisions are made. It explicitly encourages the collection of data about resources that may become eligible for the NRHP or California Register of Historic Resources (CRHR) within that planning period. More restrictive criteria must be met before the resources included in OHP's filing system are listed, found eligible for listing, or otherwise determined to be important in connection with federal, state, and local legal statutes and registration programs.

The OHP recognizes that there are a wide range of reasons for recording historical resources. It is understandable that within the constraints of a survey's objectives it is not always reasonable or appropriate to record all historical resources as defined here. Professional judgement in the field is essential when determining whether or not a resource warrants recordation. The scope of surveys may be defined by specific legal criteria. In such cases, survey methods may be clarified through consultation and agreement with the State Historic Preservation Officer.

Professional surveys that do not evaluate resources against specific legal criteria should record all resources that meet the broad threshold set here when those studies are conducted in connection with planned developments. Detailed recordation of all but the most limited resource types is generally required for such project-driven, non- evaluative professional surveys.

Surveys conducted for reasons other than development activities may focus on a narrower range of resources based on the user's need for information. For example, a thematic survey may focus exclusively on the identification of a certain type of resource or a reconnaissance survey may be conducted to develop a management plan for a large tract of land. The submission of records not produced as the result of surveys are also encouraged.

Classifying Historical Resources

After discovering a historical resource it is useful to classify it. The OHP has adopted the NRHP resource categories as a basis for initial classification of California's historical resources. More detailed classification is then based on the presence of any of the attributes listed in Appendix 4. The NRHP categories are defined by the National Park Service (1990b:4-5) as follows, and examples of each category are provided in Appendix 5:

Building: A building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. "Building" may also be used to refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn.

Structure: The term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter.

Object: The term "object" is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed. Although it may be, by nature or design, movable, an object is associated with a specific setting or environment.

Site: A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure.

District: A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.

The OHP encourages a comprehensive approach to identifying historical resources. In that approach all historically associated and/or physically superimposed resources are documented together as elements of California's cultural landscape. Even if you lack the expertise needed to record all aspects of a resource in detail, you are urged to provide a brief summary of the full range of values that may be present whenever feasible in Fields P3b and B11. This will ensure that each element receives more routine consideration in the planning process.

When conducting a comprehensive survey you should generally record large and complex cultural landscapes as districts. Small, simple groupings of resources such as a historic building constructed on top of an archaeological site or a house with an associated garage or barn are most appropriately documented together as an individual historical resource using a single Primary Record to index all of the values present and detailed recording forms, as appropriate, to present more detailed information about each component.

It should be emphasized that some resources lacking individual distinction nevertheless may contribute to the understanding and appreciation of California's history and prehistory. Such resources may include, but are not necessarily limited to isolated archaeological artifacts and remnants of cultural landscapes. **If a resource cannot be readily classified as one of the five National Register types defined above, the checkbox for "other" in Field P4 may be marked to designate the presence of an isolate or very minor resource**. The "other" checkbox should not be used for features that clearly fall into one of the National Register types. You are encouraged to document isolated and minor resources however it is most sensible to do so, either as individually recorded entities documented to the minimum standards discussed below, or as features of larger historical resources.

The term "feature" is used in this manual to refer to minor components of historical resources. Features generally consist of small constructed works, discrete activity areas, landscaping, earthworks, non-portable natural objects modified by human use, and other similar cultural entities. They include, but are not limited to values such as: a garage or landscaping associated with a house; a gate valve associated with a ditch; an adit, tailings, or ruined mill that are part of a mining complex; or a trash pit, orchard, discrete activity area, bedrock milling station, rock art panel, or carved tree associated with a site.

Traditional cultural properties (TCPs) are an important aspect of California's cultural heritage that are

receiving long-overdue attention. The California Native American Heritage Commission has maintained an inventory of sacred sites for many years. In 1988 the OHP published Five Views: An Ethnic Sites Survey for California (1988) to promote awareness about resources important to several ethnic groups including Native Americans. The OHP specifically encourages the documentation of TCPs on a Primary Record as a basis for including information about them in the file system. More detailed information about TCPs may be documented depending on the need for information about that resource. Consult National Register Bulletin 38 (National Park Service 1990a) for information about how to conduct a survey of TCPs.

How Much Documentation Is Enough

The recording forms in this manual are designed to meet a wide range of needs for information about historical resources. They allow reasonable discretion regarding the level of information that is collected based on each user's needs and the relative value of the resources that are being documented. That flexibility is intended to encourage the recordation of historical resources not consistently incorporated into the OHP's files up to this time. Examples of all the forms discussed in this manual are provided in Appendix 1.

The minimum documentation needed before the record for a qualifying resource will be included in OHP's filing system generally consists of a completed one page Primary Record and a Location Map. However, the Location Map is optional for resources on small parcels of land in urbanized areas when a street address is provided. More detailed descriptive information and evaluations can be documented on the Building, Structure, and Object (BSO) Record; Archaeological Site Record; and District Record to meet needs not satisfied by the minimum threshold. A Sketch Map should also be prepared to accompany most detailed records.

The minimum level of documentation is designed to provide an initial record for all types of resources. It may even provide relatively complete descriptive data for simple resource types such as isolated archaeological finds and minor historic landscape features. However, it is important to emphasize that the Primary Record (and a Location Map when required) is **strictly non-evaluative** and constitutes the **minimum** documentation needed to include a record in OHP's filing system. Professional surveys conducted in connection with planned development projects should generally record all but the very simplest resources with a Primary Record, Location Map, **and** an appropriate detailed recording form or forms (e.g., BSO Record, Archaeological Site Record, and District Record).

Several optional records have also been designed for use in conjunction with any of the aforementioned records. They include a Linear Feature Record, Milling Station Record, Rock Art Record, Artifact Record, Photograph Record, and Continuation Sheet. Use of the optional forms is entirely discretionary and may be combined with either minimal or detailed recordation as appropriate.

In keeping with the flexible nature of this recordation approach, surveyors recording at the minimum level of documentation (e.g., the Primary Record) may opt to provide additional information, as desired, on a Continuation Sheet. Data fields / entries from any of the detailed and optional recording forms in this manual may be selected and used to organize the information presented on a Continuation Sheet. Every data field has been assigned a unique designation composed of a letter (signifying the record it came from) and number to facilitate such customized presentations.

Format Requirements and Submission of Records

All records submitted for inclusion in the Inventory must be typewritten or computer-generated. Fields marked with a sidebar, asterisk, and boldface type in this manual must be completed. Please make every effort to produce clear and easily readable maps, photographs, and drawings when they are required.

The use of computers is encouraged in the production all of the records described in this manual. Every

required data field must be included on computer-generated forms, with header blocks presented as they appear on the sample forms. For records documenting buildings, structures, and objects it is preferable to format computer-generated records the same as those reproduced in Appendix 1, with continued text placed on a Continuation Sheet. It is particularly helpful to keep the photograph (required for buildings, structures, and objects in Field P5 on the Primary Record) on the first page of a record. When a photograph is not required, this space may be utilized for continuous text entry.

For records documenting sites the text of computer-generated data fields should usually be entered as a continuous block, with paragraphs used to break the text up as appropriate. Lengthy entries should generally be introduced with a paragraph that summarizes the data in that field. District Records may be produced with either continuous text or the use of a Continuation Sheet.

The OHP encourages you to submit all types of data about historical resources for inclusion in its filing system, from minimal records to detailed documentation, reports, registration data, and other pertinent information. Each type of information will further preservation efforts and contribute to greater awareness of the value of our rich and varied history and prehistory. Recorders are urged to submit two copies of each record to the appropriate regional Information Center listed in Appendix 8 soon after completion of a survey. Upon acceptance, the Information Center will assign a Primary Number and forward one copy of the record to the OHP for inclusion in its Central Records. A survey report is normally expected to accompany or follow any submission of detailed recording forms resulting from a professional survey.

For built resource surveys conducted in connection with federal undertakings it is acceptable to submit one copy of the survey report to the appropriate Information Center after completion of the study and a second copy can then be submitted directly to the OHP. In such cases, the second copy should identify each resource by the Primary Number assigned by the Information Center. For surveys funded through the OHP, records and survey reports should be submitted in accordance with the contract.

THE MINIMUM LEVEL OF DOCUMENTATION

The Primary Record and a Location Map provide the minimum level of information needed to include a record in the OHP's filing system. The Location Map is optional for buildings located on small parcels of land in urban areas when an address is provided. This minimum level of documentation is designed to provide an initial record of all types of historical resources including buildings, structures, objects, sites, and districts, as well as cultural landscapes (sites) and traditional cultural properties (many of which are classified as sites).

How to Prepare a Primary Record

The following are step-by-step instructions for completing the Primary Record. Please note that **required information is indicated with a sidebar, asterisk, and bold type** in the instructions that follow.

Header Block: Information provided in the header block will be used to track resource records and the decisions made about a documented resource. Enter the appropriate information in the spaces provided for Primary Number, Trinomial/HRI Number, Other Listings, and NRHP Status Code when known. The space provided for Review Code, Date, and Reviewer will be completed by the OHP or Information Center staff and **should always be left blank**.

Primary Number: Enter a number only if it has already been assigned by OHP or an Information Center.

Trinomial/HRI Number: Enter a number only if one has already been assigned by OHP or an Information Center.

NRHP Status Code: If only a Primary Record is filled out, enter a 7 in this field or leave it blank. You may enter a National Register Status Code other than 7 if an evaluation supported by a BSO Record, District Record, or other detailed documentation is attached.

Other Listings: Enter any national, state, and local designation programs in which the resource is listed. Provide a reference number if applicable. Enter only those designations already approved at the time of recordation. Use the following abbreviations: HABS (Historic American Building Survey), HAER (Historic American Engineering Record), NHL (National Historic Landmark), SHL (State Historical Landmark), CPHI (California Point of Historical Interest), CRHR (California Register of Historical Resources); or provide the name of the local register where applicable.

***Resource Name or #:** Use this field to provide an identifier that can be used to link all the pages of the record. The identifier can be a historic or common name, parcel number, or any other designator which will consistently refer to the resource.

P1. Other Identifier: This space may be used to provide an identifier that relates to a project name, agency designation, or other unique identifier.

***P2. Location:** First, indicate whether or not the location of the resource should be kept confidential. Then provide the name of the county (or counties) (Field P2a); USGS 7.5' quadrangle, township, Range, and portion of a Section (Field P2b); and an Address (Field P2c) and/or UTM coordinate(s) (Field P2d). Other locational information may be provided in Field P2e as needed.

A Location Map must be attached to the Primary Record for sites, as well as other resources that do not have a street address. Locations Maps are also recommended for resources on large parcels where an address may not satisfactorily pinpoint the location of the resource within the parcel.

***P2a. County:** Give the name of the county or counties in which the resource is located. If it is located in more than one county, put the county containing the majority of the resource first. Include the appropriate county and state for resources that extend outside of California.

***P2b. USGS 7.5'Quadrangle, Township, Range, and Section:** Provide the name of the USGS 7.5' quadrangle(s) that cover the area in which the resource is located and describe its legal location to the nearest quarter quarter section where possible. For large or linear resources spanning an extensive geographic area it may be helpful to provide several legal descriptions. Indicate the township, range and base meridian for each legal description.

P2c. Address: Enter the complete address for the parcel on which the resource is located if one exists. Include the street or highway number and name, town or city, and zip code. For numbered highways, use "State Route" or "County Road" followed by a number.

P2d. UTM: UTM coordinates are required for sites, and should also be used for other resources that either do not have a street address or cannot be accurately located by the address due to the size of the parcel. For example, linear structures rarely have addresses and many rural buildings are located on large parcels. In such cases, UTMs should be provided to more accurately pinpoint the location of the resource.

Begin by entering the name of the U.S. Geological Survey quadrangle(s). Note the date the map was published or photorevised. For resources less than 10 acres, enter the UTM reference for the point corresponding to the center of the resource. Four UTM references are required when identifying the corners of larger resources. UTM references should be provided for both ends of linear structures and sites (or for the recorded segment of that resource). When more than one UTM reference is given, each

reference point should be depicted on a Location Map. Refer to Appendix 3 for further information about how to calculate UTMs.

P2e. Other Locational Data: While no further locational data is required, it may be helpful to supply additional information such as a parcel number; lot, block, and subdivision; and/or directions to a resource. Parcel numbers may be particularly useful to local governments that make decisions affecting historical resources. For resources that are particularly hard to find, it may even be necessary to supplement the Location Map with an Access Map showing how to get to the resource from an easily identifiable landmark.

***P3a. Description:** Provide a concise, well-organized description of the resource. Describe its physical characteristics and appearance and summarize any features that are associated with it. Where possible, note all aspects of the resource you observe, even if some of those elements are not recorded in detail.

Descriptions of buildings, structures, and objects should identify construction details, materials, workmanship, and alterations. Buildings are often described in terms of overall shape, number of stories, siding type, roof shape and materials, dormer shape, window location and pattern, door location, porch type, and ornamentation. Information on the nature and extent of any alterations should also be included. Boundary descriptions may be brief and may refer solely to the resource's parcel where appropriate. Describe the area outside the boundaries, mentioning as appropriate landscape, use, architecture, and other aspects related to setting.

Descriptions of linear structures and linear sites should include an overview of the entire resource when possible, even in cases where only a segment of that resource is recorded. The overview should attempt to describe the type of resource, when it was constructed, how long it is, its shape, its origin and destination, how it was constructed (e.g., materials, workmanship, special engineering accomplishments, etc.), its setting and physical condition, and to a limited degree, its function. When only a portion of a linear resource has been examined in the field, that segment should be identified on the Location Map.

Descriptions of sites should summarize observed physical characteristics and major cultural and natural features (e.g., midden, lithic scatter, shell mound, housepits, rock art, bedrock milling features, etc.). While interpretive comments may also be included, the principal goal of this section is to describe the site in as much detail as possible.

When recording traditional cultural properties, the description should be based on information provided by members of the community historically associated with that resource. Refer to National Register Bulletin 38 (National Park Service 1990a) for further information about recording TCPs.

Descriptions of districts should briefly summarize overall characteristics, setting, and the numbers and types of contributing **and** non-contributing resource elements. Discuss the characteristics that link the elements of the district and give it coherence. Mention natural and cultural features as appropriate. If you are describing an element of a district, provide the Primary Number and/or the resource identifier of the district, when known.

***P3b. Resource Attributes:** Enter those attributes which best define and describe the resource from the list of Resource Attributes in Appendix 4. Provide the code and a brief description for each attribute identified. For example, a complex resource may contain several attributes, such as a "(HP2) single family property," "(AH2) building foundation," and "(AP4) bedrock milling feature." The codes provided in this data field will enable attribute-based record searches which, when combined with other variables, will faciliate contextual research.

***P4. Resources Present:** Check the category or categories that best describe the resource that is being documented using Appendix 5 and National Register Bulletin 15 (National Park Service 1990b) for reference.

When documenting a resource with superimposed elements such as a building located on top of an archaeological site, check all categories that apply. If the resource is part of a district, check the box for "Element of District" in addition to the appropriate box (or boxes) that define the kind of resource. If the record is being prepared to document a district, check the district box.

***P5. Photograph or Drawing and Description:** A clear and descriptive glossy 3-1/2"x5" black and white photograph is required for all records documenting buildings, structures, and objects, and may also be supplied when documenting sites (including isolated finds and minor features). Describe the subject, view, date the photograph was taken, and the accession number of the photograph (roll and frame #) in Field P5b. Place the print in a clear polyethylene or polypropylene envelope and affix the envelope to the record in the space provided using transparent tape, preferrably an archivally stable brand. Scanned halftone images **may** be an acceptable substitute for original photographs; however, you should consult with staff at the OHP and regional Information Centers of the California Historical Resources Information System **before** submitting records with such graphics.

Photographs of buildings, structures, and objects should provide an overview of the resource in its setting, or a detailed view of the resource itself where appropriate. One contemporary photograph showing the front and one side of the resource is usually sufficient. For some resources, however, it may be useful to provide additional views, supplementary historical pictures, photographs of details, and photographs of ancillary structures, placed on Continuation Sheets. This space also can be used for a drawing, plan, or map of minor resources and isolated archaeological finds; or for supplementary text where a photograph or other graphics are not required.

***P6. Date Constructed/Age and Sources:** Indicate whether the resource is prehistoric, historic, or both, list the construction date or period of use, and briefly describe how that date or period was determined. Indicate whether the date or period of use is factual or estimated. The term "historic" applies to all historical resources associated with non-indigenous peoples, as well as those used by Native Americans after direct contact with non-indigenous peoples. The term "prehistoric" applies to all historical resources used by Native Americans prior to direct contact with non-indigenous peoples. Cite any references used to determine the age of the resource.

***P7. Owner and Address:** Give the name and address of the resource's current owner(s). If the owner is a government agency, clearly identify the agency by name (not simply “the State of California” or “the federal government”). You may give the name and address of the managing unit. Enter "unknown" or "withheld by owner" if appropriate. Ownership information is often required before a historical resource can be listed on various state and national registers or to meet local recordation requirements.

***P8. Recorded By:** Enter the name of the person who prepared the record, indicating their agency or organizational affiliation, if appropriate, and provide a complete address.

***P9. Date Recorded:** Indicate the date the record was prepared.

***P10. Survey Type:** Indicate whether the resource was recorded as the result of an intensive survey, reconnaissance survey, or other activity (e.g., volunteer effort) and describe the purpose of that effort. The terms "intensive survey" and "reconnaissance survey" are defined for the purposes of this entry in relation to the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (National Park Service 1983). Appendix 6 briefly summarizes those definitions and the basic report contents that are recommended by the Secretary of the Interior for each type of survey.

***P11. Report Citation:** Provide a complete citation for any report or publication documenting the discovery of the resource, if one has been completed or is under preparation. If no survey report or publication exists or is planned, enter "none." List the name of the author, date of the report or publication, title, and the name

of the government agency, private firm, university department, publisher, etc. that the report was prepared for or published by.

***Attachments:** Check any forms that are attached to the Primary Record and list any other attachments if appropriate. Check "None" if there are no attachments.

How to Prepare a Location Map

The purpose of the Location Map is to accurately depict the location of the resource on a U.S. Geological Survey topographic quadrangle or other government map. The Location Map differs from a Sketch Map in that it generally does not depict the internal arrangement of a resource. The only exceptions to this rule are the Location Maps created for linear resources and districts, which may depict component features and/or elements. The Location Map is optional for buildings located on small parcels of land in urban areas when an address is provided.

Provide the name, scale, and publication date of the map(s) used to depict the location of the historical resource, and include a copy of the appropriate portion(s) of that map or maps on the Location Map record. If the map has been photorevised, place the date of the revision in parentheses following the original date the map was published. The OHP recommends using maps published by the government, particularly U.S. Geological Survey topographic quadrangles (for rural areas) and Assessor's regional index maps (for urban areas). Because privately published maps are subject to copyright restrictions, you should check with the OHP before submitting such materials.

All Location Maps should include a bar scale and north arrow. Accurately plot the shape and location of the resource on an appropriate map. Very tiny resources may be depicted with a dot, while the exact configuration of larger resources should be drawn to scale using a heavy black line to indicate the perimeter of the resource. When possible, show the entire alignment of a linear resource, even if only a segment is recorded in detail. Do not obscure map details by filling in the areas covered by large historical resources solidly.

DETAILED DESCRIPTION AND EVALUATION

Three recording forms can be used for detailed description and evaluation of all types of historical resources. Those forms consist of the Building, Structure, and Object (BSO) Record; Archaeological Site Record; and District Record. Each detailed record builds on the basic information gathered on the Primary Record, and therefore must be accompanied by that form, and a Location Map (when required), unless submitted as an update to an existing resource file.

Evaluation is a required field on the BSO Record and District Record, while it is optional on the Archaeological Site Record. Completing an evaluation involves assessing whether a historical resource meets defined criteria of significance. The NRHP Criteria for Evaluation are recommended as a uniform standard for California because they provide a basis for assessing the significance of historical resources at the national, state, and local levels. As such, they encompass and provide for routine consideration of other applicable state and local criteria. However, other criteria also may be applied when appropriate. The NRHP Criteria are provided for reference in Appendix 7.

The significance of a historical resource is best understood and judged in relation to a historic context. A historic context consists of: a theme, pattern, or research topic; geographic area; and chronological period. The theme, pattern or research topic provides a basis for evaluating the significance of a resource when it is defined in relation to established criteria. A historical resource is considered significant, and hence, eligible for the National Register if it is associated with an important historic context and it retains the integrity of

those characteristics necessary to convey its significance. When considering the integrity of a historical resource it is appropriate to take into account factors such as location, setting, design, materials, workmanship, feeling, and association.

Evaluation requires three basic steps: (1) identification of a significant historic context associated with the resource; (2) identification of the types of resources important in illuminating that context, and the physical characteristics those resources must possess to reflect the significance of the historic context; and (3) an assessment of whether the resource being evaluated has those required physical characteristics (National Park Service 1990b).

The amount of descriptive and historical information needed to establish whether or not a resource has the required physical traits necessary to convey its significance will depend on its complexity and type. Normally, detailed recording forms submitted in conjunction with an intensive survey report (as described in Appendix 6) provide the level of information needed to evaluate most historical resources. However, archaeological sites often require additional characterization.

While anyone can prepare the documentation supporting an evaluation, responsibility for the evaluation must be taken by persons meeting the Secretary of the Interior's Professional Qualifications Standards (National Park Service 1983) in a discipline appropriate to the historic context within which the resource is being considered. In cases where the preparer does not meet the Standards, an OHP- sanctioned reviewer with appropriate qualifications may assume responsibility for the evaluation. However, to ensure timely inclusion of an evaluation in the OHP's filing system, submissions prepared by or under the direction of appropriately qualified professionals are recommended.

For further information about how to evaluate historical resources, refer to *National Register Bulletins* 15 and 16A (National Park Service 1990b, 1991), the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (National Park Service 1983), *Treatment of Archaeological Properties: A Handbook* (Advisory Council on Historic Preservation 1980), and *Guidelines for Archaeological Research Designs* (Office of Historic Preservation 1991b).

Preparing the Building, Structure, and Object Record

The BSO Record can be used to evaluate and present detailed information about buildings, structures, and objects. The Linear Feature Record may be used as a supplement to the BSO Record when documenting and evaluating linear structures such as roads, canals, and railroad grades. Detailed instructions for preparing the BSO Record are provided below. **Required information is indicated with a sidebar, an asterisk, and bold type**.

Header Block**:** Enter the Primary Number and HRI Number if known. Leave both fields blank if unknown. Also be sure to update the header block and subsequent sections of the Primary Record if it was prepared separately from the BSO Record.

***NRHP Status Code:** Enter the appropriate code that best-defines the relationship of the resource to the National Register using the list in Appendix 2. Use the lowest initial number if more than one applies. For example, if a resource can be rated both 3S and 5D1, put 3S.

***Resource Name or #:** Enter the same name or number used in this field on the Primary Record. The identifier can be a historic or common name, parcel number, or any other designator which will consistently refer to the resource and link the pages of your record together.

B1. Historic Name: Enter the historic name of the resource if known. A historic name may be either the formal name for the resource during its period of significance, or a name closely associated with its

significance. The historic name may refer to: the builder, designer, or historic owner(s); significant persons or events connected with the resource; original or later uses of the resource; or accepted professional, scientific, technical, or traditional names.

B2. Common Name: Enter the common or presently used name for the resource. If documenting a single family dwelling, use current owner's name **only** if local residents strongly associate the house with that owner. If historic and common names are identical, enter "same." If the resource has no common name, enter "none."

B3. Original Use: Enter the original use(s) of the building, structure, or object.

B4. Present Use: Identify the present use(s) of the building, structure, or object. Other past uses may be described in Field B10 (Significance) below.

***B5. Architectural Style:** Use standard architectural terminology to describe the style or construction type of buildings if applicable. If necessary, combine terms to describe the style (e.g. "Classical Revival with Craftsman elements"). See National Register Bulletin 16A (National Park Service 1991), Blumenson (1981), McAlester and McAlester (1984), City of Oakland (1978), and Whiffen (1969) for suggested stylistic terminology. See Sources of Additional Information for complete citations of these publications.

***B6. Construction History:** List alterations to the resource which substantially affect its architectural integrity. Be as specific as possible. For example, put "aluminum sliders" rather than merely "windows." Add the date(s) of the alterations if known.

***B7. Moved?:** Check whether or not the resource has been moved and give the date of the move, if known. Include any information you may have on the original location of the resource.

***B8. Related Features:** List other important features on the resource. Such features might include: barns, carriage houses, garages, outhouses, sheds, windmills, water towers, hitching posts, fences, walls, unusual curbs or sidewalks, formal gardens, prominent or unusual trees, and expansive lawns. Do not include other major historical resources that merit separate documentation.

B9a. Architect: If appropriate, enter the name of the architect, architectural firm, pattern book, engineer, artist, landscape architect, or planner responsible for designing the building, structure, or object. If the resource was not professionally designed, as in the case of a house constructed by an owner/builder, put "none." If no information about the designer was found, enter "unknown."

B9b. Builder: In the space provided for "Builder," enter the name of the person or firm actually responsible for construction. Do not put the name of someone who merely commissioned the work. If no information was found, enter "unknown."

***B10. Significance:** Resources are generally evaluated using a historic context--an organizational format which groups information about related historical resources based on theme, geographic limits, and chronological period. The information provided in this field should describe why the resource is significant within a relevant historic context.

Begin by identifying the historic "theme"--the subject or topic of historical study. Examples include "Commercial Development," "Citrus Industry," "River Transportation," "Residential Architecture," etc. For "area" put the locale in which the events covered by the theme occurred. Usually the area is the city or town being surveyed; however, there may be exceptions where contemporary boundaries do not coincide with historical boundaries. The area also might be a county, a part of a town, or a place defined by a topographical feature.

"Period of significance" refers to a chronological period as it relates to the historic context, and is defined as a year or range of years e.g., Commercial Development in Bakersfield, 1896-1941). For "property type" enter the specific type of resource that is being evaluated within the historic context. For example, the context "Commercial Development in Bakersfield, 1896-1941" may have retail stores and office buildings as associated property types. A form documenting the Woolworth Building in downtown Bakersfield would list "retail store" for the property type. In the space marked "applicable criteria" enter the letter(s) of the National Register (or other) criterion or criteria in which the resource is being evaluated. Put "N/A" if the resource is evaluated as ineligible for the National Register.

The statement of significance should explain why the resource is important in relation to its historic context(s). Make the strongest possible case using historical and/or architectural analysis as appropriate. Compare the resource with others that belong to the same property type and relate to the same historic context. Include an analysis of the integrity of the resource. Additional information about the resource may be included even if it is not specifically related to the context identified, to the extent that it will help establish the significance of the resource. When a resource is found ineligible for the National Register, a clear rationale should be offered to support the finding as well.

B11. Additional Resource Attributes: The historic attributes of the resource refer to its characteristics at the time it gained significance. Choose up to six numbers from the list of Resource Attribute Codes in Appendix 4. Enter each number , two dashes, and a brief description, e.g., "(HP3)--Duplex" or "(HP14)--Library." If more than one number is needed, the description may follow the numbers, e.g., "(HP12), (HP44)--YWCA."

***B12. References:** List any documents and style books used to discover information about the resource. Include page numbers and dates of publication. Also list oral interviews, including the name of the person interviewed and the date of the interview. You may abbreviate as necessary, but don't merely cite a general bibliography available elsewhere.

B13. Remarks: Include information about zoning, threats to the resource, previous surveys, and other relevant information in this data field, as appropriate.

***B14. Evaluator and Date of Evaluation:** Enter the name of the person who made the evaluation reflected in the "NRHP Status Code" field and indicate the date the evaluation was completed. If two or more people concurred in the evaluation, provide the name of the individual who meets the Secretary's Standards in the appropriate discipline. If a resume for the evaluator is not on file with the OHP or the appropriate regional Information Center listed (in Appendix 8), one should accompany the record (or should be included in an accompanying report).

***Sketch Map:** Draw or paste in a Sketch Map of the resource and any associated features discussed in Field B8 (Related Features) above. This Sketch Map is required regardless of whether or not a Location Map is also needed. The Sketch Map need not be drawn to scale, but must include a north arrow. Name or otherwise identify important features associated with the resource. In urban areas, and where possible in rural areas, identify the nearest intersection; otherwise, show roads (with names), buildings, rivers, railroad tracks, and other features that may help others locate the resource. If the resource's boundaries are other than parcel boundaries, indicate as such. Do not use this space merely to cite a map located elsewhere.

Space Reserved for Official Comments: Leave this space blank. Provide comparable space on computer-generated forms.

Preparing the Archaeological Site Record

The Archaeological Site Record can be used to record detailed descriptive information about most historical resources classified by the National Register as sites. The Archaeological Site Record was

specifically developed to accommodate the documentation of both prehistoric and historic sites. As such, it includes a number of data fields essential for recording certain types of sites, but irrelevant for the documentation of others. The Archaeological Site Record must be accompanied by a detailed Sketch Map.

Several specialized recording forms have been developed as optional attachments to the Archaeological Site Record. They include: the Linear Feature Record; Milling Station Record; Rock Art Record; and Artifact Record. Instructions for preparing those optional attachments are provided later in this manual. Detailed instructions for preparing the Archaeological Site Record are given below. **Required information is indicated with a sidebar, asterisk, and bold type**.

Header Block**:** Enter the Primary # and/or Trinomial Number if known. Leave both fields blank if unknown. Also be sure to update the header block and subsequent sections of the Primary Record if the Archaeological Site Record was prepared separately.

***Resource Name or #:** Enter the same name or number used in this field on the Primary Record. The identifier can be a historic or common name, parcel number, or any other designator which will consistently refer to the resource and link the pages of your record together.

***A1. Dimensions:** Enter the **length** and **width** of the site, describe the units of measurement, and indicate how the dimensions were determined (i.e., describe methods used to map the site). All sites with prehistoric components must be measured in meters, while the use of other appropriate units of measurement are acceptable for sites with historic components. The overall dimensions of multi-component sites should be measured in meters, with other units of measurement used to supplement the description of historic features where appropriate. State the orientation of the measurements in the space between parentheses using one of the four basic compass lines. Describe the datum in sufficient detail that it can be relocated by subsequent investigators. Also provide the following information about how you defined those limits:

Method of Measurement: Check the box that defines how length and width measurements were made and describe any other methods used.

Method of Determination: Check factors employed to determine the site boundary including: the distribution of artifacts and features; diminishing densitites of cultural materials; changes in soil color or type; distinctive vegetation or topography; cultural materials visible in cut banks, animal burrows, or as the result of test excavation; the recognition of a historic property boundary; and other means. Provide a brief explanation of any other means used to determine the site boundaries. While it may not be possible to define absolute boundaries for a resource based on surface inspection, a clear justification should be offered for how you have defined the site's boundaries.

Reliability of Boundary Determination: Estimate how reliable the boundary determination is and check the appropriate box. Explain as necessary.

Limitations: Check any factors that hindered accurate determination of the extent of the site and explain any additional limitations you noted.

A2. Depth: Enter the depth of the archaeological deposit(s) present at the site, if any. An estimate of depth is acceptable as long as the rationale for that guess is explained. Leave the space after "depth" blank and check "unknown" if there is uncertainty about the site's depth. Enter "surface" on the line following "depth" and check "none" if there is no depth to the deposit, and indicate how this was determined.

***A3. Human Remains:** Record the presence or absence of any human remains observed on the site by marking the appropriate box. Indicate the quantity, condition, and location of any observed remains in the space after "explain." The location of observed human remains should be depicted on the detailed sketch map. If any osteological material has been removed from a site, identify where it is curated or to whom it was transferred for reinterment or analysis.

***A4. Features:** Assign a number to every feature present on a site, show its location on the detailed sketch map, and describe the feature and any cultural constituents associated with it. If no features were observed, enter "none" or "none observed."

The description of each feature should identify, where possible, the type of feature; its age, function, size, and condition; the nature of any associated archaeological deposits and cultural constituents; and any other pertinent details. Cultural constituents that are associated with or found near a feature should be described **as an aspect of that feature**, rather than in the general list of constituents entered in Field A6 (Cultural Constituents). List, briefly describe, and discuss the chronological implications of all cultural constituents associated with each feature, or a meaningful sample of them.

Information about the numbers and types of bedrock milling features and rock art features should be briefly summarized in this field. Such features also may be recorded in greater detail on a Milling Station Record or Rock Art Record if appropriate.

***A5. Cultural Constituents:** List, briefly describe, and discuss the chronological implications of all cultural constituents not associated with features of the site. Constituents that are associated with features should be described in Field A4 above. Cultural constituents encompass all artifacts, ecofacts, and other residues of human activities. Provide a complete inventory of observed constituents when they occur in small quantities. Describe the types of materials present and estimate their relative abundance for sites with large amounts of cultural material, taking care to identify any temporally diagnostic remains.

***A6. Were Specimens Collected?** Check whether or not any specimens were collected during the field visit that led to the preparation of the Archaeological Site Record. If any materials were collected, attach an Artifact Record **or** a catalog containing comparable information and show the locations where the specimens were collected as specific points or collection units on the detailed Sketch Map. Be sure to indicate where the specimens are curated. Please note that **specimens should only be collected under the auspices of a legitimate scientific study** and **with the permission of the landowner**.

***A7. Site Condition:** Indicate the relative condition of the site as a whole by checking "good," "fair," or "poor," and describe existing alterations and/or disturbances of the resource, its major features, and its setting. Indicate the degree of disturbance and the agents that caused that disturbance. Consider whether the site retains integrity of setting, feeling, association, workmanship, design, materials, and location.

***A8. Nearest Water:** Enter the name, type (if not specified in the name), seasonal availability, distance, and direction (from the site datum or site boundary closest to water source) to the nearest natural fresh water source or probable former source (for prehistoric sites) or historic source (for historic sites occupied after that source was created). If the nearest water cannot be determined, enter "unknown."

***A9. Elevation:** Enter the elevation or range of elevations for the site in meters or feet and describe how those measurements were determined (e.g., altimeter, interpreted from map, etc.).

A10. Environmental Setting: Briefly describe the present vegetation zone, plants, animals, soils, geology, landforms, slope, aspect, exposure, and other environmental characteristics of the site and its vicinity to the extent that such conditions are relevant to understanding the site and its importance.

A11. Historical Information: Briefly summarize information gathered from reports, publications, historic documents, and oral interviews. In cases where historic materials are present, but no documentary or testimonial evidence was found, state that the historic use is unknown. Indicate where information about the resource was sought, even if the results were negative. Use a Continuation Sheet to attach historic maps and/or photographs if appropriate.

***A12. Age:** Check any categories that apply to the site and explain the evidence used to determine the period(s) during which it was occupied. More than one box should be checked for sites used, however intermittently, during more than one period. For prehistoric sites, describe any evidence that can be used to infer the site's position in a regional prehistoric chronological sequence where possible. The protohistoric check box should be marked if a site was occupied by Native Americans during the historic period, as determined from historic accounts and/or the presence of materials introduced by non-native peoples. Specific dates of occupation or site use should be identified for other types of historic archaeological sites when known.

A13. Interpretations: Provide information concerning any interpretations made for the site and discuss the evidence used to substantiate them. Possible interpretive categories include: site function, demographic observations, cultural ecology, research or scientific value, and ethnographic/cultural affilitations. While the observations discussed here may or may not be sufficiently detailed to constitute an evaluation, they should provide data helpful for planning the evaluation and treatment of the site. This field may be used to present a full historic context statement and evaluation of a site, if desired.

A14. Remarks: This field may be used to note additional information that doesn't readily fit elsewhere on this form. It may be useful to discuss the history of previous studies at a site, threats to the resource, or other data.

A15. References: List persons interviewed and documents used to discover information about the property. Enter "none" if no information was sought. Provide a complete citation for each document, sufficient for others to locate it. Identify persons interviewed by their full name, address (if permitted by the interviewee), and the date of the interview.

A16. Photographs: This field should be used to record any photographs or other recorded images taken during the documentation of the site. A Photograph Record can be attached to the Archaeological Site Record as an alternative to completing this field. If no images were taken, enter "none." Photographic documentation is strongly recommended for every site. Photographs should be placed on a Continuation Sheet and labeled.

***A17. Form Prepared By, Date, and Affiliation and Address:** Provide this information only if it differs from that given in Fields P8 and P9 on the Primary Record.

***Sketch Map:** A detailed Sketch Map must accompany every Archaeological Site Record. The Sketch Map should accurately depict the details of the site in its immediate environmental setting, providing sufficient detail to allow a person unfamiliar with the resource to recognize it. The Sketch Map should be drawn to scale. It must include: a datum point or points; site boundary; north arrow (labeled either "magnetic" or "true"); bar scale; the plotted locations of features, collected specimens, units, and other materials (if present); and a legend. The datum and methods used to map the site should be described in Field A1 on the Archaeological Site Record.

The site datum should be a relatively permanent natural or cultural feature. All features should be plotted accurately in correct relation to each other and the datum. Relevant information about the natural and cultural setting of the site should also be depicted. It is acceptable to estimate the locations of such natural features.

Preparing the District Record

Districts consist of a significant concentration or continuity of associated historical resources. Districts may be recognized and documented at the time a survey is conducted, or they may become apparent only after several survey efforts reveal the historical relationships among the individually recorded resources in a

given geographic region. The District Record provides a vehicle for documenting the linkages among individual resources in both situations. Because the recognition of a district hinges on an understanding of its historic context, evaluation is required on the District Record.

A Primary Record, Location Map, and District Record are needed to document the district as a whole. Minimally, every component or element of the district is then documented separately on a Primary Record. In some cases, it may be appropriate to prepare additional documentation of district components when those elements appear to be individually significant as well.

Minor features such as landscaping, fences, curbing, prospect pits, and widely dispersed archaeological materials need not be separately recorded if they are adequately described in Field D3 (Detailed Description) on the District Record. Detailed instructions are provided below for filling out the District Record.
Required data fields are indicated with a sidebar, asterisk, and boldface type.
Header Block**:** Enter the Primary and/or HRI # and/or Trinomial if known. Leave blank if they are not known. Also be sure to update the header block and subsequent sections of the Primary Record if it was prepared at a different time than the District Record.

***NRHP Status Code:** Enter the appropriate code that best-defines the relationship of the district to the National Register using the list in Appendix 2. Note that districts themselves are given "S" ratings, while their contributors are assigned "D" ratings. For example, a district found eligible for the National Register is rated "3S," while the district's contributors are rated "3D."

Resource Name or #: Enter the same name or number used in this field on the Primary Record. The identifier can be a historic or common name, parcel number, or any other designator which will consistently refer to the resource and link the pages of your record together.

D1. Historic Name: Enter the historic name of the district if applicable. A historic name may be either the formal name for the resource during its period of significance, or a name closely associated with its significance. The historic name might also refer to accepted professional, scientific, technical, or traditional names.

D2. Common Name: Enter the common or presently used name for the district. If historic and common names are identical, enter "same." If the resource has no common name, enter "none," or enter a brief description such as "500-700 block of Maple Street."

***D3. Detailed Description:** Provide a detailed description of the district, making sure to address the characteristics that give coherence to the area. Describe the nature and severity of any intrusions and disturbances. Mention design features, vegetation, and other relevant factors. List every resource documented separately as an element of the district. Identify each element by property type and indicate whether or not that element contributes to the significance of the historic context used to evaluate the district. This information may be included in the description itself, or as a separate entry on a Continuation Sheet. Addresses should be given for all buildings and structures in a district, when applicable. Other resources may be listed by type and Primary Number, Trinomial, HRI Number, and/or a resource identifier such as a historic name or temporary designation. Some minor features of a district such as plantings, mining prospect pits, fences, and curbing need not be separately recorded on individual recording forms **if** they are adequately described in this field.

At least two 5"x7" black and white photographs of representative streetscapes or other overall views must be included with the District Record. Describe the subject, view, and date the photograph was taken on a label and affix it to the back of the print. Place the print in a clear polyethylene or polypropylene envelope and affix the envelope to a Continuation Sheet using archivally stable transparent tape.

***D4. Boundary Description:** District boundaries may be described either in a narrative fashion, or by

entering the measurements of the maximum length and width of the resource, as appropriate. Narrative entries may use street names, property lines, geographical features, or other lines of convenience. When dimensions are given, indicate the units of measurement and describe the method used to obtain those measurements (e.g., taped, paced, extrapolated from map, etc.). The boundaries of the district should be clearly depicted on a Location Map, and where appropriate, on a Sketch Map as well.

***D5. Boundary Justification:** Provide a concise explanation asto how the boundaries of the district were determined, taking into account the property's significant elements, setting, integrity, and historical importance. Boundaries should encompass, but not exceed, the extent of the significant resources and land area that contribute to the importance of the district.

***D6. Significance:** The statement of significance should summarize the importance of the district in terms of its historic context, as defined by theme, period of significance, and geographic scope. The importance of each individual element of the district should be addressed in the separate records prepared for each contributing resource. Consider as contributors only those resources that convey the significance of the district. A Primary Record and a Location Map (when required) should be prepared for each contributor. Ancillary features of contributing elements need only be described as related features on those individual records. Minor features and Non-contributing elements of the district may be recorded with a Primary Record and Location Map (when required), or simply described in Field D3 above.

Begin by identifying the historic "theme"--the subject or topic of study. Examples include "Commercial Development," "Railroad Logging," "Water Conveyance Systems," "Prehistoric Obsidian Quarry Exploitation," "Historic Mining Camps," etc. Next, identify the geographic scope in the space following "area." The geographic scope is the locale in which the events covered by the theme occurred. The scope could be a city, county, or region; or it could also encompass an entire state or the nation. Then enter the "period of significance," which refers to the chronological period identified in the historic context and is defined by a year or range of years (e.g., Railroad Logging in Sierra Nevada Region, 1890-1940). In the space marked "applicable criteria" enter the letter(s) of the National Register (or other) criterion or criteria found applicable to the district as a whole. Put "N/A" if the resource is evaluated as ineligible for the NRHP.

The statement of significance should explain why the resource is important in relation to its historic context(s). Make the strongest possible case using historical, architectural, archaeological, and/or other analyses as appropriate. Compare the district with others that encompass the same property type(s) and relate to the same historic theme. Include an analysis of the integrity of the district, taking into consideration whether or not it retains integrity of location, design, materials, workmanship, feeling, association, and setting. Also indicate whether the district and its elements remain in use or have been abandoned. Additional information about the district may be included even if it is not specifically related to the context identified, to the extent that it will help establish the significance of the resource.

***D7. References:** List the documents that were used to discover information about the district. Include oral interviews, noting the name of persons interviewed, the date of the interview, and the address of the interviewee when possible. Provide a complete citation for each document, sufficient to locate it. Also provide a complete citation for any report or publication documenting the discovery of the resource. The report citation should list the name of the author, date of the report or publication, title, and the name of the government agency, private firm, university department, publisher, etc. that the report was prepared for or published by.

***D8. Evaluator/Date/Affiliation and Address:** Give the name, address, and organizational affiliation of the person responsible for evaluating the significance of the district and enter the date the evaluation was completed. If two or more people concurred in the evaluation, provide the name of the individual who meets the Secretary's Standards in the appropriate discipline. A resume for the evaluator should accompany the District Record (or a report submitted with it) if it is not already on file with the OHP or the appropriate regional Information Center listed in Appendix 8.

Sketch Map: A detailed Sketch Map is required when the layout and details of the district cannot be clearly conveyed on a Location Map due to the compactness of its elements. Sketch Maps should be drawn to scale and must include: the boundary of the district; a north arrow; a bar scale; the plotted locations of all features and/or elements; and a legend. It is also helpful to include information about the environmental setting of the district. For urban building surveys, a parcel map may be used to create the Sketch Map. It should include all of the items mentioned above and clearly indicate the names of all streets included within the district.

PREPARING OPTIONAL ATTACHMENTS

Six additional forms have been designed as supporting attachments for the records discussed above. They include a Linear Feature Record (DPR 523E), Milling Station Record (DPR 523F), Rock Art Record (DPR 523G), Artifact Record (DPR 523H), and Photograph Record (DPR 523I), and Continuation Sheet (DPR 523L). Instructions are provided below for filling out each form.

Linear Feature Record

The Linear Feature Record can be used to supplement both minimal or detailed recordation of prehistoric and historic linear structures and sites. Linear features are taken to include most long, narrow constructed works classified by the NRHP as structures, as well as trails and the ruins of linear structures (which are classified as sites). The Linear Feature Record may be used for documenting linear features in their entirety, segments of such resources, or observations made at a particular point along a linear feature.

When preparing the initial record for a linear feature or segment of one, the nature of the entire resource should be described on the Primary Record in Field P3a. Refer to the instructions for Field P3a for the kinds of information that should be included in the overall description of a linear feature. Detailed instructions for preparing the Linear Feature Record are provided below. The Linear Feature Record can be used to gather purely descriptive information about a linear resource, or it can serve as an adjunct to a formal evaluation documented on a BSO Record, District Record, or in a suitably detailed evaluation report.

Header Block: Enter the Primary Number, HRI Number, and/or Trinomial Number if known. Leave these fields blank if unknown. Also be sure to update the header block and subsequent sections of the Primary Record if it was prepared at a different time than the Linear Feature Record.

L1. Historic and/or Common Name: Enter the historic and/or common name of the resource if known. A historic name may be either the formal name for the resource during its period of significance, or a name closely associated with its significance. The historic name may refer to: the builder, designer, or historic owner(s); significant persons or events connected with the resource; original or later uses of the resource; or accepted professional, scientific, technical, or traditional names. A common or presently used name for the resource may be provided if one is known. If historic and common names are identical, enter "same." If the resource has no historic or common name, enter "none."

L2a. Portion Described: Check whether the record is for an entire linear feature, a segment of one, or a point observation along a linear feature. When recording a segment or point along a linear feature, provide a field designation for that portion or point and depict its location on a Location Map.

L2b. Location of Point or Segment: If you are preparing a Linear Feature Record for a segment of a linear feature or a point along one provide UTM coordinates, a legal description, and any other locational information that will help identify the specific location you are documenting.

L3. Description: Provide information about the construction techniques, configuration of, and materials used to construct the linear feature and describe any features, artifacts and/or archaeological sites/deposits that may be associated with it. Provide plans, sections, or other drawings as appropriate. The observations made in this section should not duplicate information provided in Field P3a (Description) on the Primary Record. If a Linear Feature Record is prepared for an entire linear feature, this field may be used to supplement information provided on the Primary Record. When this record is used to describe a particular segment or point along a linear feature, this field should be used to define the specific details observed in that location.

Describe in detail each cultural feature associated with the linear resource. Number or otherwise designate each feature and plot its location on a Location Map and/or a detailed Sketch Map. If no features are observed, indicate that finding. The features of a linear resource generally consist of components integral to the operation and proper functioning of that resource, rather than to resource elements like a ditch tender's camp or railroad depot which may be associated with a ditch or railroad grade as components of a district, yet require separate documentation as major resource elements (see Field L5 below). Some examples of the features of various kinds of linear resources include:

Roads: retaining walls, culverts, and tunnels
Ditches: siphons, flumes, spillgates, and gate valves
Trails: blazes, cairns, and paving
Railroad grades: through cuts, sidings, retaining walls, and trestles

The description of a feature should include information about its construction details, dimensions, and any artifacts found near the feature. Plans, cross-sections, and elevations may be appended to the record if appropriate. Feature descriptions should include information about the brand names and patent numbers recorded on machinery.

L4 Dimensions: Enter the dimensions of the linear feature at a specific observation point, segment, or along the entire resource, or indicate the range of variations in those dimensions. Also provide a scaled cross-sectional sketch in Field L4e and define the length of the segment you are recording when only a portion of a resource is recorded. All dimensions should be in feet for historic features and metric units for prehistoric features. Indicate how that dimension was determined (e.g., taped, estimated, etc.).

L4a. Top Width: Enter the width of the linear feature at its highest point and indicate the unit of measurement. For water delivery systems such as ditches and canals, the top width should be measured at the crest of the berm(s) or wall(s). Record more than one width or a range of widths if appropriate. For example, a single water delivery system may be composed of a flume, earthen ditch, and concrete canal that each have different top widths.

L4b. Bottom Width: Provide a width for the base of the feature, or provide a range of widths if appropriate.

L4c. Height or Depth: Enter the maximum depth or height of the resource if applicable, or indicate variation in that dimension along the length of the linear feature or segment thereof. If the depth/height of a linear feature has been modified (e.g., siltation of ditch), that fact should be noted.

L4d. Segment Length: Enter the overall length of the segment of the resource being recorded and indicate the unit of measurement. The length of the entire resource should be given in Field P3 on the Primary Record, if known, and should be repeated here if you record an entire linear resource. Define where dimensions were measured from (e.g., "from intake structure at dam to junction with Columbia Ditch") and note whether observation, extrapolation from maps, or direct measurement led to the determination.

L4e. Sketch of Cross Section: Use the space provided to draw a representative scaled cross section of the linear feature and indicate what direction the drawing faces. Show the location of the drawn cross section on the Location Map prepared to accompany the Linear Feature Record.

L5. Associated Resources: List previously recorded resources that are historically associated with the use of the linear resource and provide a Primary Number, Trinomial, and/or HRI Number of each resource, if known. Refer to a resource identifier such as a historic name in cases where a Primary Number is unknown or remains to be assigned. Associated resources that have not yet been recorded can also be mentioned. However, their existence should be stated as "unknown" if they have not been examined.

L6. Setting: This field may be used to provide a general description of the natural or physical environment of the linear feature in cases where that setting contributes to the significance of the resourceor appreciation of it. Information in this category may include descriptions of natural features, landscape characteristics, slope, vegetation, and so forth. For example, it may be important to describe the flora associated with a trail that connects a series of meadows in a forested region or the geology and terrain of a flume hung from the wall of a canyon.

L7. Integrity Considerations: Describe any existing alterations of the resource and its setting, focusing on whether or not it retains historic integrity in terms of setting, feeling, association, workmanship, design, materials, and location. Indicate whether it remains in use or has been abandoned. Provide an estimate of the proportion of the resource that has been destroyed or modified, where possible.

L8. Photograph, Map, or Drawing and Description: This space may be used for additional graphic documentation of the linear resource at the discretion of the recorder.

L9. Remarks: This field can be used to present further historical information about the resource, discuss previous efforts to document it, and offer other information that does not fit elsewhere on this form.

L10. Form Prepared By: Provide this information only if it differs from that given in Fields P9 and P10 on the Primary Record.

L11. Date: Enter the date this record was prepared.

Sketch Map: A Location Map can often be used to depict the portion of a linear resource that has been documented, its features, and the location of cross section drawings, photographs, or other graphic documentation. For particularly complex linear resources, however, a detailed Sketch Map is recommended. Sketch Maps should generally be drawn to scale, and must include a north arrow and bar scale.

Milling Station Record

The Milling Station Record may be used to provide a detailed record of one or more bedrock milling stations and any associated artifacts. A bedrock milling station is defined as a non-portable bedrock outcrop or boulder with surfaces and/or depressions ground into it for purposes of milling. The Milling Station Record is an optional form. It is designed to supplement the information in an Archaeological Site Record, not to eliminate the need for its preparation. Professional surveys conducted in advance of development activities should generally prepare a Primary Record, Location Map, and Archaeological Site Record when a site with a milling station(s) is encountered. Additional information can then be collected on a Milling Station Record if desirable.

Identify each separate bedrock outcrop with evidence of milling activities (milling station) as a numbered feature of a site. The location of each outcrop (milling feature) should be depicted on the sketch map of the site, with the total number of milling surfaces at that feature listed by type in Field A5 (Features) on the

Archaeological Site Record. The dimensions, rock type, and overall condition of each milling station should be provided in the upper portion of the Milling Station Record, along with the resource name or number listed in the Primary Record and the name of the person who prepared the record.

Give the dimensions of each milling station in metric units. Each dimension should be for the maximum extent of the bedrock outcrop or boulder on which milling activities occurred. The height should be measured as the maximum distance from the ground to the highest point on the bedrock outcrop. Outcrops partially covered with archaeological deposits should not be excavated to obtain measurements unless that excavation is part of a professional archaeological testing program.

Appropriate information should then be entered in the lower portion of the Milling Station Record for each of the individual milling surfaces observed on a culturally modified bedrock outcrop. Spaces are provided for the feature number (milling station number), milling surface number (element of an individual milling station), type, dimensions, depth, contents, and remarks. Use the keys at the bottom of the record for abbreviations of the types of features and their contents.

Dimensions for the individual milling surfaces present on a milling station should be measured with a tape in centimeters as the maximum length, width, and depth of the culturally modified (e.g., pecked and/or ground) bedrock. Use a straight edge laid across the rim of each milling surface to measure its maximum depth. The "Remarks" column can be used to record a variety of information such as wear patterns, surface residues, shape, configuration and condition of the culturally modified surfaces, and the presence of any associated artifacts on the outcrop/milling station.

Prepare a plan of each milling station on a Continuation Sheet, showing the size and shape of the bedrock outcrop and the relative locations of the individual milling surfaces. The plan should include: a north arrow (marked true or magnetic); distances between the individual milling surfaces on the outcrop; and a bearing and distance to a site datum. It is often helpful to include other details on the plan like vegetation, height above ground, and associated artifacts. If a milling station plan is drawn to scale and includes a bar scale, it is not necessary to indicate distance between the individual surfaces on the outcrop.

Rock Art Record

The Rock Art Record may be used to record detailed information about individual rock art features. Rock Art is defined as any non-portable bedrock outcrop, boulder, cave wall, or other rock surface intentionally modified by pecking, scraping, grinding, and/or the application of pigment to form a graphic design/image. The Rock Art Record is an optional form. It is designed to supplement the information in an Archaeological Site Record, not to eliminate the need for its preparation. Professional surveys conducted in advance of development activities should generally prepare a Primary Record, Location Map, and Archaeological Site Record when a site with a rock art feature(s) is encountered. Additional information can then be collected on a Rock Art Record if desirable.

Identify each separate bedrock outcrop or boulder with rock art on it and assign a number to the rock art panel that corresponds with its designation as a feature of a site. The location of each rock art panel (feature) should be depicted on the sketch map of the site and briefly described in Field A5 (Features) on the Archaeological Site Record. Use the following instructions to complete the Rock Art Record.

Header Block: Enter the Primary and/or Trinomial Numbers if known. Leave both fields blank if unknown.

Resource Name or #: Enter the same name or number used in this field on the Primary Record. The identifier can be a historic or common name, parcel number, or any other designator which will consistently refer to the resource and link the pages of your record together.

R1. Feature / Panel #: Identify the number assigned to the feature and indicate how many total rock art panels are present at the site after the word "of."

R2. Feature / Panel Location: Enter the distance and azimuth from a site datum to a designated position on the rock art panel or feature, as shown on a plan. If the site datum is a point within the rock art, so indicate. Also check whether the rock art was found on a cliff face, boulder, bedrock outcrop, cave / rockshelter surface, or other location, and describe any other kinds of locations.

R3. Host Surface: Describe the type of rock or other host surface on which the rock art panel or feature appears and identify the color of that surfacee rock outcrop and rock art images.

R4. Host Background: Check any characteristics that pertain to the background surface of the host rock or ground surface including patination, painting, glacial polish, smoke blackening, lack of natural alteration ("natural"), and other surface conditions. Provide an explanation if you check "other."

R5. Detailed Description of Feature / Panel: Check whether the feature consists of petroglyphs, pictographs, a geoglyph, or a combination of such elements, and then describe the size of the feature and host rock outcrop or ground surface, number and types of elements or stylistic motifs, method of production, color of motif and other relevant descriptive details. All measurements should be taped in metric units.

R6. Feature / Panel Integrity and Natural / Cultural Deterioration: Check whether the rock art feature or panel is in good, fair, or poor condition, and note any natural and cultural modification or deterioration of it by circling any items that apply. Use the space provided to explain in greater detail whether the feature / panel retains integrity of setting, feeling, association, workmanship, design, material, and location.

R7. Style(s) and Suspected Cultural Affiliation: Where possible, identify the rock art style(s) and cultural affiliation of the group(s) known or believed to have created the images in the rock art panel. Offer reasons supporting any statements about the stylistic and cultural affiliations of the rock art.

R8. Elements Superimposed? Check whether or not any elements are superimposed and describe superimposed elements by style, position, and relative age if known. Be sure to clearly depict superimposed elements on the plan showing the rock art panel.

R9. Feature / Panel Visibility: Check whether the rock art feature or panel is visible, semi-visible, or hidden from public view. Take into account the remoteness and accessibility of the site and how obtrusive the rock art is to an untrained observer.

R10. Associated / Nearby Cultural Materials: Describe any artifacts, ecofacts, or other cultural residues found in close proximity to the rock art panel. If no materials are observed near the panel, enter "none."

R11. Conservation Recommendations: Describe any conservation recommendations that may help preserve the rock art panel.

R12. Form Prepared By and Date: Supply the name of the recorder and the date this record was prepared only if it differs from the information supplied on the Primary Record.

Sketch of Rock Art Panel / Feature: Sketch the panel on a Continuation Sheet, showing the size and shape of the bedrock outcrop and the relative locations of the individual elements / motifs on that outcrop. The sketch should generally be drawn to scale, including at the minimum: a north arrow (marked true or magnetic); bar scale; and a bearing and distance to a site datum. Include other details, such as vegetation, height above ground, associated artifacts, and distance to a road or trail, if relevant. A photograph of the rock art panel is also recommended as an attachment.

Artifact Record

The Artifact Record may be used to record information about any specimens observed and/or collected at an archaeological site. Information comparable to that requested on the Artifact Record is required when any specimens are collected from a site. The Artifact Record is also useful for listing any diagnostic materials that are noted, but not collected. When used as supporting documentation, the Artifact Record may provide details that require only summary description in Field A5 (Features) or Field A6 (Cultural Constituents) on the Archaeological Site Record.

Begin by listing the Primary Number and Trinomial, if known. Then repeat the resource name or number listed on the Primary Record. Describe where any collected specimens are curated, giving the name of the institution and its address. Provide the artifact/specimen number (field designation or accession number), type, condition, description (form, material, etc.), dimensions, and provenience. The location of the specimen may be a collection unit or azimuth and distance from site datum. Show each location on a Sketch Map and indicate whether the specimen was drawn or photographed and if it was collected.

Photograph Record

The Photograph Record may be used to record information about any type of photographic images prepared as a record of a historical resource. It may be used in conjunction with any of the other records described in this manual. It is designed to identify images taken as still photographs, filmed or taped movies, aerial photographs, etc., and to provide technical details relating to the capture of those images.

Begin by providing the name of the project. List the resource name or number for each resource in the "Subject/Description" column for individual exposures. Spaces are provided for camera format, lens focal length, film type and speed, year, media repository, date, time, exposure/frame number, subject, view toward, and accession number (if any). It also may be helpful to identify the places where photographs are taken on a sketch map of a resource.

Continuation Sheet

The Continuation Sheet is a general form that can be used for a variety of purposes including the presentation of: (1) continued text; (2) feature and artifact illustrations; (3) photographic prints; (4) historic maps; and (5) updating the information from a prior survey effort. Every Continuation Sheet must provide the resource name or number as it appears on the Primary Record for the resource, the name of the recorder, and the date the record was prepared. Continued information should be clearly referenced with the number and name of data field it relates to. Graphics should be labeled to indicate their subjects, view, scale, and sources as appropriate. The source of all historic photographs, maps, or drawing should be identified.

UPDATING INFORMATION ABOUT A RESOURCE

As a planning tool, it is important that information about historical resources is regularly updated to ensure its accuracy. Updates may amplify or correct information about a resource, or simply confirm that the existing record remains accurate at the time of a subsequent field examination. The documentation for a historical resource should be updated under the following conditions:

- When it is reevaluated;
- When changes occur to the resource or its setting;
- When erroneous information needs correcting; and/or
- When additional information is necessary for planning decisions.

Information about a resource may be updated in two ways, depending on the extent of the changes and/or additions to the original record. If only minor changes or additions to an existing record are required, then a Continuation Sheet can be used to augment selected data fields, as appropriate. Minor updates also may be prepared to verify that existing information about a resource remains accurate. Such updates should list the "resource identifier" from Field P1 on the Primary Record; date of field visit; name, affiliation (if any), and address of the person preparing the update; and the number and name of any data fields where additional observations are made. Also provide the HRI Number and/or Trinomial, if known.

The resource should be completely rerecorded in cases where substantial changes are required to an existing record. The recorder should use good judgment in determining which approach to take when preparing an update. Any corrections of a previous record should be clearly explained and justified. If the boundaries of a previously recorded historical resource are modified, provide a justification for the change and prepare a new Location Map and/or Sketch Map as required. Full citations should be provided for any new studies of a resource, in order to update Field P11 (Report Citation) on the Primary Record. A copy of the report(s) should accompany or follow the submitted update.

SOURCES OF ADDITIONAL INFORMATION

Advisory Council on Historic Preservation
1980 Treatment of Archaeological Properties: A Handbook. Washington, DC.

Blumenson, John J. G.
1981 Identifying American Architecture. American Association for State and Local History, Nashville.

Gebhard, David, Eric Sandeweiss, and Robert Winter
1985 The Guide to Architecture in San Francisco and Northern California. Gibbs M. Smith, Inc. / Peregrine Smith Books, Layton, Utah.

Gebhard, David, and Robert Winter
1977 A Guide to Architecture in Los Angeles and Southern California. Peregrine Smith, Inc., Santa Barbara and Salt Lake City.

McAlester, Virginia, and Lee McAlester
1984 A Field Guide to American Houses. Alfred A. Knopf, New York.

National Park Service
1983 Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Washington, DC.

1985 Guidelines for Local Surveys: A Basis for Preservation Planning. National Register Bulletin 24. Washington, DC.

1990a Guidelines for Evaluating and Documenting Traditional Cultural Properties. National Register Bulletin 38. Washington, D.C.

1990b How to Apply the National Register Criteria for Evaluation. National Register Bulletin 15. Washington, DC.

1990c State Program Review Report, Round III: California State Historic Preservation Office. Division of National Register Programs, Western Region, San Francisco.

1991 How to Complete the National Register Form. National Register Bulletin 16A. Washington, DC.

Oakland, City of
1978 Rehab Right. Planning Department, City of Oakland.

Office of Historic Preservation
1986 California Historic Resources Inventory Survey Workbook. Sacramento.

1988 Five Views: An Ethnic Sites Survey for California. Sacramento.

1989a Archaeological Resource Management Reports (ARMR): Recommended Contents and Format. Preservation Planning Bulletin 4(a). Sacramento.

1989b California Archaeological Inventory Handbook for Completing an Archaeological Site Record, DPR 422 A-I. Sacramento.

1989c Instructions for Completing the Historic Resources Inventory Form. Sacramento.

Office of Historic Preservation (cont.)

1991a Evaluation of the Survey and Inventory Program Area, National Historic Preservation Program. Sacramento.

1991b Guidelines for Archaeological Research Designs. Preservation Planning Bulletin 5. Sacramento.

Whiffen, Marcus

1969 American Architecture Since 1780: A Guide to the Styles. M.I.T. Press, Cambridge, Massachusetts.

APPENDIX 1: BLANK RECORDING FORMS

This appendix contains examples of all of the recording forms described in this manual. Those forms consist of:

Primary Record (DPR 523A)
Building, Structure, and Object Record (DPR 523B)
Archaeological Site Record (DPR 523C)
District Record (DPR 523D)
Linear Feature Record (DPR 523E)
Milling Station Record (DPR 523F)
Rock Art Record (DPR 523G)
Artifact Record (DPR 523H)
Photograph Record (DPR 523I)
Location Map (DPR 523J)
Sketch Map (DPR 523K)
Continuation Sheet (DPR 523L)

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI# _____
Trinomial _____
NRHP Status Code _____

Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page _____ **of** _____ ***Resource Name or #:** (Assigned by recorder) _____

P1. Other Identifier: _____

***P2. Location:** ☐ **Not for Publication** ☐ **Unrestricted**

***a. County** _____ **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** _____ **Date** _____ **T** __; **R** __; __ ¼ **of** __ ¼ **of Sec** __; _____ **B.M.**

c. Address _____ City _____ Zip _____

d. UTM: (Give more than one for large and/or linear resources) Zone __, _____ mE/ _____ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

***P3b. Resource Attributes:** (List attributes and codes) _____

***P4. Resources Present:** ☐ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

P5b. Description of Photo: (view, date, accession #) _____

***P6. Date Constructed/Age and Source:** ☐ Historic ☐ Prehistoric ☐ Both

***P7. Owner and Address:** _____

***P8. Recorded by:**
(Name, affiliation, and address)

***P9. Date Recorded:** _____

***P10. Survey Type:** (Describe) _____

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")

***Attachments:** ☐NONE ☐Location Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California – The Resources Agency Primary # _____
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD HRI # _____

*NRHP Status Code _____
Page _____ of _____ ***Resource Name or #**(Assigned by recorder) _____

____ B1. Historic Name: _____
____ B2. Common Name: _____
____ B3. Original Use: _____
____ B4. Present Use: _____
____ ***B5. Architectural Style:** _____
***B6. Construction History:** (Construction date, alterations, and date of alterations)

***B7. Moved? No Yes Unknown Date:** _____ **Original Location:** _____

***B8. Related Features:**

B9a. Architect: _____ b. Builder: _____

***B10. Significance: Theme** _____ **Area:** _____

Period of Significance: _____ **Property Type:** _____ **Applicable Criteria:** _____
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

B11. Additional Resource Attributes: (List attributes and codes) _____

***B12. References:**

B13. Remarks.

Sketch Map with north arrow required.

***B14. Evaluator:**

***Date of Evaluation:** _____

(This space reserved for official comments)

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
ARCHEOLOGICAL SITE RECORD

Primary # _____

Trinomial _____

Page __ of __ *Resource Name or # (Assigned by Recorder) _____

*A1. Dimensions: a. Length _____ (_) b. Width _____ (_)

Method of Measurement: Paced Taped Visual estimate Other: _____

Method of Determination (Check any that apply.): Artifacts Features Soil Vegetation Topography Cut bank Animal burrow Excavation Property boundary Other (Explain): _____

Reliability of Determination: High Low Explain: _____

Limitations (Check any that apply): Restricted access Paved/built over Site limits incompletely defined Disturbances Vegetation Other (Explain): _____

A2. Depth: None Unknown Method of Determination: _____

*A3. Human Remains: Present Absent Possible Unknown (Explain): _____

*A4. Features: (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map.)

*A5. Cultural Constituents: (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.)

*A6. Were Specimens Collected? No Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

*A7. Site Condition: Good Fair Poor (Describe disturbances.):

*A8. Nearest Water: (Type, distance, and direction.)

*A9. Elevation:

A10. Environmental Setting: (Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.)

A11. Historical Information:

*A12. Age: Prehistoric Protohistoric 1542-1769 1769-1848 1848-1880 1880-1914 1914-1945 Post 1945 Undetermined Describe position in regional prehistoric chronology or factual historic dates if known:

A13. Interpretations: (Discuss data potential, function[s], ethnic affiliation, and other interpretations)

A14. Remarks:

A15. References: (Documents, informants, maps, and other references)

A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record.):

Original Media/Negatives Kept at: _____

*A17. Form Prepared by: _____ Date: _____ Affiliation and Address: _____

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
DISTRICT RECORD

Primary # _____
HRI# _____
Trinomial _____

Page _____ of _____ *NRHP Status Code _____
*Resource Name or # (Assigned by recorder) _____

D1. Historic Name: _____ D2. Common Name: _____

***D3. Detailed Description** (Discuss overall coherence of the district, its setting, visual characteristics, and minor features. List all elements of district.):

***D4. Boundary Description** (Describe limits of district and attach map showing boundary and district elements.)

***D5. Boundary Justification:**

D6. Significance: Theme _____ **Area** _____
Period of Significance _____ **Applicable Criteria** _____
(Discuss district's importance in terms of its historical context as defined by theme, period of significance, and geographic scope. Also address the integrity of the district as a whole.)

***D7. References** (Give full citations including the names and addresses of any informants, where possible.):

***D8. Evaluator:** _____ **Date:** _____

Affiliation and Address: _____

_____

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LINEAR FEATURE RECORD

Primary # _____
HRI# _____
Trinomial _____

Page _____ **of** _____ ***Resource Name or #** (Assigned by recorder) _____

L1. Historic and/or Common Name: _____

L2a. Portion Described: Entire Resource Segment Point Observation **Designation:** _____

b. **Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.)

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

L4e. Sketch of Cross-Section (include scale) Facing:

L4. Dimensions: (In feet for historic features and meters for prehistoric features)

a. **Top Width** _____
b. **Bottom Width** _____
c. **Height or Depth** _____
d. **Length of Segment** _____

L5. Associated Resources:

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.):

L7. Integrity Considerations:

L8b. Description of Photo, Map, or Drawing (View, scale, etc.) _____
_____

L9. Remarks:

L10. Form Prepared by: (Name, affiliation, and address)

L11. Date: _____

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

MILLING STATION RECORD

Primary # _____

Trinomial _____

Page _____ of _____ Resource Name or # (Assigned by Recorder) _____

Form Prepared by: _____ Date: _____

Feature #	Outcrop Dimensions (m) and Orientation	Bedrock Type and Condition
	_____ x _____ x Height _____	
	_____ x _____ x Height _____	
	_____ x _____ x Height _____	
	_____ x _____ x Height _____	
	x x Height	

Feature #	Milling Surface #	Type	Length (cm)	Width (cm)	Depth (cm)	Contents	Remarks

Type Key:

CO Conical mortar
OM Oval mortar
SM Saucer mortar
PM Possible mortar
MS Milling slick
BM Basin milling feature
Other:

Contents Key:

S Filled with soil
L Filled with leaves
U Unexcavated
R Contains rock
P Contains pestle
M Contains mano
Other:

DPR 523F (1/95)

Note: Attach plan(s) of milling stations.

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

ROCK ART RECORD

Primary # _____

Trinomial _____

Page _____ **of** _____ **Resource Name or # (Assigned by Recorder)** _____

R1. Feature # (Panel #): _____ **of** _____

R2. Feature/Panel Location (From site datum.): _____
Found on: Cliff face Boulder Bedrock Cave/shelter surface Other: ___

R3. Host Rock: _____ **R4. Host Background:** Patinated Natural Painted Glaciated Smoke blackened Other: _____ **R5. Detailed Description of Panel:** (Check any that apply)
Petroglyphs Pictographs Geoglyph
(Describe feature/panel size, size of host rock, number and types of elements/motifs, method of production, etc.)

R6. a. Feature/Panel Integrity: Good Fair Poor Explain: _____
b. Natural Deterioration (Check any that apply.): Water erosion Surface spalling Block fractures Lichen growth Wind Erosion Sun exposure Rock fall Plant defacement Animal nesting Mineral accretion NONE Other (Explain): _____
c. Cultural Deterioration (Check any that apply.): Bullet holes Graffiti Chalk Scratched Altered Livestock Logging Visitor use NONE Other (Explain):

R7. Style(s) and Suspected Cultural Affiliation:

R8. Elements Superimposed? No Yes (Describe)

R9. Feature/Panel Visibility: Visible Semi-visible Hidden

R10. Associated/Nearby Cultural Materials:

R11. Conservation Recommendations:

R12. Form Prepared by: _____ **Date:** _____

Affiliation and Address: _____

Note: Attach sketch of rock art panel/feature.

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

ARTIFACT RECORD

Primary # _____

Trinomial _____

Page _____ of _____ Resource Name or # (Assigned by recorder) _____

Location Where Collected Specimens are Curated: _____

Artifact #	Type	Condition	Description (form, material, etc.)	Dimensions (cm) L W TH	Locational Data (distance / bearing from datum)	Sketch/ Photo	Collected?

TYPE KEY: *(List Abbreviations Used)*	CONDITION KEY: F *Fragmentary* C *Complete* *Other:*

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PHOTOGRAPHIC RECORD

Primary # _____
HRI# _____
Trinomial _____

Page _____ **of** _____ **Project Name:** _____ **Year** _____
__Camera Format: _____ Lens Size: _____
__Film Type and Speed: _____ **Negatives Kept at:** _____

Mo.	Day	Time	Exp./Frame	Subject/Description	View Toward	Accession #

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # _____
HRI# _____
Trinomial _____

Page _____ **of** _____ ***Resource Name or #** (Assigned by recorder) _____
***Map Name:** ***Scale:** _____ ***Date of map:** _____

***Required information**

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary # _____
HRI# _____
Trinomial _____

Page _____ of _____ *Resource Name or # (Assigned by recorder) _____
*Drawn by: _____ *Date of map: _____

NOTE: Include bar scale and north arrow.

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # ----------
HRI # ----------
Trinomial ----------

Page _____ of _____ ***Resource Name or #**(Assigned by recorder) _____

Recorded by: _____ **Date:** _____

☐ Continuation ☐ Update

APPENDIX 2: NRHP STATUS CODES

This appendix explains the use of the codes that should be entered in the "NRHP Status Code" field in the header of the Primary Record when an evaluation of a historical resource is completed. The codes found here represent a short list of the most frequently used status determinations, selected from a more extensive list that is available from the OHP on request. Be sure to read the entire list before deciding which code to use. Take special care that evaluations for districts and their components fit together properly. Note that districts themselves are given "S" ratings, while contributors receive "D" ratings. Thus, a district judged eligible for the National Register is rated "3S," but the district's contributors are rated "3D."

The initial number in a code indicates the general status:

1. Listed in the National Register.
2. Determined eligible for the National Register in a formal process involving federal agencies.
3. Appears eligible for listing in the National Register in the judgment of the person(s) completing or reviewing the form.
4. Might become eligible for listing.
5. Ineligible for the National Register but still of local interest.
6. None of the above.
7. Undetermined.

Each general status is divided into more specific codes as follows:

1. Listed in the National Register:
   - 1S. Separately listed.
   - 1D. Contributor to a listed district.
   - 1B. Both 1S and 1D.

2. Determined eligible for listing in the National Register:
   - 2S1. Determined eligible for separate listing by the Keeper of the National Register.
   - 2S2. Determined eligible for separate listing through a consensus determination by a federal agency and the State Historic Preservation Officer.
   - 2S3. Determined eligible for separate listing by a unit of the National Park Service other than the Keeper of the National Register.
   - 2D1. Contributor to a district determined eligible by the Keeper.
   - 2D2. Contributor to a district determined eligible for listing through a consensus determination.
   - 2D3. Determined eligible for listing as a contributor to a district by a unit of the National Park Service other than the Keeper.
   - 2B5. Determined eligible by more than one method listed above.

3. Appears eligible for listing in the National Register:
   - 3S. Appears eligible for separate listing.
   - 3D. Contributor to a district that has been fully documented according to OHP instructions and appears eligible for listing.
   - 3B. Both 3S and 3D.

4. Might become eligible for listing:
   - 4R. Meets both of the following conditions: (1) Is located within the boundaries of a fully documented district that is listed in, determined eligible for, or appears eligible for the National Register; and (2) may become a contributor to the district when it is restored to its appearance during the district's period of significance.

   - 4S. May become eligible for separate listing in the National Register when one of the following occurs (use the code for the most important reason if more than one applies):
     - 4S1. The property becomes old enough to meet the Register's 50-year requirement.

4S2. More historical or architectural research is performed on the property.
4S7. The architectural integrity of the property is restored.
4S8. Other properties, which provide more significant examples of the historical or architectural associations connected to this property, are demolished or otherwise lose their architectural integrity.

4D. Contributor to a fully documented district that may become eligible for listing when (use the code for the most important reason if more than one applies):
4D1. The district becomes old enough to meet the Register's 50-year requirement.
4D2. More historical or architectural research is performed on the district.
4D7. The integrity of the district is restored.
4D8. Other districts, which provide more significant examples of the historical or architectural associations connected to this district, are demolished or otherwise lose their architectural integrity.

4X. May become eligible as a contributor to a district that has not been fully documented.

5. Not eligible for National Register but of local interest because the resource:
5S1. Is separately listed or designated under an existing local ordinance, or is eligible for such listing or designation.
5S3. Is not eligible for separate listing or designation under an existing local ordinance but is eligible for special consideration in local planning.
5D1. Is a contributor to a fully documented district that is designated or eligible for designation as a local historic district, overlay zone, or preservation area under an existing ordinance or procedure.
5D3. Is a contributor to a fully documented district that is unlikely to be designated as a local historic district, overlay zone, or preservation area but is eligible for special consideration in local planning.
5N. Needs special consideration for reasons other than the above.

6. None of the above:
6W. Removed from listing by the Keeper of the National Register.
6X. Determined ineligible for listing in the National Register by the Keeper of the National Register.
6Y. Determined ineligible for listing in the National Register through a consensus determination of a federal agency and the State Historic Preservation Officer.
6Z. Found ineligible for listing in the National Register through an evaluation process other than those mentioned in 6X and 6Y above.

7. Not evaluated.

APPENDIX 3: CALCULATING UTM COORDINATES

(For use in Fields P2d and L2b)

The Universal Transverse Mercator (UTM) Grid System provides a simple and accurate method for recording the geographic location of a historic property. The UTM Grid System has a number of advantages over the Geographic Coordinate System of latitude and longitude, particularly speed, precision, and the use of linear, metric units of measure. Determining UTM references involves no complicated geometric constructions and, in its simplest application, requires only a straightedge, a coordinate counter, and a sharp pencil as working tools. (The coordinate counter, a plastic measuring tool, may be obtained from J & J Reproduction and Drafting Supplies, Inc., 9017-F Mendenhall Court, Columbia, MD 21045.)

In the UTM system, the Earth is divided into 60 zones, running north and south, each 6 degrees wide. Each zone is numbered (most of the US is included in zones 10 through 19), beginning at the 180-degree meridian near the International Date Line. The zones are flattened and gridded into squares measuring one kilometer on each side. UTM grid references are printed around the margins of many USGS quadrangles published since 1950, and all published since 1959 with blue grid ticks spaced at 1000 meter (one kilometer) intervals. Any point in the zone may be referenced by citing its zone number, its distance in meters from a north-south reference line ("easting"), and its distance in meters from the Equator ("northing"). These three figures -- the zone number, easting, and northing -- make up the complete UTM grid reference for any point and distinguish it from any other point on Earth.

The simplest method of determining a UTM reference is based on drawing part of the UTM grid on the map, and measuring from the grid lines to the point. It requires the following:

- a flat work surface on which the map may be spread out in full;
- a straightedge (ordinary rulers may not be accurate enough) long enough to reach completely across the map -- generally 28" to 36";
- a very sharp pencil;
- an ink pen for recording references; and
- a UTM coordinate counter.

To measure each point, follow these steps:

1. Draw a line from the top of the map to the bottom (north to south), connecting the UTM ticks of the same value directly west of the point, that is the ticks with the highest easting value west of the point.

2. Draw a line from the left to the right side of the map (west to east), connecting the UTM ticks of the same value directly south of the point, that is the ticks with the highest northing value south of the point. This line will intersect the north-south line somewhere to the southwest of the point.

3. Record the zone number on a worksheet. This number appears in the lower left corner of the map.

4. Record on a worksheet the numbers given by the map ticks through which the lines have been drawn. These are the first three digits of the easting value and the first four digits of the northing value. 5. Locate the scale on the coordinate counter matching that of the map, e.g., 1:24,000. Align the counter on the map so that:

a. the side of the scale that reads from right to left lies along the east-west line.

b. The side of the scale that reads from left to right passes directly through the point. Check the alignment to be sure that it is precise.

6. Read the coordinate counter scales, right to left for the easting and upward for the northing to get a measured value in three decimal places. In each case, enter the measured value on the worksheet after the number recorded in step 4.
7. Check the readings for plausibility -- are all figures in the correct decimal place? The easting will have six digits and the northing seven.

8. Check the figures for accuracy by remeasuring.

9. Be sure that the correct order is observed: zone number, easting, northing (Z,E,N).

If the resource is less than 10 acres, enter the UTM reference for the point in the middle of that resource. UTM coordinates should be provided for the beginning and termination of linear structures and sites or recorded segments of such resources. If a resource is 10 or more acres, the area must be enclosed in a quadrangle and a UTM reference should be given for each corner. Where multiple UTM coordinates are provided, each reference point should be depicted on the Location Map prepared for the resource.

APPENDIX 4: RESOURCE ATTRIBUTE CODES

(for use in Fields P3b and B11)

The following codes should be used to define the attributes of historical resources in Fields P3b and B11 on the Primary Record and Building, Structure, and Object Record, respectively. The codes are first summarized below and then defined in greater detail in the following pages of this appendix.

Attributes of Historic Resources:

HP1. Unknown
HP2. Single family property
HP3. Multiple family property
HP4. Ancillary building
HP5. Hotel / motel
HP6. 1-3 story commercial building
HP7. 3+ story commercial building
HP8. Industrial building
HP9. Public utility building
HP10. Theater
HP11. Engineering structure
HP12. Civic auditorium
HP13. Community center / social hall
HP14. Government building
HP15. Educational building
HP16. Religious building
HP17. Railroad depot
HP18. Train
HP19. Bridge
HP20. Canal / aqueduct
HP21. Dam
HP22. Lake / river / reservoir
HP23. Ship
HP24. Lighthouse
HP25. Amusement park
HP26. Monument / mural / gravestone
HP27. Folk Art
HP28. Street furniture
HP29. Landscape architecture
HP30. Trees / vegetation
HP31. Urban open space
HP32. Rural open space
HP33. Farm / ranch
HP34. Military property
HP35. CCC / WPA property
HP36. Ethnic minority property (list group)
HP37. Highway / trail
HP38. Women's property
HP39. Other
HP40. Cemetery
HP41. Hospital
HP42. Stadium / sports arena
HP43. Mine structure / building
HP44. Adobe building / structure
HP45. Unreinforced masonry building
HP46. Walls / gates / fences

Attributes of Historic Archaeological Sites:

AH1. Unknown
AH2. Foundations / structure pads
AH3. Landscaping / orchard
AH4. Privies / dumps / trash scatters
AH5. Wells / cisterns
AH6. Water conveyance system
AH7. Roads / trails / railroad grades
AH8. Dams
AH9. Mines / quarries / tailings
AH10. Machinery
AH11. Walls / fences
AH12. Graves / cemetery
AH13. Wharfs
AH14. Ships / barges
AH15. Standing structures
AH16. Other

Attributes of Prehistoric Archaeological Sites and Ethnographic Sites:

AP1. Unknown
AP2. Lithic scatter
AP3. Ceramic scatter
AP4. Bedrock milling feature
AP5. Petroglyphs
AP6. Pictographs
AP7. Architectural feature
AP9. Burials
AP10. Caches
AP11. Hearths / pits
AP12. Quarry
AP13. Trials / linear earthworks
AP14. Rock shelter / cave
AP15. Habitation debris

AP8. Cairns / rock features AP16. Other

Historic Resource Attribute Definitions:

HP1. Unknown: No reasonable guess can be made about the historic use or function of the resource.

HP2. Single Family Property: A building constructed to house one family.

HP3. Multiple Family Property: Any building providing longer than temporary lodging for more than one person or household. E.g., duplexes, apartment buildings, dormitories, bunkhouses, etc.

HP4. Ancillary Building: Barns, outhouses, detached garages, carriage houses, sheds, etc.

HP5. Hotel / Motel: Any building or group of buildings providing temporary lodging for travelers.

HP6. Commercial Building, over 3 stories: Any type of building dealing with management, retail sales, or marketed services. E.g., stores, banks, gas stations, office buildings, etc. Do not include basement in height count.

HP7. Commercial Building, over 3 stories: Do not include basement in height count.

HP8. Industrial Building: Any building where the manufacture or distribution of products occurs. E.g, canneries, mills, foundries, warehouses, etc.

HP9. Public Utility Building: Any building that houses services available to the public at large. E.g., firehouses, power houses, electrical substations. etc.

HP10. Theater: Any place where plays, variety shows, motion pictures, etc., are presented. Includes amphitheaters.

HP11. Engineering Structure: A structure not covered in any other category. E.g., docks, runways, water towers, etc.

HP12. Civic Auditorium: Publicly owned buildings for concerts, speeches, etc.

HP13. Community Center / Social Hall: Any building designed to hold meetings of social groups. E.g., fraternal halls, women's clubs, boy scout cabins, etc.

HP14. Government Buildings: Any building designed to house government administration or transactions. E.g., post offices, city halls, county courthouses, etc.

HP15. Educational Building: Any building with an educative purpose. E.g., schools, libraries, museums, etc.

HP16. Religious Building: Any building holding religious ceremonies or connected the operations of religious organizations (e.g., churches, seminaries, parsonages, etc.

HP17. Railroad Depot: Stations and other buildings connected to the operation of railroads and streetcars. E.g., sheds, roundhouses, etc.

HP18. Train: Engines, streetcars, and rolling stock.

HP19. Bridge: Any overpass for automobiles, trains, pedestrian, etc.

HP20. Canal / Aqueduct: Any artificial waterway for transportation or irrigation. Includes large pipes, conduits, drainage ditches, and bridge-like structures for carrying water.

HP21. Dam: Any barrier constructed to hold back water.

HP22. Lake/River/Reservoir: Any inland body of water, natural stream of water, or place where water is collected and stored.

HP23. Ship: Any vessel able to navigate inland or ocean waters.

HP24. Lighthouse: Any building or structure from which ships are guided by sight or sound.

HP25. Amusement Park: An outdoor place with various amusement buildings, structures, or devices. Includes zoological parks.

HP26. Monument/Mural/Gravestone: 1) Any object with a commemorative or artistic purpose; 2) Any painting, photograph, etc. on a wall or ceiling. E.g., statue, obelisk, sculpture, etc.

HP27. Folk art: Any object that expresses the artistic capacities of a people without being the product of formal training.

HP28. Street Furniture: Any object that is permanently placed near a street. E.g., fire hydrants, streetlights, benches, curbstones, hitching posts, etc.

HP29. Landscape Architecture: Any place in which trees, bushes, lawns, fountains, walls etc. have been arranged for esthetic effect.

HP30. Trees/Vegetation: Any plant, whether planted or growing naturally, not part of a landscape plan.

HP31. Urban Open Space: Any area that has experienced little building or other development within in a city limits. E.g., parks, grounds, or large open lots.

HP32. Rural Open Space: Any area that has experienced little building or other development outside a city limits.

HP33. Farm/Ranch: Any place where crops or animals are raised.

HP34. Military Property: Any property owned by one of the U.S. armed services, including the national Guard.

HP35. New Deal Public Works Project: Any property built under one of the public works programs of the New Deal. Includes properties aided by funds or personnel from the Works Progress Administration (WPA) and successors, Public Works Administration (PWA), Civilian Conservation Corps (CCC), etc.

HP36. Ethnic Minority Property: Any property closely associated with events, individuals, groups, or social patterns important in the history of an ethnic group. Includes properties designed by important ethnic group members. Add further information by including the name of the ethnic group involved. The OHP has abbreviations for five groups, so put these two letters in front of the name: AA African Americans, CH Chinese, JA Japanese, LA Latino, NA Native Americans. The OHP will adopt other abbreviations as properties associated with other ethnic groups are identified.

HP37. Highways/Trail: Any roadway, from freeway to footpath.

HP38. Women's Property: Any property closely associated with events, individuals, groups. or social patterns important in the history of women. Includes work of women designers as well as buildings such as YWCAs and women's clubs.

HP39. Other: If no other code applies, enter HP39.

HP40. Cemetery: Burial ground with monuments (except archeological sites).

HP41. Hospital: Any facility for treatment of the sick.

HP42. Stadium/Sports Arena: Any structure or building that provides a place in which sporting events are viewed.

HP43. Mine: Any structure or building connected with mining. E.g., mine shafts, head frames, stamp mills, shops, etc.

HP44. Adobe building / Structure.

HP45. Unreinforced masonry building.

HP46. Walls / gates / fences.

Historic Archaeological Site Attribute Definitions:

AH1. Unknown: no characteristics listed on the site record.

AH2. Foundations: structural footings or lineal alignments made from wood, brick or rock to support a structure (e.g., slabs of concrete, leveled earth pads, pilings, walls, stairs, etc.).

AH3. Landscaping: evidence of modification through contouring of the land or planting vegetation (e.g., hedgerow, orchards, terraces, and ponds).

AH4. Privy pits / trash scatters / dumps: any refuse deposits, outhouse pits, or other accumulation of debris (e.g., trash pits, trash scatters, outhouse pits, and dumps).

AH5. Well / cistern: a hole or receptacle designed to hold or provide access to water which may or may not be lined.

AH6. Water conveyance system: any device constructed to transport water over a distance (e.g., flumes, pipes, ditches, canals, and tunnels).

AH7. Road / trail / railroad bed: a lineal construction, either depressed, elevated, or on ground level, designed to facilitate the transportation of people or vehicles (e.g., bridge, railroad grade, tunnel, trail, wagon road, etc.).

AH8. Dam: a barrier constructed to contain a body of water.

AH9. Mine: an excavation and associated structures built into the earth to extract natural resources (ore, precious metals, or raw lithic materials). This category includes quarries. Examples include: shafts, elevators, mining tunnels, quarry, glory holes, tailings.

AH10. Machinery: a mechanical device (e.g., mills, farm equipment, steam donkeys, windmills, etc.).

AH11. Wall / fence: any wall or fence including postholes or posts placed at regular intervals, retaining walls, post-cairns, walls, fences, jetties, and breakwaters.

AH12. Grave / cemetery: any single or multiple burial location.

AH13. Wharf: a structure or remains of a structure built at the shore of a harbor or river for the docking of ships or boats; pier; dock.

AH14. Ships / barges: floating vessels designed for transporting people or goods across water.

AH15. Standing structure: any historic building that is still standing (e.g., outhouse, shed, house, cabin, office building, barn, etc.).

AH16. Other: check if there is no other category in which the site description could be placed.

Prehistoric Archaeological Site Attribute Definitions:

AP1. Unknown: no characteristics listed on the site record.

AP2. Lithic scatter: a major characteristic of the site is a scatter of chipped or flaked stone resulting from human manipulation (e.g., obsidian flakes and few or no other artifacts).

AP3. Ceramic scatter: a major characteristic of the site is a scatter of pot sherds. If the site contains both lithics and ceramics, check both.

AP4. BRM / milling feature: site contains one or more bedrock mortars, milling surfaces or cupules which indicate material processing activity.

AP5. Petroglyphs: site contains a stone surface which has been scored by humans in a patterned manner for a purpose other than material processing. This category includes intaglios.

AP6. Pictographs: site includes any design painted on a rock surface.

AP7. Architectural feature: site contains any feature which indicates the presence of human construction activity (e.g., post holes, house pits, dance house, sweat lodge, hunting blinds, fish traps).

AP8. Stone feature: site contains a patterned arrangement of rocks purposefully constructed or modified (e.g., rock alignments, cairns, rock rings of unknown function, etc.). AP9. Burial: the site contains human bone.

AP10. Cache: the site contains an natural or constructed feature used for storing food or goods.

AP11. Hearths / pits: site contains any feature which indicated cooking activity, such as roasting pits, association of cracked or burnt rock, discolored soil, ash and carbonized wood or plants.

AP12. Quarry: site contains a source of lithic material with evidence of human usage.

AP13. Lineal feature: site contains natural or constructed features indicating human use such as trails, earth works, windrows or stone fences.

AP14. Rock shelter / cave: a concavity within a rock surface evidencing human use.

AP15. Habitation debris: site contains a deposit characterized by a wide range of artifacts, materials or features which represent a variety of human activities.

AP16. Other: check here if there is no other category in which the site description can be placed.

APPENDIX 5: HOW TO CATEGORIZE HISTORICAL RESOURCES

NRHP Category	Examples	Suggested Records Used for Intensive Surveys
Building	houses, barns, stables, sheds, garages, courthouses, city halls, social halls, commercial buildings, libraries, mills, factories, stationary mobile homes, train depots, hotels, theaters, schools, stores, and churches	523A and 523B, plus 523J (when apropriate)
Structure	bridges, tunnels, dredges, firetowers, turbines, dams, corncribs, power plants, silos, shot towers, grain elevators, windmills, kilns, mounds, earthworks, cairns, palisade fortifications, railroad locomotives and cars, boats and ships, telescopes, carousels, bandstands, gazebos, and aircraft	523A and 523B, plus 523J (when apropriate)
	canals, ditches*, flumes*, pipelines*, roads, utility lines*, fences*, rock walls*, railroad grades, and historic footpaths	523A, 523B, 523E and 523J
Object	sculpture, monuments, boundary markers, statuary, and fountains	523A and 523B, plus 523J (when apropriate)
Site	habitation and village sites; rock shelters; hunting and fishing sites; petroglyphs and rock carvings; grounds and gardens; battlefields; campsites; shipwrecks; cemeteries and funerary sites; ruins of historic buildings and structures; treaty signing sites; and natural features such as springs, rock formations, and other land areas having cultural significance	523A, 523C, 523J, and 523K (with optional attachments as appropriate)
	designed landscape	523A ,523B,or 523C, 523J, and 523K
	trails, and the ruins of canals, ditches*, flumes*, pipelines*, roads, utility lines*, fences*, rock walls*, and railroad grades	523A, 523C, 523E and 523J
District	college campuses, central business districts, residential neighborhoods, commercial areas, large forts, industrial complexes, civic centers, rural villages, complex canal or irrigation systems, groups of habitations and associated activity areas, large ranches / estates / plantations, transportation networks, and large landscaped parks	523A, 523D and 523J (for the District) plus 523A for each contributor

*With the exception of items marked with an asterisk, all examples are taken from National Register Bulletin 16A (National Park Service 1991:15).

APPENDIX 6: TYPES OF SURVEY ACTIVITIES

(For reference when filling in Field P10 on the Primary Record)

Reports documenting survey activities add to the information available about historical resources by describing how the resources were identified and evaluated. The Secretary of the Interior has offered specific recommendations concerning the level of effort entailed in "reconnaissance" and "intensive" surveys.

A reconnaissance survey entails a systematic effort to identify and summarize information about historical resources in a given area. Reports documenting reconnaissance surveys should provide thorough documentation of objectives and expectations of the survey, the methods used to discover resources, and the adequacy of such efforts. While reconnaissance surveys may employ widely different strategies, the reports prepared to document them should minimally contain the following kinds of information:

1. A clear statement of the purpose of the survey.

2. A definition of the survey area (with map of areas examined).

3. A research design that examines current knowledge of a relevant historic context or contexts, defines resource types associated with that context, and establishes expectations regarding survey results (e.g., where resources will be found, how many of each type, etc.). The research design may simply refer to a previously published one **if it is applicable and reasonably current**.

4. A definition of the methods that were used during the survey. If a variety of methods are used, the area covered by each method should be separately depicted on the survey coverage map listed in Item 2 (above).

5. A summary of the results of the survey including a map depicting resource locations, analysis of findings relative to the study's research design, discussion of any limitations of the survey, and individual records for all identified heritage resources.

Intensive surveys go beyond the systematic identification and description of historical resources to encompass the evaluation of those properties within a historic context. Thus, in addition to the five categories of information needed for a reconnaissance report, the report documenting an intensive survey should also contain:

6. An evaluation of heritage resources identified during the survey as determined within a historic context using the National Register criteria (or CEQA criteria if appropriate).

7. Evidence that the evaluation was conducted or confirmed by an appropriately qualified professional.

Further recommendations regarding the content of heritage resource reports can be found in OHP's Archaeological Resource Management Reports (ARMR): Recommended Contents and Format (1989) and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (National Park Service 1983).

APPENDIX 7: NATIONAL REGISTER CRITERIA AND CONSIDERATIONS

Criteria for Evaluation

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
(b) that are associated with the lives of persons significant in our past; or
(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
(d) have yielded, or may be likely to yield, information important in prehistory or history.

Criteria Considerations

Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieve significance within the last 50 years shall not be considered eligible for the National Register. However, such properties *will qualify* if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

(a) a religious property deriving primary significance from architectural or artistic distinction or historical importance; or
(b) a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
(c) a birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
(d) a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
(e) a reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
(f) a property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
(g) a property achieving significance within the past 50 years if it is of exceptional importance.

(Reprinted in full from Code of Federal Regulations, Title 36, Part 60.)

APPENDIX 8: LIST OF REGIONAL INFORMATION CENTERS

Please see the OHP website for the most current information centers listings:
http://ohp.cal-parks.ca.gov

Appendix O-TL3

Figure 1. SF Ocean Side Beaches. 2016: Exceedance of state health standards for total coliform, e. coli, or enterococcus

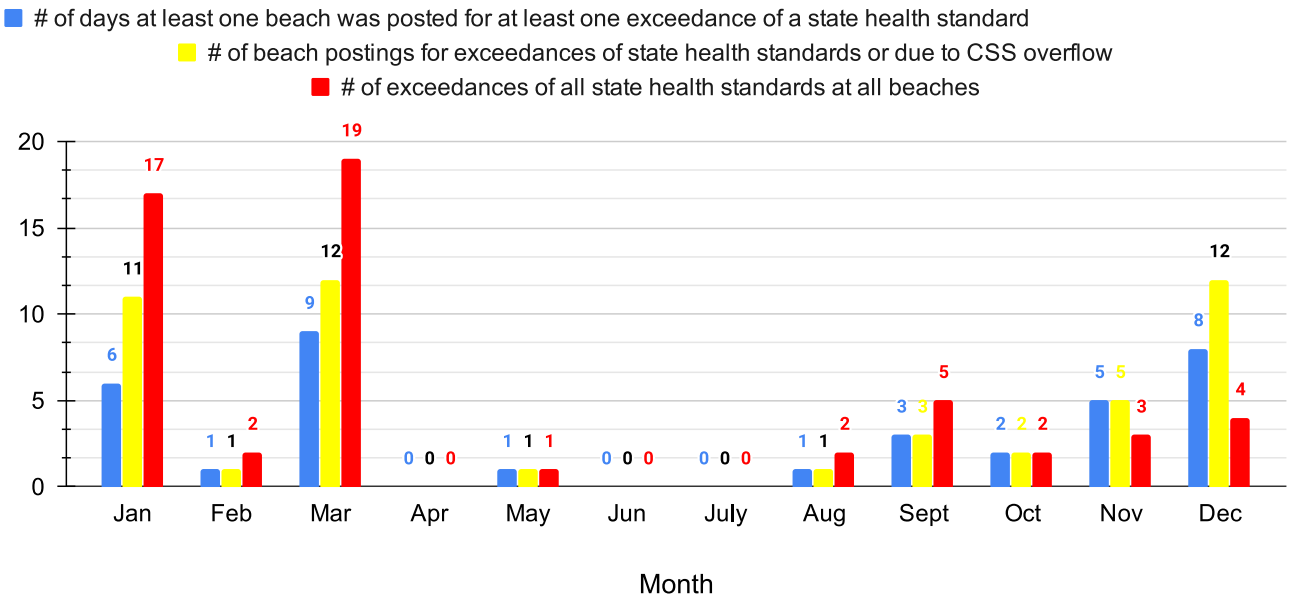


Figure 2. SF Ocean Side Beaches. 2017: Exceedance of state health standards for total coliform, e. coli, or enterococcus

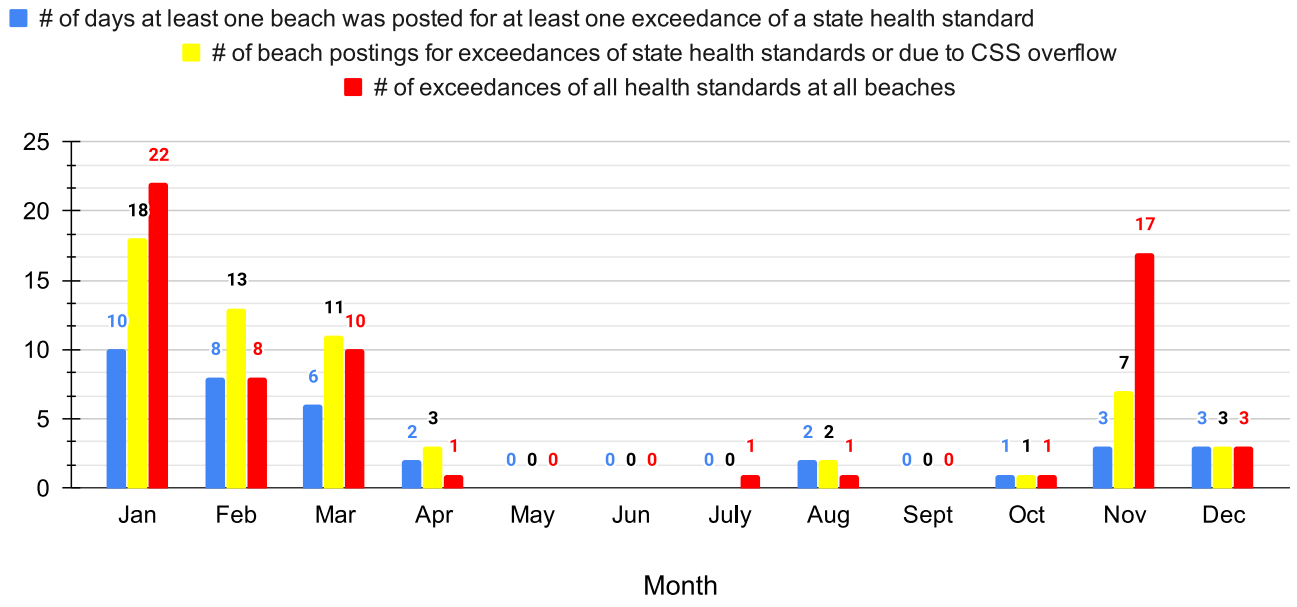


Figure 3. SF Ocean Side Beaches. 2018: Exceedance of state health standards for total coliform, e. coli, or enterococcus

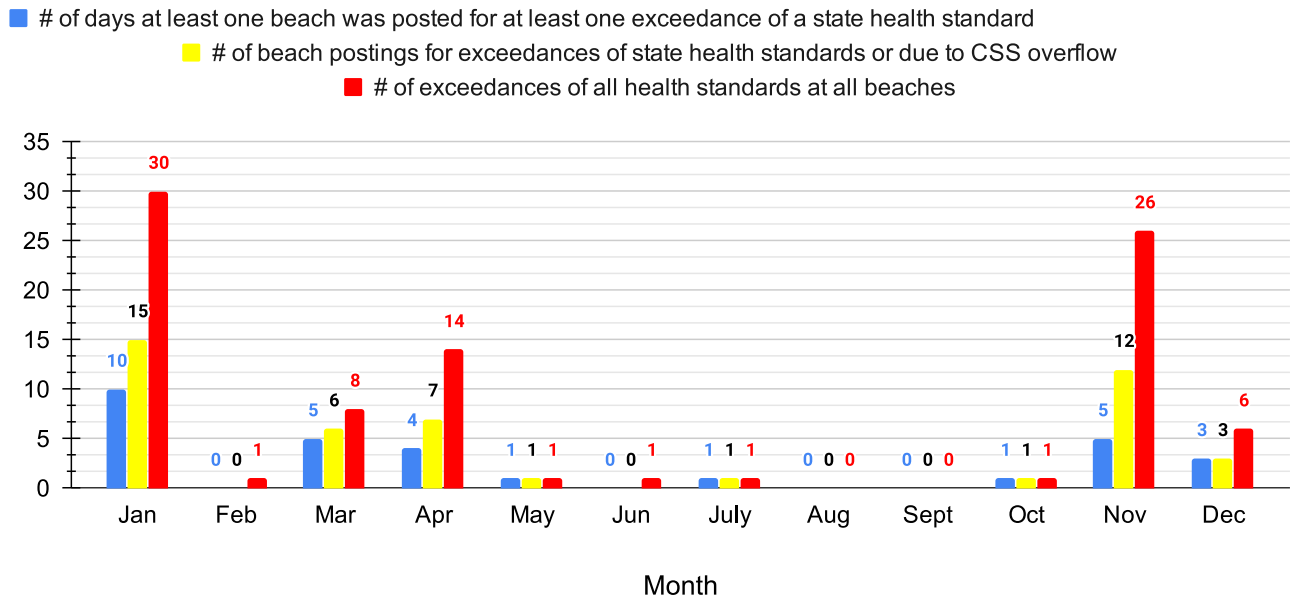


Figure 4. SF Ocean Side Beaches. 2019: Exceedance of state health standards for total coliform, e. coli, or enterococcus

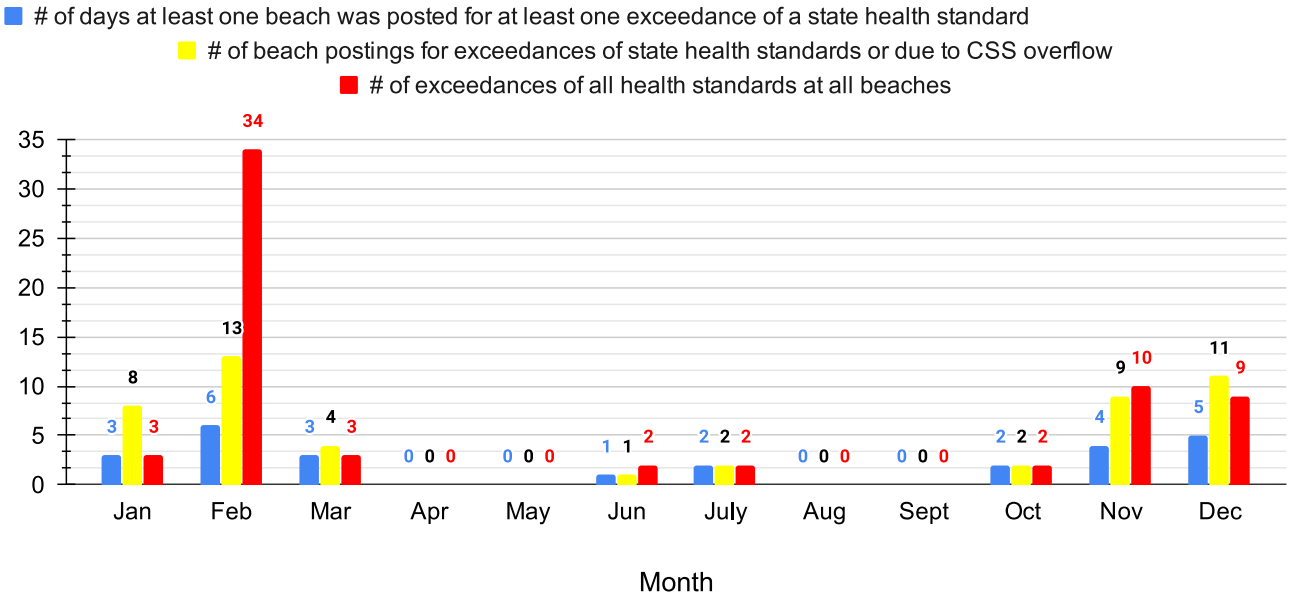


Figure 5. SF Ocean Side Beaches. 2020: Exceedance of state health standards for total coliform, e. coli, or enterococcus

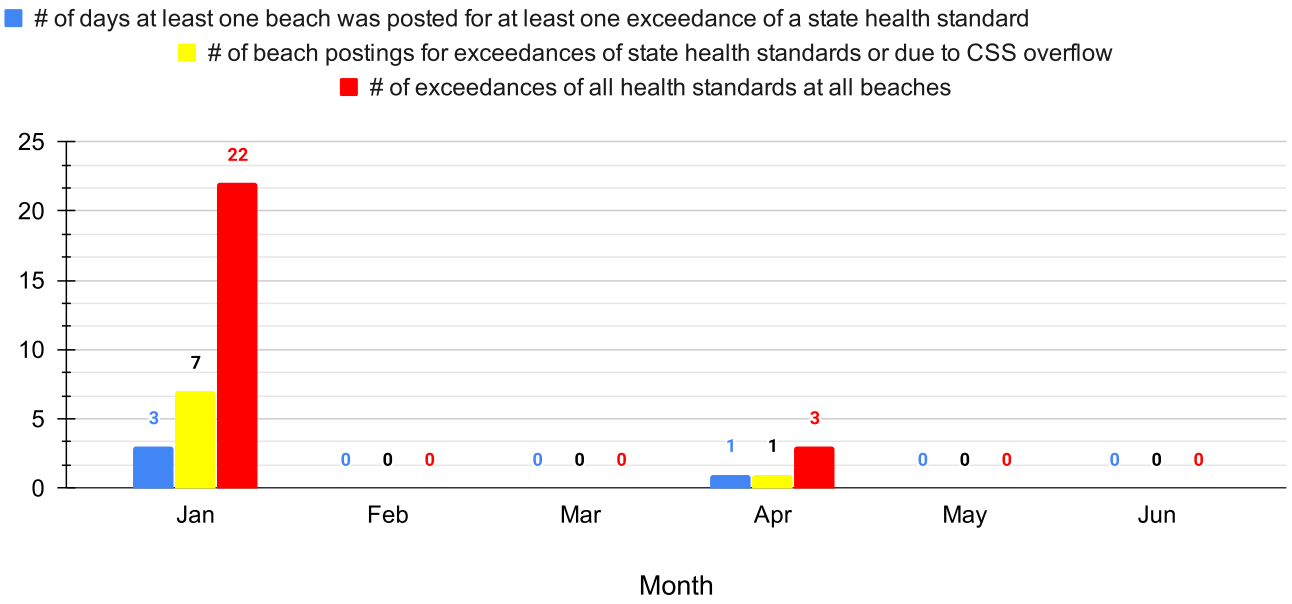


Figure 6. SF Bay Side Beaches. 2016: Exceedance of state health standards for total coliform, e. coli, or enterococcus

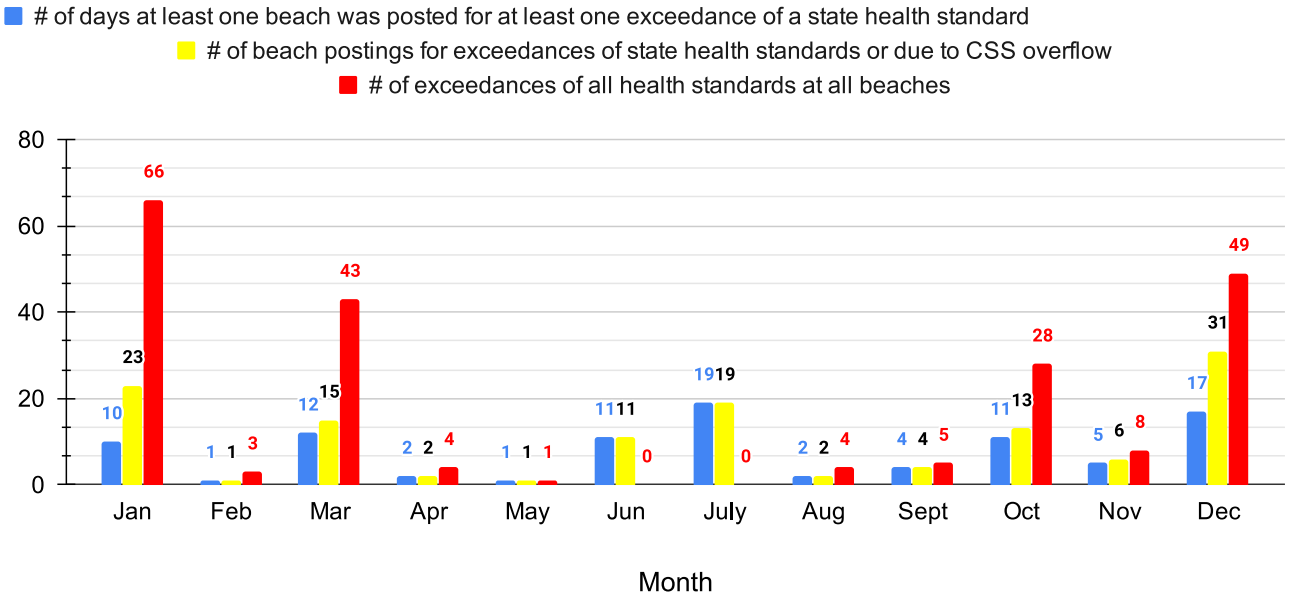


Figure 7. SF Bay Side Beaches. 2017: Exceedance of state health standards for total coliform, e. coli, or enterococcus

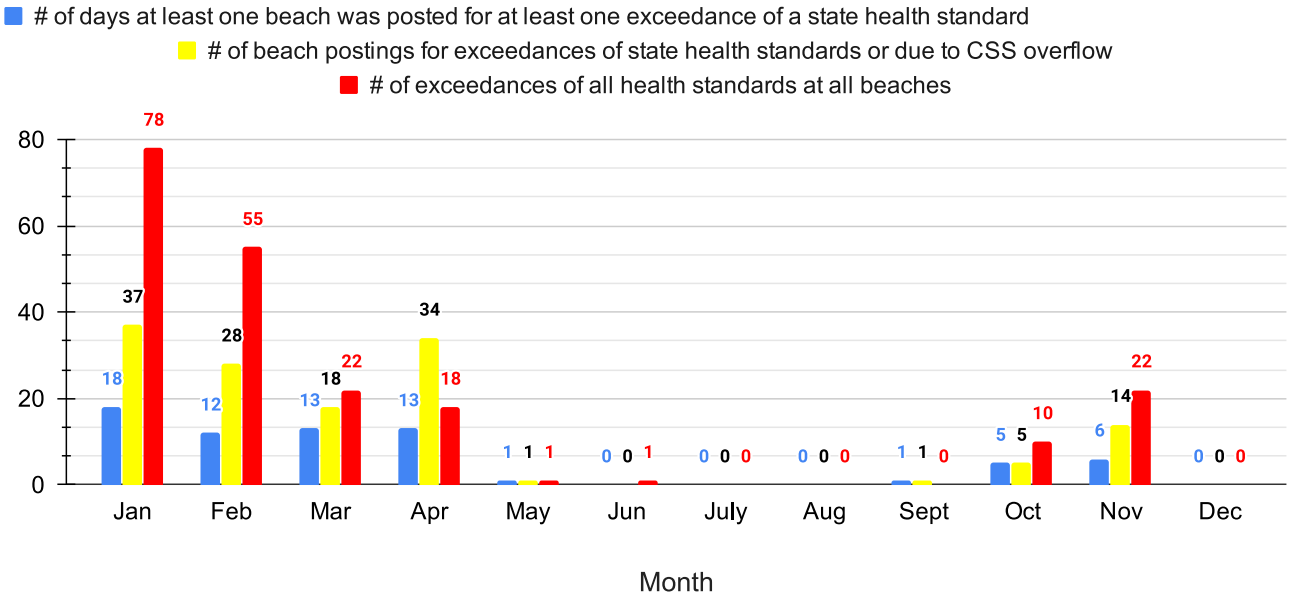


Figure 8. SF Bay Side Beaches. 2018: Exceedance of state health standards for total coliform, e. coli, or enterococcus

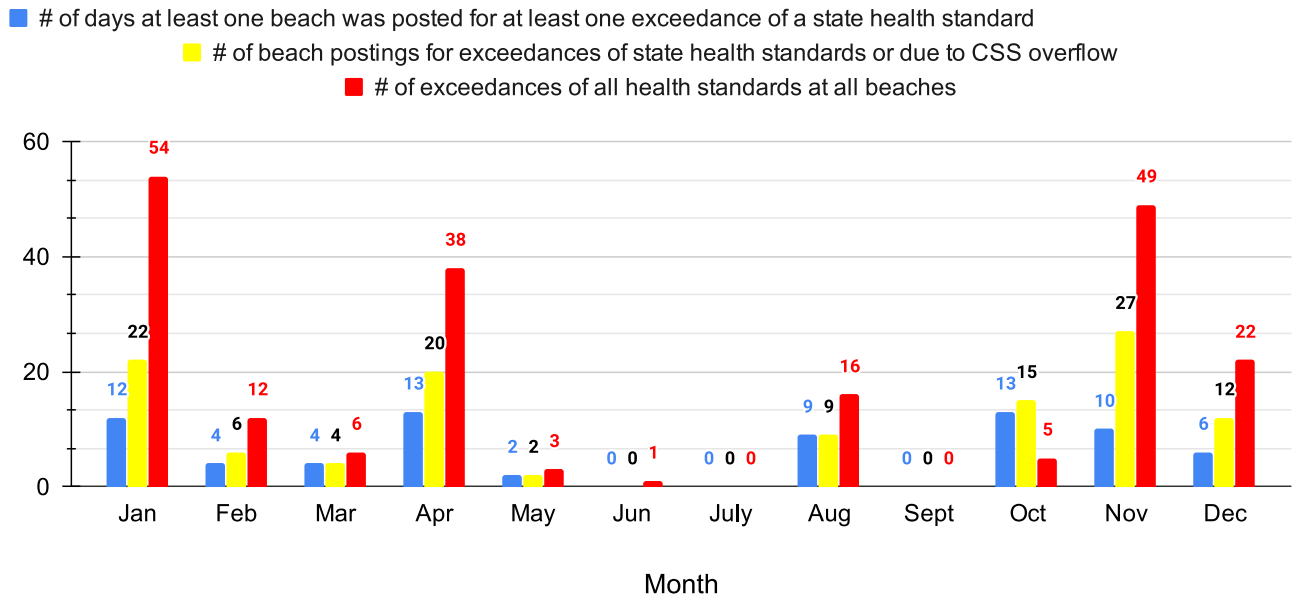


Figure 9. SF Bay Side Beaches. 2019: Exceedance of state health standards for total coliform, e. coli, or enterococcus

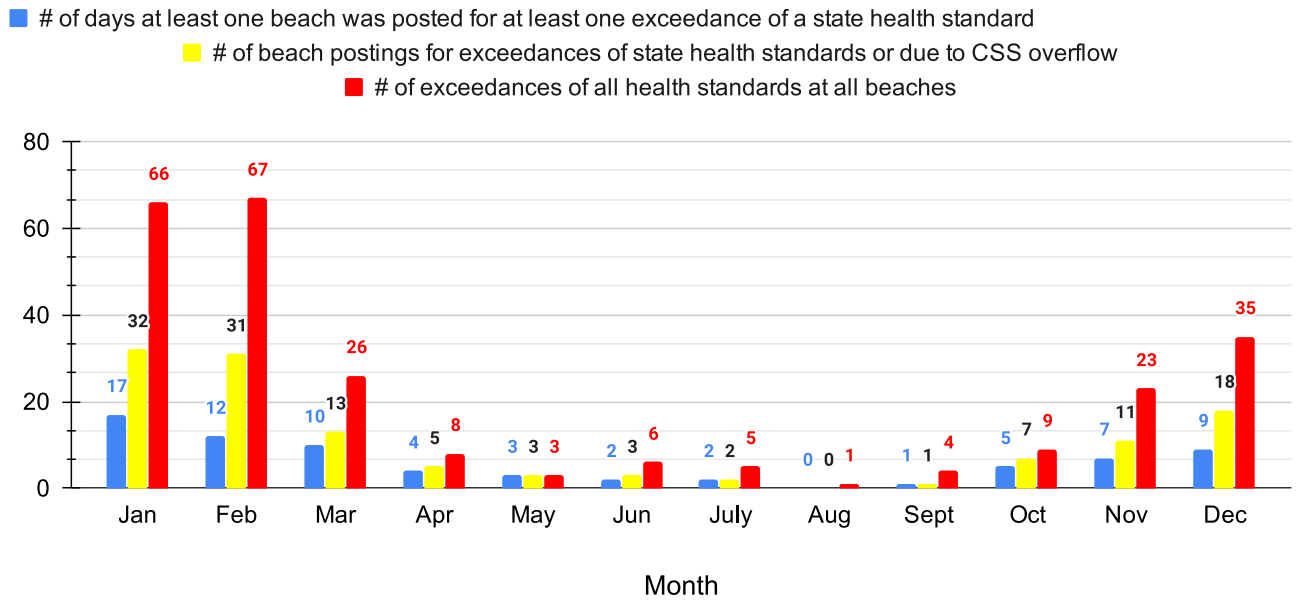


Figure 10. SF Bay Side Beaches. 2020: Exceedance of state health standards for total coliform, e. coli, or enterococcus

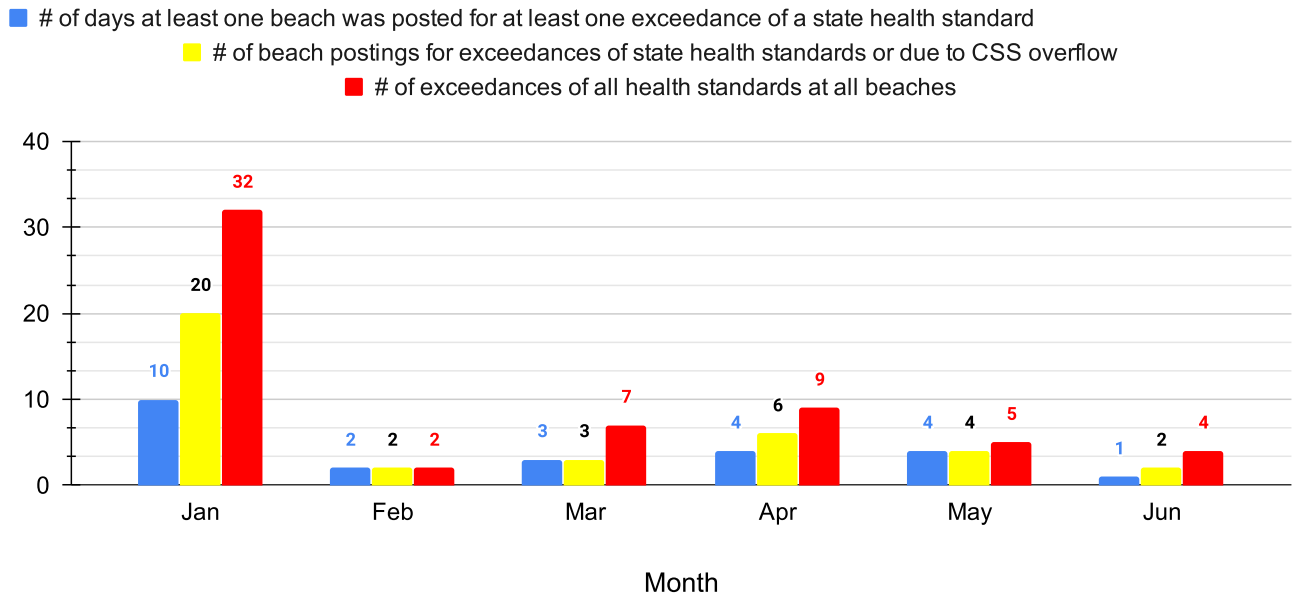


Figure 11. SF All Beaches. 2016: Exceedance of state health standards for total coliform, e. coli, or enterococcus

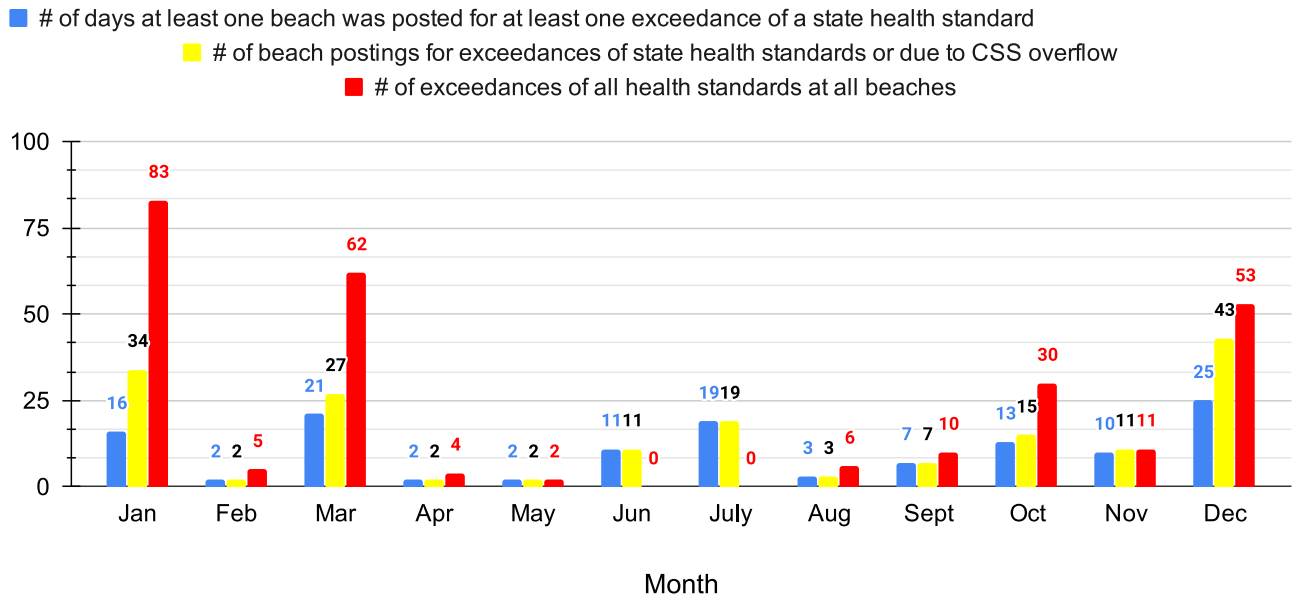


Figure 12. SF All Beaches. 2017: Exceedance of state health standards for total coliform, e. coli, or enterococcus

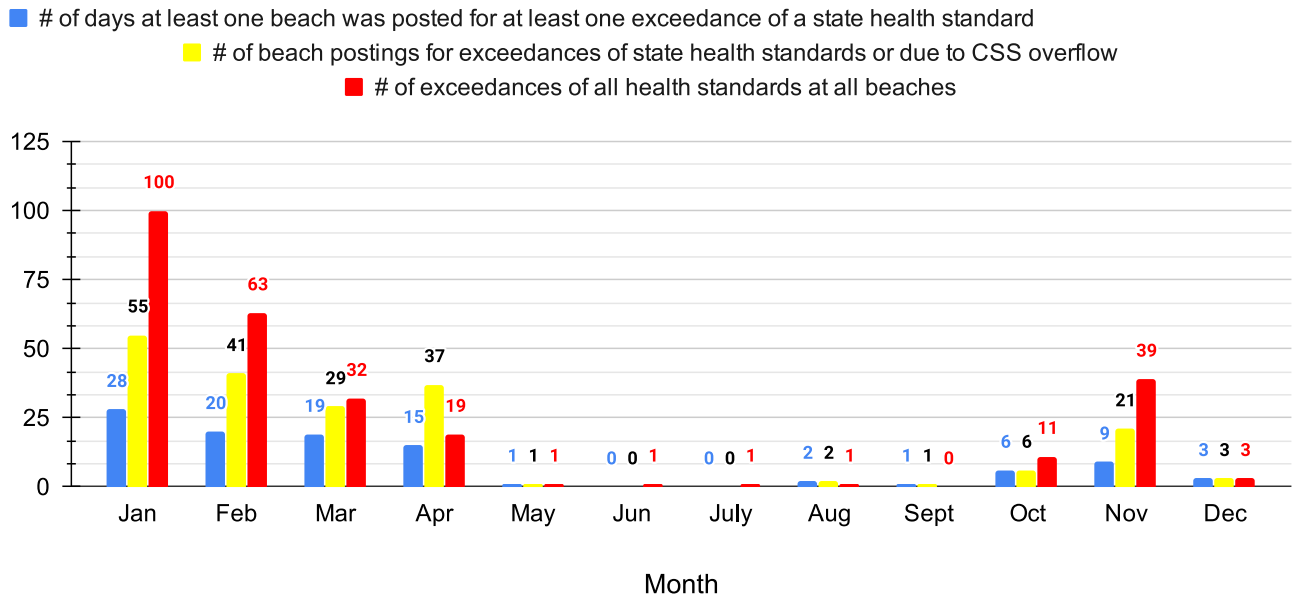


Figure 13. SF All Beaches. 2018: Exceedance of state health standards for total coliform, e. coli, or enterococcus

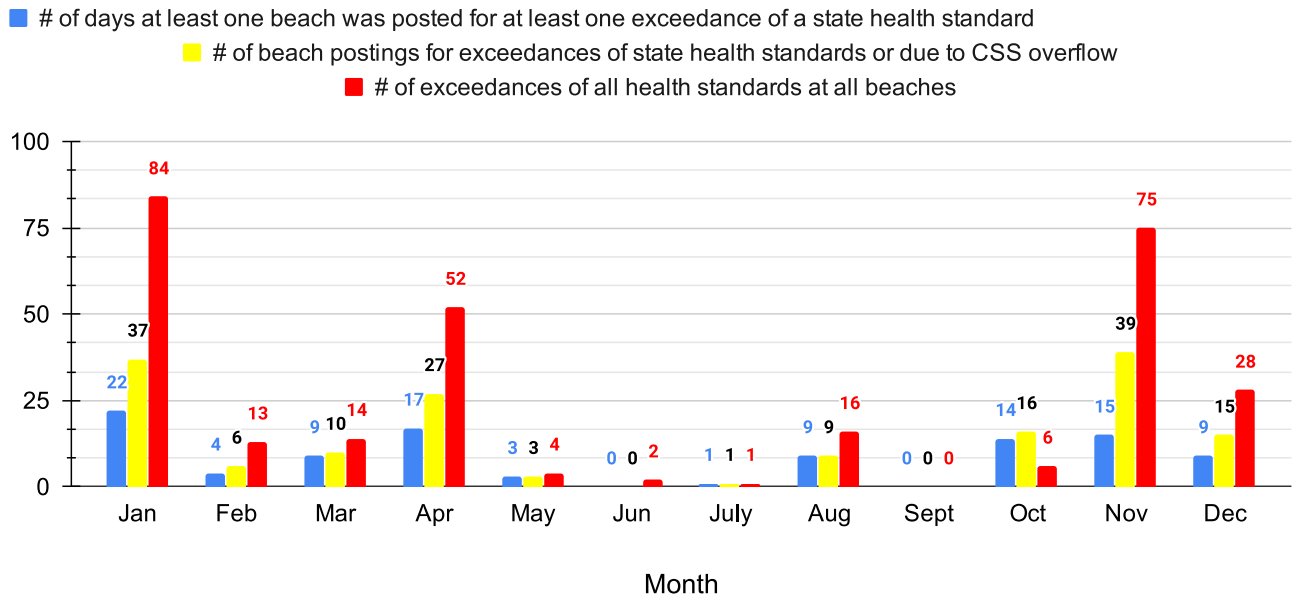


Figure 14. SF All Beaches. 2019: Exceedance of state health standards for total coliform, e. coli, or enterococcus

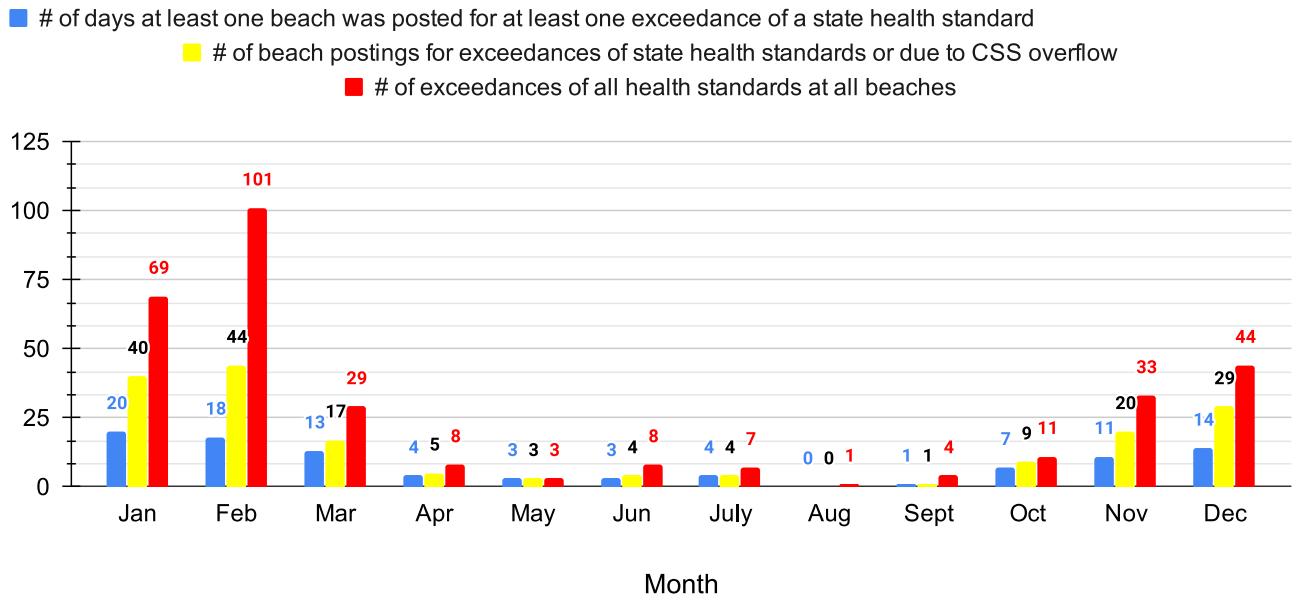
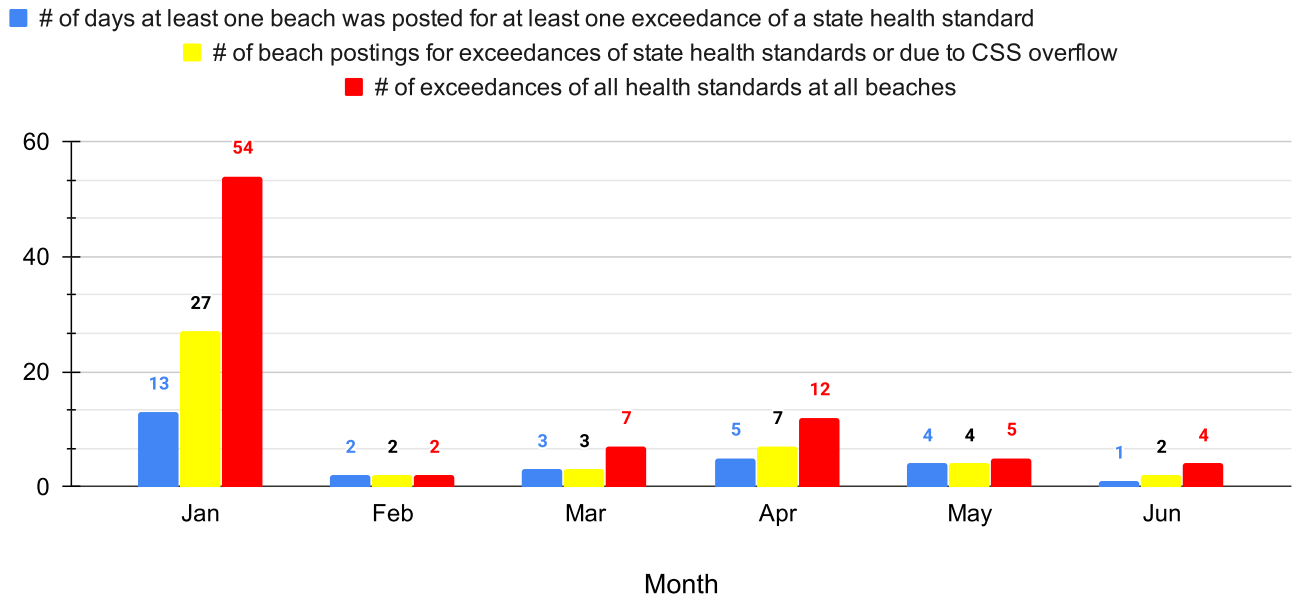


Figure 15. SF All Beaches. 2020: Exceedance of state health standards for total coliform, e. coli, or enterococcus



Appendix A

LARRY L. RUSSELL, Ph.D., P.E.

EDUCATION Ph.D., Enviornmental Engineering, University of California at Berkeley
Minors in Chemistry/Chemical Engineering
Ground Water Hydrology
M.S., Sanitary Engineering, University of California at Berkeley
B.S., Civil Engineering, University of California at Berkeley

REGISTRATION

Civil Engineer in California
Chemical Engineer in California
Corrosion Engineer in California
Professional Engineer in Arizona
Professional Engineer in Georgia
Professional Engineer in Hawaii
Professional Engineer in Kansas
Professional Engineer in Kentucky
Professional Engineer in Michigan
Professional Engineer in Nevada
Professional Engineer in New Mexico
Professional Engineer in New York
Professional Engineer in Oregon
Professional Engineer in South Carolina
Professional Engineer in Texas
Professional Engineer in Washington
Board Certified Civil Engineer, American Academy of Environmental Engineers
A Engineering Contractor - 702818 California, Builder B, C-55, C-36,C-10, HAZ, ABS
Elected Board Director of Marin Municipal Water District since 2004

PATENTS

U.S. Patent No. 5,336,398 Water Treatment Device
U.S. Patent No. 5,975,628 Children's High Chair Tray
U.S. Patent No. 5,992,684 Water Dispensing Device
U.S. Patent No. 6,103,097 Method and Apparatus for Lead Corrosion Control
U.S. Patent No. 6,423,208 Method and Apparatus for Lead Contamination trol
U.S. Patent No. 6,773,607 Ballast Water Treatment for Exotic Species Control
U.S. Patent No. 6,823,332 Information Storage and Retrieval Device

U.S. Patent No. 7,149,469 Method and System for Receiving Audio Broadcast

U.S. Patent No. 7,194,459 Information Storage and Retrieval Device
U.S. Patent No. 7,186,327 Method and Apparatus for Scaling Control and In-Situ Cathodic Protection

AREAS OF EXPERTISE

Applied environmental chemistry and engineering as related to concerns in air, water, soil with special emphasis on water conservation in the food processing industry. Dr. Russell has a strong process background in the area of water management for industry and for the implementation of wastewater recycling in the food processing industry. He has designed over 100 water conservation systems for water systems for municipal and industrial facilities.

Following a nationwide search by the U.S. EPA, Dr. Russell's team was selected to develop the **EPA Process Control Manual for Aerobic Biological Wastewater Treatment Facilities**. The preparation of this report was based on a hands-on survey of the best operated wastewater treatment plants located in each Region of the EPA. as determined by that Region. Following site visits to over 30 treatment plants, Dr. Russell analyzed the data to prepare a comprehensive analysis of what operational and design criteria work well at these best plants. The report was distributed by EPA to every treatment plant in the United States.

The next task in Dr. Russell's career was also the result of a nationwide search for the best team to prepare an evaluation for the Office of Water Research in the U.S. Department of the Interior (DOI) on the subject of **Water Recycling in the Food Processing Industry.** Dr. Russell's team was selected due to their extensive experience with water conservation and recycling in the food processing industry, due in part to his location in the middle of California's food industry with its $6 billion annual turnover. The report addressed all of the food processing facilities in the United States, as identified by the Department of Interior. An evaluation of the water use efficiency of the food processing industry in terms of water usage per ton of product was conducted and the most efficient techniques for minimizing water usage was identified for each segment of the U.S. food industry.

Following the preparation of the water recycling report for the U.S. DOI, Dr. Russell's team was selected to prepare a study on **Water Recycling in California's Food Processing Industry** for the Office of Water Recycling ofthe California State Water Resources Control Board. At the suggestion of Dr. Russell, due in part to the fact that his team had just prepared the comprehensive DOI report and the economic impact of this major segment of the California food industry, the California report was focused on the fruit and vegetable industry segment. The report focused on the members of this industry segment and the potential for reducing water usage in the fruit and vegetables processing segment.

Dr. Larry L. Russell (continued)

As a result, Dr. Russell is one of the foremost experts on the implementation of water conservation and water recycling in the industry, he is also an expert on the process control of

sewage treatment processes, and his personal engineering has resulted in the saving of over 50,000,000 gallons of fresh water per year. He has consulted for more than 100 major food processing companies at over 300 food processing facilities. During his career, he has provide water conservation/wastewater management/recycling for food processing companies including Nestles, Green Giant, Pillsbury, Del Monte Foods, Carnation, C&H Sugar, Spreckels Sugar, Smuckers , Contadina Tri Valley Growers, Hilmar Cheese, Bolthouse Farms, Kernridge Growers, Anheuser Busch, the Clorox Company..

Dr. Russell has conducted forensic evaluations on a wide variety of investigations involving releases from over 100 petroleum storage facilities located though out California and the United States, heavy metal contamination from recycling and military operations, landfills leachate management/treatment, explosive leachates from munitions landfills, perchlorate management from previous explosive, photoflash and rocket manufacturing. Well water pollution/source selection, materials selection and performance, corrosion mitigation, hazardous materials management, management of acid mine ground/surface water drainage management claimed personal injury from chlorine exposure in a wastewater system, water and sanitary and storm sewer system design and the nature of contaminant contribution. These evaluations have resulted in addressing the steps required to clean up as well as assignment of costs in proportion to responsibility, determination of the initial date of contribution and determination of responsibility for the release.

PREVIOUS EXPERIENCE

President - RUSSELL ENVIRONMENTAL ENGINEERING AND DEVELOPMENT (REED) CORPORATION - a small high tech environmental consulting firm specializing in sanitary engineering design and evaluation of forensic engineering aspects of ground water cleanups.

Chairman - Aqua Resources, Inc. - Responsible for technical management of projects for industrial/hazardous waste management

Vice President - James M. Montgomery Consulting Engineers - Manager of Industrial/Hazardous Waste Services for largest environmental firm in California

ORGANIZATIONS

AMERICAN WATER WORKS ASSOCIATION
WATER ENVIRONMENT FEDERATION
NATIONAL ASSOCIATION OF CORROSION ENGINEERS

Publications

Books and Thesis

Dr. Larry L. Russell (continued)

Water Treatment - Principles and Design , 1985 .James M. Montgomery Consulting Engineers, Inc. co-author pp.696 Wiley Interscience

Chemical Aspects of Ground Water Recharge with Treated Wastewater Doctoral Thesis, November 1976, University of California at Berkeley

EPA Process Control Manual for Aerobic Biological Wastewater Treatment Facilities USEPA July 1977

Water Recycling in the Food Processing Industry Office of Water Research Department of the Interior November 1980

Water Recycling in California's Food Processing Industry Office of Water Recycling State Water Resources Control Board July 1981

IWA Best Pratice Guide for the Control of Metals in Water 2012

IWA Best Practice Guide for Small Water Plants 2014

IWA Drinking Water Minerals and Mineral Balance 2015,2019

Courses Taught

Phase Separation for Hazardous Materials - University of California Extension - Davis, CA

Chemistry of Hazardous Materials - University of California Extension - Berkeley, CA

Dr. Larry L. Russell (continued)

Technical Articles

Russell, L.L. and Thomas,J.F. "Increase of TDS by Ground Water Recharge". Water Pollution Control Federation 48th Annual Conference, Miami, October 1975

Russell, L.L., DeBoice J.N., and Carey,W.W. "Land Application of Winery Wastewater",Purdue Industrial Waste Conference, May 1976

Russell, L.L. and Thomas, J.F., "A Model For Estimating Ground Water Degradation" Hydraulics Division ASCE Specialty Conference on Modeling in Environmental Engineering, Purdue University, August 1976

Russell, L.L., DeCoite. D, Trussell, R.R., and Potter, L. "Operating the Activated Sludge Process" Water Pollution Control Federation 49th Annual Conference Minneapolis, October 1976

Trussell,R.R., Russell, L.L., Thomas, J.F., " The Langelier Index" AWWA, Water Quality in the Distribution System, December 1977

Russell, L.L., Trussell, R.R, and DeBoice,J.N. "Removal of Iron and Manganese from Drinking Water" California AWWA Meeting, San Jose, CA October 1978

Russell, L.L., Creson, C.F. , and Connaroe, K." Water Recycling in the Food Processing Industry" Purdue Industrial Waste Conference May 1980

Russell, L.L., Ramaley, B." Treatment and Disposal of Hazardous Wastes from Tank Truck Washing Facilities" Purdue Industrial Waste Conference May, 1980

Russell, L.L. "Mixing Zones in Puerto Rico" presented at the request of the University of Puerto Rico, May 1982

Russell, L.L., Cain, C. "Impact of Priority Pollutants on Wastewater Treatment Plant Operations" Purdue Industrial Waste Conference May 1984

Russell, L.L.,"Economical Design of Hazardous Waste Studies" Water Pollution Control Federation Conference, 56th Annual Meeting, New Orleans, October 1984

Russell, L.L. "Alternatives for Small Quantity Discharges of Hazardous Waste" ASCE Specialty Conference, San Francisco, April 1985

Cain, C. Kerameda, V, Russell, L.L., "Indianapolis Pretreatment Program" Water Pollution Control Federation 57th Annual Meeting Kansas City, October 1985

Russell, L. "The status of industrial discharge compliance with the U.S.E.P.A. NPDES program" by invitation to Generalitat de Catalunya Departament d'Industria i Energia, Barcolena, Spain December 10, 1987.

Dr. Larry L. Russell (continued)

Russell, L. "Industrial Water Recycling/Waste Minimization" 5th Annual Industrial Waste Conference Anaheim,CA February 10, 1988

Russell, L. "Use of Ozone in Water Treatment" presentation by invitation for the Orange County Water District Symposium on Colored Water, Costa Mesa, CA April 1988

Russell, L. "Removal of Oil and Grease f\rom Municipal Wastewater" by invitation to the California Water Pollution Control Federation - Industrial and Hazardous Waste Conference in San Jose, California on February 15, 1989.

Russell, L. , Medbery, S. "Development of the Local Pretreatment Limits for the City and County of San Francisco" For presentation at the Annual Water Pollution Control Federation meeting in San Francisco, CA October 1989.

Russell, L. "Recycled Wastewater Usage in the Food Processing Industry" by invitation to the Pennsylvania Food Processors Association, Hershey, PA November 1989
Russell, L. , Litwin, Y. "Conceptual Aspects of Remedial Investigations" Presentation at the NWWA Ground Water Action program Las Vegas, NV May 14, 1990.

Russell, L., Medbery, S. Establishing Industrial Waste Standards for the City of San Francisco presented by invitation at the Pollution Control 97 conference in Bangkok, Thailand, November 12, 1997.

Russell, L. “Evaluating the Behavior of Copper Piping Materials in Domestic Water Systems” presented by invitation of the EU COST 637 Committee in Antalya Turkey, October 2007

Dr. Larry L. Russell (continued)

Appendix B

State Ocean Plan Highlights (summarized)

B. Bacterial Characteristics

1. Water-Contact Standards

Both the State Water Board and the California Department of Public Health (CDPH) have established standards to protect water contact recreation in coastal waters from bacterial contamination.

State Water Board Water-Contact Standards(1)Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline..., ...30-day Geometric Mean The following standards are based on the geometric mean of the five most recent samples from each site:

i. Total coliform density shall not exceed 1,000 per 100 mL;
ii. Fecal coliform density shall not exceed 200 per 100 mL;
iii. Enterococcus density shall not exceed 35 per 100 mL.

Single Sample Maximum:

i. Total coliform density shall not exceed 10,000 per 100 mL;
ii. Fecal coliform density shall not exceed 400 per 100 mL;
iii. Enterococcus density shall not exceed 104 per 100 mL; and
iv. Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/total coliform ratio exceeds 0.1.

When a public beach or public water-contact sports area fails to meet these standards, CDPH or the local public health officer may post with warning signs or otherwise restrict use of the public beach or public water-contact sports area until the standards are met.

EXHIBIT 2

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

RESOLUTION No. R2-2016-0021

Amending the Water Quality Control Plan for the San Francisco Bay Basin to Establish a Total Maximum Daily Load and Implementation Plan for Bacteria in San Francisco Bay Beaches

WHEREAS, the California Regional Water Quality Control Board, San Francisco Bay Region (Water Board), finds that:

1. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Water Board and approved by the State Water Resources Control Board (State Water Board), State Office of Administrative Law (OAL) and the United States Environmental Protection Agency (U.S. EPA), where required.

2. The Basin Plan may be amended in accordance with Water Code section 13240, et seq. The proposed Basin Plan amendment complies with this section.

3. Aquatic Park Beach (San Francisco); Jackrabbit, Sunnydale Cove, and Windsurfer Circle beaches (Candlestick Point, San Francisco); Crissy Field Beach (San Francisco); Parkside Aquatic and Lakeshore Park beaches (Marina Lagoon, City of San Mateo); and China Camp and McNears beaches (Marin County) have been identified under federal Clean Water Act section 303(d) as impaired water bodies due to bacteria. These beaches are collectively referred to as San Francisco Bay Beaches herein.

4. Under Clean Water Act section 303(d), the Water Board is required and authorized to establish the total maximum daily load (TMDL) for those pollutants identified as causing impairment of waters on the 303(d) list. Additionally, under Water Code section 13242, the Water Board is authorized to develop an implementation program to achieve water quality objectives.

5. A Basin Plan amendment has been prepared in accordance with Water Code section 13240 that will establish the TMDL and Implementation Plan to reduce bacteria-related risks to humans and protect water contact and non-contact beneficial uses at San Francisco Bay Beaches.

6. The Basin Plan amendment includes requirements to implement wasteload allocations for urban runoff through municipal stormwater NPDES permits. The Water Board intends to establish permit requirements to attain the wasteload allocations through implementation of best management practices in lieu of numeric limits, because the wasteload allocations are not designed to be directly implemented as numeric limits.

7. The Basin Plan amendment, including specifications on its physical placement in the Basin Plan, is set forth in Exhibit A hereto.

8. The scientific basis for the regulatory elements of the proposed Basin Plan amendment was subjected to an independent, external peer review by Professor Patricia Holden and Professor Peter Strom, pursuant to the requirements of Health and Safety Code section 57004.

9. On January 15, 2016, the Water Board publicly noticed the proposed Basin Plan amendment and distributed the proposed Basin Plan amendment, supporting Staff Report, and Environmental Checklist for public review and comment in accordance with applicable State and federal environmental laws and regulations.

10. The process of basin planning has been certified by the Secretary for Resources as exempt from the requirement of the California Environmental Quality Act (CEQA) (Pub. Res. Code § 21080.5) to prepare an Environmental Impact Report or Negative Declaration.

11. The Basin Plan amendment package includes a Staff Report, an Environmental Checklist, an assessment of the potential environmental impacts of the Basin Plan amendment, and a discussion of alternatives and cumulative impacts. The Basin Plan amendment, Environmental Checklist, Staff Report, and supporting documentation serve as a substitute environmental document under the Water Board's certified regulatory program.

12. The Water Board has duly considered the Environmental Checklist, Staff Report, and supporting documentation with respect to environmental impacts and finds that the proposed Basin Plan amendment will not have a significant impact on the environment. The Water Board further finds, based on consideration of the record as a whole, that there is no potential for significant adverse effect, either individually or cumulatively, on wildlife as a result of the proposed Basin Plan Amendment.

13. The Water Board has also considered the environmental analysis in the Staff Report and the Environmental Checklist of the reasonably foreseeable methods of compliance with the Basin Plan amendment, including economic impacts.

14. The Water Board has carefully considered all comments and testimony received, including responses thereto, on the Basin Plan amendment, as well as all of the evidence in the administrative record.

15. The Basin Plan amendment must be submitted for review and approval by the State Water Board, OAL, and U.S. EPA. Once approved by the State Water Board, the amendment is submitted to OAL and U.S. EPA. The Basin Plan amendment will become effective upon approval by OAL and U.S. EPA.

NOW, THEREFORE BE IT RESOLVED THAT:

1. The Water Board adopts the Basin Plan amendment as set forth in Exhibit A hereto.
2. The Executive Officer is directed to forward copies of the Basin Plan amendment to the State Water Board in accordance with the requirements of Water Code section 13245.

3. The Water Board requests that the State Water Board approve the Basin Plan amendment in accordance with the requirements of Water Code sections 13245 and 13246 and forward it to OAL and U.S.EPA for approval.
4. If, during the approval process, Water Board staff, the State Water Board, or OAL determines that minor, non-substantive corrections to the language of the amendment are needed for clarity or consistency, the Executive Officer may make such changes and shall inform the Water Board of any such changes.
5. Because the Basin Plan amendment will involve no potential for significant adverse effect, either individually or cumulatively, on wildlife, the Executive Officer is directed to sign a CEQA Filing Fee No Effect Determination Form and to submit the exemption in lieu of payment of the California Department of Fish and Wildlife CEQA filing fee.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on April 13, 2016.

Digitally signed by Bruce H. Wolfe
DN: cn=Bruce H. Wolfe, o=SWRCB, ou=Region 2, email=bwolfe@waterboards.ca.gov, c=US
Date: 2016.04.14 13:25:34 -07'00'

BRUCE H. WOLFE
Executive Officer

Attachment:

Exhibit A – Basin Plan Amendment to Establish a Total Maximum Daily Load and Implementation Plan for Bacteria in San Francisco Bay Beaches

EXHIBIT 3

Basin Plan Amendment to Establish a Total Maximum Daily Load and Implementation Plans for Bacteria at San Francisco Bay Beaches

The following text is to be inserted into Chapter 7.2.

7.2.5 San Francisco Bay Beaches Bacteria TMDL

The following sections establish the TMDL for San Francisco Bay beaches impaired by bacteria. The numeric targets, load and waste load allocations, and implementation plan are designed to support and protect the Bay's designated beneficial use of water contact recreation (e.g., swimming and wading).

7.2.5.1 Problem Statement

The waters adjacent to several San Francisco Bay beaches are impaired by indicator bacteria. Bacteriological water quality objectives are exceeded based on elevated indicator bacteria densities, and thus, there is impairment of the water contact recreation (REC-1) beneficial use in these water bodies. Recreating in waters with elevated indicator bacteria densities has long been associated with adverse health effects. Specifically, national epidemiological studies demonstrate a causal relationship between adverse health effects and recreational water quality, as measured by indicator bacteria densities.

This TMDL addresses bacteria impaired beaches in San Francisco Bay east of the Golden Gate Bridge. The impaired beaches include:

- Aquatic Park Beach, San Francisco
- Jackrabbit, Sunnydale Cove, and Windsurfer beaches in Candlestick Point State Recreation Area, San Francisco
- Crissy Field Beach, San Francisco
- Parkside Aquatic and Lakeshore beaches on Marina Lagoon, City of San Mateo
- China Camp Beach, Marin County
- McNears Beach, Marin County

China Camp Beach and McNears Beach are on the list of impaired water bodies because levels of only one bacterial indicator in waters at these beaches, total coliform, exceeds the Basin Plan's water quality objective. Waters at the other beaches exceed the bacterial indicator for Enterococcus and other bacterial indicators.

7.2.5.2 Sources

Bacteria sources are identified based on documentation of inadequately-treated human waste discharges, such as sanitary sewer overflow reports, and the scientific evidence linking land uses in the vicinity of the beaches to elevated bacteria concentrations in urban runoff to the beaches. If not properly managed, the following source categories have the potential to discharge bacteria to San Francisco Bay beaches at levels that cause or contribute to exceedances of water quality objectives: sanitary sewer collection systems, urban runoff, pets at the beaches, vessels, and wildlife. Wet weather discharges from the City of San Francisco's combined sewer system that

are authorized pursuant to U.S. EPA's Combined Sewer Overflow (CSO) Control Policy (see Section 4.9 Wet Weather Overflows) are not considered a significant source of bacteria to these San Francisco beaches.

7.2.5.3 Numeric Targets

This TMDL establishes a desired, or target, condition for water contact recreation use at impaired San Francisco Bay beaches. The numeric targets are the Enterococcus water quality objectives established for water contact recreation uses in marine and estuarine waters (Table 3-1) and on the U.S. EPA's 2012 recommended Enterococcus criteria for water contract recreation in marine and fresh water. The numeric targets for this TMDL are listed in Table 7.2.5-1.

Table 7.2.5-1 Numeric Targets for San Francisco Bay Beaches

Enterococcus	
Geometric mean	< 35 MPN / 100 mL
Single sample maximum	No sample > 104 MPN / 100 mL

7.2.5.4 Total Maximum Daily Loads

The TMDL for San Francisco Bay beaches is equivalent to the Basin Plan's water quality objectives and the numeric target for Enterococcus as shown in Table 7.2.5-1.

7.2.5.5 Load and Waste Load Allocations

Density-based pollutant allocations for bacteria source categories are the same as the numeric targets and the TMDL listed above. Table 7.2.5-2 summarizes the load and wasteload allocations for discharges of bacteria to impaired San Francisco Bay beaches.

Discharges of raw or inadequately-treated human waste are prohibited, and thus sanitary sewer collection systems and vessels have an allocation of zero.

All entities that discharge indicator bacteria or have jurisdiction over such discharges are responsible for meeting these allocations. Discharging entities will not be held responsible for uncontrollable discharges originating from wildlife. If non-nuisance wildlife contributions are found to be the cause of exceedances, the TMDL targets and allocation scheme will be revisited as part of adaptive implementation. Implementing parties shall demonstrate achievement of allocations in the receiving water bodies (i.e., at the beach shoreline water quality monitoring stations).

All implementing parties are required to attain their respective allocations by taking a phased approach in which additional or enhanced actions are required if initial implementation actions do not result in attainment of the TMDL within approximately five years.

Table 7.2.5-2 Load and Wasteload Allocations for San Francisco Bay Beaches		
Pollutant Source Category	**Enterococcus Geometric Mean[a] (MPN/100 mL)**	**Enterococcus Single Sample Maximum (MPN/100mL)**
Sanitary Sewer Collection Systems[b]	0	0
Urban Runoff[c]	< 35	No sample > 104
Vessels (Anchor-outs, recreational, houseboats)	0	0
Wildlife[d]	< 35	No sample > 104

a. Based on a minimum of five consecutive samples equally spaced over a 30-day period.
b. For the City of San Francisco, the wasteload allocation applies only to the collection system portion of the combined sewer system.
c. Wasteload allocation for discharges from municipal separate storm sewer systems (NPDES No. CAS612008, CAS000004 and CAS000003).
d. With the exception of nuisance wildlife, such as geese, wildlife is not a controllable source of bacteria. No management measures will be required for uncontrollable wildlife sources.

7.2.5.6 Implementation Plan

This Implementation Plan builds on management measures required by existing local, regional, and statewide regulations and orders to reduce or eliminate waste discharges from sanitary sewer collection systems, urban runoff, pets at beaches, and vessels. The plan requires actions consistent with existing regulations and orders, including the following:

- Water Board Municipal Regional Stormwater Permit (NPDES No. CAS612008)
- State Water Board NPDES Permit for Small Municipal Separate Storm Sewer Systems (MS4) (NPDES No. CAS000004)
- State Water Board Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (Order No. 2006-0003-DWQ as revised by Order No. 2008-0002-EXEC)
- State Water Board Stormwater Permit for California Department of Transportation (NPDES No. CAS000003)
- Basin Plan Discharge Prohibition No. 15 (Table 4.1), which states: "It shall be prohibited to discharge raw sewage or any waste failing to meet waste discharge requirements to any waters of the Basin."
- Regional Water Board Cease and Desist Order for the City of San Mateo, Town of Hillsborough, and Crystal Springs County Sanitation District Sanitary Sewer Waste Discharges (Order No. R2-2009-0020)
- Regional Water Board NPDES Permit for the City and County of San Francisco Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities, and Wastewater Collection System (Order No. R2-2013-0029).

The entities responsible for implementing this plan are stated below, as are the regulatory mechanisms by which the Water Board may require that the actions be taken.

Sanitary Sewer Collection Systems

Wasteload allocations for sanitary sewer collection systems will be implemented through the requirements and provisions of the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems and, for Marina Lagoon beaches, Cease and Desist Order No. R2-2009-0020 issued by the Water Board to the City of San Mateo. In the case that further investigation or reduction of pathogen sources related to sanitary sewer collection systems is needed, such actions will be initiated through the Water Board's authorities under the California Water Code.

This TMDL requires no modifications to NPDES permitting of wet weather discharges from the City of San Francisco's combined sewer system, authorized pursuant to U.S. EPA's CSO Control Policy, as they are unnecessary to achieve the TMDL. The wasteload allocation in Table 7.2.5-2 only applies to the collection system portion of San Francisco's combined sewer system.

Urban Runoff

Wasteload allocations for urban runoff (i.e., municipal stormwater runoff and dry weather flows) shall be implemented through the Municipal Regional Stormwater Permit (NPDES No. CAS612008) and the State Water Board NPDES Permit for Small MS4s (NPDES No. CAS000004).

Urban runoff from the California Department of Transportation's (Caltrans') highways has not been found to be a significant source of indicator bacteria, largely because Caltrans' highways comprise a very small area within San Francisco Bay beach watersheds. If during the course of adaptive implementation, Caltrans' facilities are found to be sources of bacteria to San Francisco Bay beaches, wasteload allocations for such discharges will be implemented through the requirements of the State Water Board Stormwater Permit for Caltrans (NPDES No. CAS000003).

Municipal stormwater entities, including national, State, or regional park systems (hereinafter referred to as park authorities), that discharge stormwater to impaired beaches are required to submit a plan to the Water Board that describes current best management practices (BMPs), their current level of implementation, and additional BMPs and/or increased levels of implementation of existing BMPs to reduce discharges of bacteria from their storm drain systems that cause or contribute to exceedance of wasteload allocations. The plan shall include a schedule for implementation of the BMPs and enhanced BMPs.

Municipal stormwater entities and/or park authorities, as applicable, shall implement pet waste control measures to reduce discharges of bacteria at the beach and shall submit a plan to do so to the Water Board, as described above.

The Water Board will establish permit requirements to implement wasteload allocations based on implementation of BMPs. The Water Board will not include numeric limits in NPDES permits if the discharger demonstrates full implementation of technically feasible, effective, and cost efficient BMPs to control all controllable sources to, and discharges from, their storm drain systems.

Vessels

Vessels ranging in size from self-propelled row boats and kayaks to yachts operate in waters adjacent to beaches addressed by this TMDL. In addition to the Basin Plan prohibition on discharge of raw sewage, the California Health and Safety Code (§117475-117500) prohibits

dumping any garbage into navigable waters of the state. Where vessels present a source of bacteria to an impaired beach, the entity with authority over vessels, such as a municipality or park authority or marina owner, shall be responsible for implementing measures to control this bacteria source.

Wildlife

Municipal stormwater entities and park authorities are responsible for control measures for nuisance wildlife, such as resident goose populations. Discharging entities will not be held responsible for uncontrollable discharges originating from wildlife.

Implementation Plan elements that are common to all or most impaired San Francisco Bay beaches are described on Table 7.2.5-3. Tables 7.2.5-4 through 7.2.5-7 list the implementation actions and schedules for the individual impaired beaches identified in 7.2.5.1, Problem Statement. The implementation schedules allow time for the implementing parties to identify and implement measures that are necessary to control bacteria discharges causing impairment.

Table 7.2.5-3 Implementation Plan Elements

Source	Action	Implementing Party	Completion Timeframe
Sanitary Sewer Collection Systems	1. Comply with Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.	Sanitary sewer collection system authority	Ongoing
	2. Submit an enhanced Sewer System Management Plan that prioritizes sewer system inspections and repairs in areas within ¼ mile of the beach or otherwise connected to the beach. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term plans, and, as necessary, a schedule for developing the funds needed for the capital improvement plan. Complete inspections and repairs.	Sanitary sewer collection system authority	6 months 3 years
	3. Determine effectiveness of sewer system repairs: Assess beach monitoring data to determine if targets are met at the beach.	Sanitary sewer collection system authority	5 years
	After five years, begin enhanced implementation if targets not met		
	4. If targets are not met, submit an enhanced Sewer System Management Plan that prioritizes sewer system inspections and repairs in areas within ½ mile of the beach or otherwise connected to the beach. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term plans, and, as necessary, a schedule for developing the funds needed for the capital improvement plan. Complete inspections and repairs.	Sanitary sewer collection system authority	5.5 years 8 years
	5. If private laterals are a likely source of bacteria to the beach, establish and implement a private lateral replacement program.	Sanitary sewer collection system authority, and Municipalities	5 years

Table 7.2.5-3 Implementation Plan Elements			
Source	**Action**	**Implementing Party**	**Completion Timeframe**
Sewer Collection System & Urban Runoff	Establish and implement a protocol to enhance efforts to identify and correct illicit connections to the storm drain system.	Sanitary sewer collection system authority, and Municipal stormwater entity(s)	6 months
Urban Runoff	1. Submit a plan that describes BMPs being implemented and additional BMPs that will be implemented to reduce discharges of bacteria to the beach. Include control of nuisance wildlife if it represents a likely source of bacteria to the beach. The plan shall include a schedule and milestones for implementation.	Municipal stormwater entity(s)	6 months
	2. Determine effectiveness of urban runoff controls: Assess beach monitoring data to determine if targets are met at the beach.	Municipal stormwater entity(s)	5 years
	After five years, begin enhanced implementation if targets not met		
	3. If targets are not met, submit: (a) a plan describing BMPs being implemented and additional BMPs that will be implemented to reduce discharges of bacteria to the beach. The plan shall include an implementation schedule and milestones. and (b) a supplemental monitoring plan (*supplemental to ongoing beach monitoring*) to investigate remaining bacteria sources to the beach. This plan may develop data and a quantitative rationale to support (i) locations and types of enhanced bacteria BMPs, and/or (ii) revision of the numeric targets to reflect bacteria contributions from non-controllable sources. Include an implementation schedule.	Municipal stormwater entity(s)	5.5 years
	4. Where pets at the beach may be a source of bacteria to a beach, establish and implement protocols to control pet waste through such measures as providing bags, trash receptacles, and signage.	Park authority or Municipal stormwater entity(s)	6 months
Vessels	Where vessels represent a potential source of bacteria to the beach, begin or boost “no dumping” education efforts; identify and implement other needed BMPs, such as improving pump outs and other infrastructure.	Port authority, or marina owner	6 months from discovery of source
Wildlife	Where nuisance wildlife represents a potential source of bacteria to the beach, and the beach is managed by a non-municipal park authority, establish and implement protocols to control this source of bacteria.	Park authority, or include in Urban Runoff enhanced BMPs plans	6 months from discovery of source

Table 7.2.5-4 Aquatic Park Beach Implementation Plan			
Source	**Action**	**Implementing Party**	**Completion Timeframe[a]**
Sanitary Sewer Collection System	1. Comply with Statewide General Waste Discharge Requirements for Sanitary Sewer Systems and Order No. R2-2013-0029.	Port of San Francisco and SFPUC	Ongoing
	2. Submit an enhanced Sewer System Management Plan and Operations and Maintenance Plan for the combined sewer system (O&M Plan), as applicable, acceptable to the Executive Officer, that prioritizes sewer system inspections and repairs in areas within ¼ mile of the beach or otherwise connected to the beach. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term plans, and, as necessary, a schedule for developing the funds needed for the capital improvement plan. Complete inspections and repairs.	SFPUC, Port of San Francisco, and San Francisco Maritime National Historic Park	6 months 3 years
	3. Determine effectiveness of sewer system repairs: Assess beach monitoring data to determine if targets are met at the beach.	SFPUC	5 years
	4. If targets are not met, submit an enhanced Sewer System Management Plan and O&M Plan as applicable, acceptable to the Executive Officer, that prioritizes sewer system inspections and repairs in areas within ½ mile of the beach or otherwise connected to the beach. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term plans, and, as necessary, a schedule for developing the funds needed for the capital improvement plan. Complete inspections and repairs.	SFPUC, Port of San Francisco, and San Francisco Maritime National Historic Park	5.5 years 8 years
	5. If private laterals are a likely source of bacteria to the beach, establish and implement a private lateral replacement program or refocus existing lateral program efforts to address these sources.	SFPUC, Port of San Francisco, San Francisco Maritime National Historic Park, and City of San Francisco	5 years
Sewer Collection System & Urban Runoff	Establish and implement a protocol to enhance efforts to identify and correct illicit connections to the storm drain system.	SFPUC, Port of San Francisco, and San Francisco Maritime National Historic Park	6 months
Urban Runoff	1. Submit a plan acceptable to the Executive Officer describing BMPs being implemented and additional BMPs that will be implemented to reduce discharges of bacteria to the beach. Include control of nuisance wildlife if it represents a likely source of bacteria to the beach. The plan shall include a schedule and	SFPUC, Port of San Francisco, San Francisco Maritime National Historic Park, and City of San	6 months

Table 7.2.5-4 Aquatic Park Beach Implementation Plan			
Source	**Action**	**Implementing Party**	**Completion Timeframe[a]**
	milestones for implementation.	Francisco	
	2. Determine effectiveness of urban runoff controls: Assess beach monitoring data to determine if targets are met at the beach.	SFPUC	5 years
	3. If targets are not met, submit, acceptable to the Executive Officer: (a) a plan describing BMPs being implemented and additional BMPs that will be implemented to reduce discharges of bacteria to the beach. The plan shall include an implementation schedule and milestones. and (b) a supplemental monitoring plan (*supplemental to ongoing beach monitoring*) to investigate remaining bacteria sources to the beach. This plan may develop data and a quantitative rational to support (i) locations and types of enhanced bacteria BMPs, and/or (ii) revision of the numeric targets to reflect bacteria contributions from non-controllable sources. Include an implementation schedule.	SFPUC, Port of San Francisco, San Francisco Maritime National Historic Park, and City of San Francisco	5.5 years
	4. Where pet waste may be a source of bacteria to a beach, establish and implement protocols to control pet waste through such measures as providing bags, trash receptacles, and signage.	San Francisco Maritime National Historic Park	6 months

[a] Timeframe begins on the effective date of this Basin Plan amendment

Table 7.2.5-5 Candlestick Point Beaches Implementation Plan			
Source	**Action**	**Implementing Party**	**Completion Timeframe[a]**
Sanitary Sewer Collection System	1. Comply with Statewide General Waste Discharge Requirements for sanitary sewer systems.	SFPUC and California State Parks	Ongoing
	2. Submit an enhanced Sewer System Management Plan and O&M Plan as applicable, acceptable to the Executive Officer, that prioritizes sewer system inspections and repairs in areas within ¼ mile of the beach or otherwise connected to the beach. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term plans, and, as necessary, a schedule for developing the funds needed for the capital improvement plan. Complete inspections and repairs.	SFPUC and California State Parks	6 months 3 years
	3. Determine effectiveness of sewer system repairs: Assess beach monitoring data to determine if targets are met at the beach.	SFPUC	5 years
	4. If targets are not met, submit an enhanced Sewer System Management Plan and O&M Plan as applicable, acceptable to the Executive Officer, that prioritizes sewer system inspections and repairs in areas within ½ mile of the beach or otherwise connected to the beach. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term plans, and, as necessary, a schedule for developing the funds needed for the capital improvement plan. Complete inspections and repairs.	SFPUC and California State Parks	5.5 years 8 years
	5. If private laterals are a likely source of bacteria to the beach, establish and implement a private lateral replacement program or refocus existing lateral program efforts to address these sources.	SFPUC and City of San Francisco	5 years
Sewer Collection System & Urban Runoff	Establish and implement a protocol to enhance efforts to identify and correct illicit connections to the storm drain system.	SFPUC and California State Parks	6 months
Urban Runoff	1. Submit a plan acceptable to the Executive Officer that describes BMPs being implemented and additional BMPs that will be implemented to reduce discharges of bacteria to the beach. Include control of nuisance wildlife if it represents a likely source of bacteria to the beach. The plan shall include a schedule and milestones for implementation.	SFPUC, California State Parks, and City of San Francisco	6 months
	2. Determine effectiveness of urban runoff controls: Assess beach monitoring data to determine if targets are met at the beach.	SFPUC	5 years
	3. If targets are not met, submit, acceptable to the	SFPUC, California State	5.5 years

Table 7.2.5-5 Candlestick Point Beaches Implementation Plan			
Source	**Action**	**Implementing Party**	**Completion Timeframe[a]**
	Executive Officer: (a) a plan describing BMPs being implemented and additional BMPs that will be implemented to reduce discharges of bacteria to the beach. The plan shall include an implementation schedule and milestones. and (b) a supplemental monitoring plan (*supplemental to ongoing beach monitoring*) to investigate remaining bacteria sources to the beach. This plan may develop data and a quantitative rational to support (i) locations and types of enhanced bacteria BMPs, and/or (ii) revision of the numeric targets to reflect bacteria contributions from non-controllable sources. Include an implementation schedule.	Parks, and City of San Francisco	
	4. Where pet waste may be a source of bacteria to a beach, establish and implement protocols to control pet waste through such measures as providing bags, trash receptacles and signage.	California State Parks	6 months

[a] Timeframe begins on the effective date of this Basin Plan amendment

Table 7.2.5-6 Crissy Field Beach Implementation Plan			
Source	**Action**	**Implementing Party**	**Completion Timeframe[a]**
Sanitary Sewer Collection System	1. Comply with Statewide General Waste Discharge Requirements for Sanitary Sewer Systems and Order No. R2-2013-0029.	Presidio Trust and SFPUC	Ongoing
	2a. Submit an enhanced Sewer System Management Plan and O&M Plan as applicable, acceptable to the Executive Officer, that prioritizes sewer system inspections and repairs in areas within ¼ mile of the beach or otherwise connected to the beach. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term plans, and, as necessary, a schedule for developing the funds needed for the capital improvement plan. Complete inspections and repairs.	Presidio Trust and SFPUC	6 months 3 years
	2b. Inspect laterals and all other components connecting SF Rec & Parks facilities to the sanitary sewer system. Repair all leaks. Submit annual status reports until all system components are inspected and repaired.	San Francisco Rec & Parks	1 year 3 years
	3. Determine effectiveness of sewer system repairs: Assess beach monitoring data to determine if targets are met at the beach.	SFPUC	5 years
	4. If targets are not met, submit an enhanced Sewer System Management Plan and O&M Plan as applicable, acceptable to the Executive Officer, that prioritizes sewer system inspections and repairs in areas within ½ mile of the beach or otherwise connected to the beach. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term plans, and, as necessary, a schedule for developing the funds needed for the capital improvement plan. Complete inspections and repairs.	Presidio Trust and SFPUC	5.5 years 8 years
	5. If private laterals are a likely source of bacteria to the beach, establish and implement a private lateral replacement program or refocus existing lateral program efforts to address these sources.	Presidio Trust and SFPUC	5 years
Sewer Collection System & Urban Runoff	Establish and implement a protocol to enhance efforts to identify and correct illicit connections to the storm drain system.	Presidio Trust and SFPUC	6 months
Urban Runoff	1. Submit a plan acceptable to the Executive Officer that describes BMPs being implemented and additional BMPs that will be implemented to reduce discharges of bacteria to the beach. Include control of nuisance wildlife if it represents a likely source of bacteria to the beach. The plan shall include a schedule and milestones for	Presidio Trust, Golden Gate National Recreation Area, SFPUC, and San Francisco	6 months

Table 7.2.5-6 Crissy Field Beach Implementation Plan			
Source	**Action**	**Implementing Party**	**Completion Timeframe[a]**
	implementation.	Rec & Parks	
	2. Determine effectiveness of urban runoff controls: Assess beach monitoring data to determine if targets are met at the beach.	SFPUC	5 years
	3. If targets are not met, submit, acceptable to the Executive Officer: (a) a plan describing BMPs being implemented and additional BMPs that will be implemented to reduce discharges of bacteria to the beach. The plan shall include an implementation schedule and milestones. and (b) a supplemental monitoring plan (*supplemental to ongoing beach monitoring*) to investigate remaining bacteria sources to the beach. This plan may develop data and a quantitative rational to support (i) locations and types of enhanced bacteria BMPs, and/or (ii) revision of the numeric targets to reflect bacteria contributions from non-controllable sources. Include an implementation schedule.	Presidio Trust, Golden Gate National Recreation Area, SFPUC, and San Francisco Rec & Parks	5.5 years
	4. Establish and implement protocols for enhancing efforts to control pet waste through such measures as providing bags, trash receptacles, signage at Crissy Beach, and increased rule enforcement during wet periods.	Golden Gate National Recreation Area	6 months

[a] Timeframe begins on the effective date of this Basin Plan amendment

Table 7.2.5-7 Marina Lagoon Beaches (Parkside Aquatic and Lakeshore) Implementation Plan			
Source	**Action**	**Implementing Party**	**Completion Timeframe[a]**
Sanitary Sewer Collection System	1. Comply with Statewide General Waste Discharge Requirements for Sanitary Sewer Systems.	City of San Mateo	Ongoing
	2. Comply with Cease and Desist Order No. R2-2009-0020 (CDO) and any future amendments. In next annual CDO report, submit enhancements to the Infrastructure Renewal and Capacity Assurance Plans, acceptable to the Executive Officer, that prioritize sewer system inspections and repairs in areas within ¼ mile of the beach to the extent possible within the framework of the CDO. Include a diagram of prioritized infrastructure and time schedule. Complete inspections and repairs in prioritized area(s).	City of San Mateo	According to due dates in Cease and Desist Order
	3. Determine effectiveness of sewer system repairs: Assess beach monitoring data to determine if targets are met at the beach.	City of San Mateo	5 years
	4. If targets are not met, submit enhanced Infrastructure Renewal and Capacity Assurance Plans, acceptable to the Executive Officer, that prioritize sewer system inspections and repairs in areas within ½ mile of the beach or otherwise connected to the beaches. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term plans, and, as necessary, a schedule for developing the funds needed for the capital improvement plan. Complete inspections and repairs.	City of San Mateo	5.5 years 8 years
	5. If private laterals are a likely source of bacteria to the beach, establish and implement a private lateral replacement program or refocus existing lateral program efforts to address these sources.	City of San Mateo	2 years
Sewer Collection System & Urban Runoff	Establish and implement a protocol to enhance efforts to identify and correct illicit connections to the storm drain system.	City of San Mateo	6 months
Urban Runoff	1. Submit a plan acceptable to the Executive Officer that describes BMPs being implemented and additional BMPs that will be implemented to reduce discharges of bacteria to the beach. Include control of nuisance wildlife. The plan shall include a schedule and milestones for implementation.	City of San Mateo	6 months
	2. Determine effectiveness of urban runoff controls: Assess beach monitoring data to determine if targets are met at the beach.	City of San Mateo	5 years

Table 7.2.5-7 Marina Lagoon Beaches (Parkside Aquatic and Lakeshore) Implementation Plan			
Source	**Action**	**Implementing Party**	**Completion Timeframe[a]**
	3. If targets are not met, submit, acceptable to the Executive Officer: (a) a plan describing BMPs being implemented and additional BMPs that will be implemented to reduce discharges of bacteria to the beach. The plan shall include an implementation schedule and milestones. and (b) a supplemental monitoring plan (*supplemental to ongoing beach monitoring*) to investigate remaining bacteria sources to the beach. This plan may develop data and a quantitative rational to support (i) locations and types of enhanced bacteria BMPs, and/or (ii) revision of the numeric targets to reflect bacteria contributions from non-controllable sources. Include an implementation schedule.	City of San Mateo	5.5 years

[a] Timeframe begins on the effective date of this Basin Plan amendment

7.2.5.7 China Camp and McNears Beaches Implementation

Both China Camp and McNears beaches already meet the numeric targets for Enterococcus, and therefore no further implementation actions are necessary.

7.2.5.8 Water Quality Monitoring

Implementing parties are responsible for developing and implementing a monitoring plan sufficient to assess compliance with the numeric targets at the beaches. At a minimum, implementing parties shall continue monitoring the beaches as required under California Health and Safety Code section 115880 and provide a data evaluation report annually to the Water Board. It is recommended that the implementing parties select a lead entity to assess the monitoring data and compile the annual report.

If, after approximately five years, implementation actions do not result in achievement of numeric targets at a beach, supplemental monitoring (in addition to beach monitoring) is required to investigate and identify bacteria sources in the watershed that could be contributing to the bacteria impairment. This monitoring is intended to answer questions such as:

- Could bacteria sources be reduced by placing enhanced urban runoff BMPs in a certain location?
- Could bacteria sources be reduced by focusing sewer system investigations and repairs in a certain location?
- Are natural sources of bacteria contributing to a significant degree to the impairment at the beach?

Implementing parties need not wait four years if they wish to begin supplemental monitoring earlier. At any time, implementing parties may present data indicating the presence of natural sources of bacteria to the beach, such as non-nuisance wildfowl, to the Executive Officer of the Water Board, and the Water Board may consider developing new allocations that could include a natural source exclusion. Until such action is taken by the Water Board, the implementation requirements and completion dates shall remain in effect.

Beach monitoring and supplemental monitoring requirements are included on Tables 7.2.5-4 through 7.2.5-7.

7.2.5.9 Adaptive Implementation

The Water Board will adapt the TMDL and Implementation Plans to incorporate new and relevant scientific information such that effective and efficient measures can be taken to achieve standards. At approximately six-year intervals, Water Board staff will evaluate new and relevant information from implementation actions, water quality monitoring results, and the scientific literature, including any local reference system studies, U.S. EPA's revised recommended bacteria criteria, or new or revised State bacteria water quality objectives, and assess progress toward attaining the TMDL. Water Board staff will present that information to the Water Board, and the Water Board will consider a Basin Plan amendment that reflects any necessary modifications to the targets, load and wasteload allocations, or implementation plan.

EXHIBIT 4

California Regional Water Quality Control Board

San Francisco Bay Region

1515 Clay Street, Suite 1400, Oakland, CA 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

and

U.S. Environmental Protection Agency

Region IX

75 Hawthorne Street, San Francisco, California 94105
(415) 947-8707 * Fax (415) 947-3549
http://www.epa.gov/region9/

ORDER NO. R2-2009-0062
NPDES NO. CA0037681

WASTE DISCHARGE REQUIREMENTS FOR THE CITY AND COUNTY OF SAN FRANCISCO OCEANSIDE WATER POLLUTION CONTROL PLANT (SOUTHWEST OCEAN OUTFALL) AND COLLECTION SYSTEM, INCLUDING THE WESTSIDE WET WEATHER FACILITIES

The following Discharger is subject to waste discharge requirements as set forth in this Order.

Table 1. Discharger Information

Discharger	City and County of San Francisco
Name of Facility	Oceanside Water Pollution Control Plant and Collection System, Including the Westside Wet Weather Facilities
Facility Address	3500 Great Highway
	San Francisco, CA 94132
	San Francisco County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a **major** discharge.	

Discharges by the City and County of San Francisco from the discharge points identified below are subject to waste discharge requirements as set forth in this Order.

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Secondary Treated Wastewater, Combined Primary and Secondary Treated Wastewater and Stormwater, and the equivalent of wet weather primary treated combined Wastewater and Stormwater decant flow from a Combined Sewer System	37 º 42’ 18” N	122 º 34’ 39” W	Pacific Ocean, Offshore

CSD-001	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater Discharge	37 ° 42' 55" N	122 ° 30' 16" W	Pacific Ocean (Fort Funston, Ocean Beach)
CSD-002	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater Discharge	37 ° 44' 16" N	122 ° 30' 29" W	Pacific Ocean (Vicente St., Ocean Beach)
CSD-003	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater Discharge	37 ° 45' 50" N	122 ° 30' 42" W	Pacific Ocean (Lincoln Way, Ocean Beach)
CSD-004	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater Discharge	37 ° 47' 5" N	122 ° 30' 37" W	Pacific Ocean (Mile Rock)
CSD-005	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater Discharge	37 ° 47' 16" N	122 ° 29' 30" W	Pacific Ocean (China Beach)
CSD-006	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater Discharge	37 ° 47' 22" N	122 ° 29' 16" W	Pacific Ocean (Baker Beach)
CSD-007	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater Discharge	37 ° 47' 22" N	122 ° 29' 13" W	Pacific Ocean (Baker Beach)

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	August 12, 2009
This Order shall become effective on:	October 1, 2009
This Order shall expire on:	September 30, 2014
CIWQS Regulatory Measure	360578
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	180 days prior to the Order expiration date

The signatures below certify that the following is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on August 12, 2009, and of a National Pollutant Discharge Elimination System permit issued by the United States Environmental Protection Agency, Region IX, on the date below.

Bruce H. Wolfe, Executive Officer
California Water Quality Control Board
San Francisco Bay Region

Date: 8/12/09

Alexis Strauss, Director
Water Division
USEPA Region IX

Date: 12 August 2009

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I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order.

Table 4. Facility Information

Discharger	City and County of San Francisco
Name of Facility	Oceanside Water Pollution Control Plant and Collection System, Including Westside Wet Weather Facilities
Facility Address	3500 Great Highway
	San Francisco, CA 94132
	San Francisco County
Facility Contact, Title, Phone	Tommy Moala, Assistant General Manager, (415) 554-2465
CIWQS Place ID	256498
CIWQS Party ID	39680
Mailing Address	San Francisco Public Utilities Commission/Wastewater Enterprise
	1155 Market Street, 11th Floor
	San Francisco CA 94103
Type of Facility	Publicly Owned Treatment Works (POTW)
Facility Design Flow	Oceanside Plant 43 MGD, maximum dry weather design flow (providing secondary treatment) 65 MGD maximum wet weather design flow (providing secondary treatment for 43 MGD and primary treatment for an additional 22 MGD)
	Westside Wet Weather Facilities Collection system flows greater than 65 MGD and less than 175 MGD receive the equivalent of wet weather primary treatment in the Westside Wet Weather Facilities (storage/transports) and are discharged at the Southwest Ocean Outfall. Flows greater than 175 MGD receive the equivalent of wet weather primary treatment in the Westside Wet Weather Facilities and are discharged at authorized combined sewer overflow discharge points on the shoreline.

II. FINDINGS

The U.S. Environmental Protection Agency (USEPA) and the California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board), find:

A. **Background.** The City and County of San Francisco (hereinafter the Discharger) is currently discharging pursuant to Order No. R2-2003-0073 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037681. The Discharger submitted a Report of Waste Discharge, dated March 28, 2008, and applied to renew its NPDES permit to discharge up to 65 MGD of treated wastewater from the Oceanside Water Pollution Control Plant (Plant), through the Southwest Ocean Outfall, and primary treated wet weather flows from the Westside Wet Weather Facilities.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. **Facility Description.** The Discharger is the owner and operator of the Oceanside Plant and its associated collection system, a combined sewer system that includes the Westside Wet Weather Facilities. The collection system includes approximately 300 miles of sewer pipes on the westside watershed of the city that covers the areas of Richmond, Sunset, and Lake Merced as well as a small portion of Daly City. The system also includes four all weather pump stations and two wet weather pump stations.

Treatment at the Oceanside Plant, which has a peak secondary treatment capacity of 43 MGD, includes coarse screening at the Westside Pump Station, fine screening and grit removal at the Plant headworks, primary sedimentation, activated sludge treatment by a pure oxygen process, and secondary clarification. Secondary treated wastewater is discharged to the Pacific Ocean between 3.4 and 3.6 nautical miles offshore, at Discharge Point 001 - the Southwest Ocean Outfall. These receiving waters are waters of the United States but are beyond the territorial waters of the State of California, which are three nautical miles from the low water mark at shore. During wet weather periods of high influent flow, the Oceanside Plant can provide primary treatment for an additional 22 MGD of influent flow, which, following treatment, is blended with secondary treated wastewater (i.e., a total treatment capacity of 65 MGD) and discharged at Discharge Point 001.

The Discharger's collection system includes three large storage/transport structures – the Westside Transport, a 49.3 million gallon box-like structure located beneath the Great Highway; the Richmond Transport, a 12 million gallon structure located to the north; and the Lake Merced Transport, a 10 million gallon structure located to the south. The combined storage capacity of these "Westside Wet Weather Facilities" is 73.5 million gallons, which includes 2.2 million gallons of capacity within the sewer lines.

Plant operations depend on rainfall, forecasts, and storage conditions in the Westside, Lake Merced, and Richmond Transport structures. Collection system flows that exceed the Oceanside Plant's treatment capacity of 65 MGD are stored in the Westside Wet Weather Facilities, which provide the equivalent of wet weather primary treatment through solids settling, skimming of floatable solids, and screening at pump stations. Combined wastewater from the storage/transport structures is pumped via the Westside Pump Station to Discharge Point 001, until the pumping capacity of the combined sewer system facilities to the outfall is reached at 175 MGD. Combined wastewater flows greater than 175 MGD also receive treatment in the storage/transport structures (the equivalent of wet weather primary treatment) but are discharged at the seven, near-shore combined sewer overflow discharge (CSOD) structures authorized by this Order. These receiving waters are waters of the United States and territorial waters of the State of California.

To be considered a discrete overflow discharge event, it must be separated by six hours in time from any other combined sewer overflow discharge. For the purposes of this permit, authorized, treated combined sewer overflow discharges from the near-shore discharge structures are referred to as combined sewer overflow discharges (CSODs). Unauthorized, untreated combined sewer overflow discharges from combined sewer systems are referred to as combined sewer overflows (CSOs).

Wastewater solids removed by settling in the Westside Wet Weather Facilities are flushed to the Plant when wet weather flows subside. Primary and secondary solids from the Plant are blended and thickened using gravity belt thickeners, anaerobically digested, dewatered, and beneficially re-used at permitted sites.

Attachment B provides a map of the area around the facility. Attachment C provides a flow schematic of the Plant and the Westside Wet Weather Facilities.

C. **Legal Authorities.** This Order is issued pursuant to federal Clean Water Act (CWA) §402 and the California Water Code (CWC) Chapter 5.5, Division 7 (commencing with §13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to CWC Article 4, Chapter 4, Division 7 (commencing with §13260). Because this Order concerns discharges to waters of the United States, both within and beyond State territorial waters, USEPA and Regional Water Board are jointly issuing the permit.

D. **Background and Rationale for Requirements.** The requirements of this Order are based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements established by the Order, is hereby incorporated by reference into this Order and constitutes part of the Findings for this Order. Attachments A through E, and G through H are also incorporated into this Order by reference.

E. **California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA. Similarly, pursuant to CWA §511(c), this action to reissue an NPDES permit does not trigger the requirements of the National Environmental Policy Act [42 U.S.C. 4321 et seq.].

F. **Technology Based Effluent Limitations.** CWA §301(b) and NPDES regulations at 40 CFR 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. Plant discharges authorized by this Order must meet the minimum federal technology-based requirements for POTWs established by USEPA at 40 CFR 133 (Secondary Treatment Regulation). For wet weather discharges, this Order includes technology-based requirements based on USEPA's Combined Sewer Overflow Control Policy. The Fact Sheet contains a discussion on the development of the technology-based effluent limitations and requirements.

G. **Water Quality Based Effluent Limitations.** CWA §301(b) and NPDES regulations at 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established

for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using:

- USEPA criteria guidance under CWA §304(a), supplemented where necessary by other relevant information;
- an indicator parameter for the pollutant of concern; or
- a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

H. **Water Quality Control Plans.** The *Water Quality Control Plan for the San Francisco Bay Basin* (the Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface water and groundwaters, and includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Resources Control Board (State Water Board), USEPA, and the Office of Administrative Law, as required. For the protection of ocean waters of the State, the Basin Plan incorporates by reference provisions of the *Water Quality Control Plan for Ocean Waters of California* (the Ocean Plan).

The Basin Plan implements State Water Board Resolution No. 88-63, which establishes State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). As the total dissolved solids (TDS) levels of marine waters significantly exceed 3,000 mg/L, ocean waters meet an exception to Resolution No. 88-63, and therefore, the MUN designation does not apply. According to Basin Plan Table 2-1, beneficial uses of the Pacific Ocean are as follows.

Table 5. Beneficial Uses

Receiving Water	Basin Plan Beneficial Uses
Territorial waters of the State of California within the Pacific Ocean	• Industrial Service Supply • Ocean, Commercial, and Sport Fishing • Shellfish Harvesting • Marine Habitat • Fish Migration • Preservation of Rare and Endangered Species • Fish Spawning • Wildlife Habitat • Water Contact Recreation • Noncontact Water Recreation • Navigation

Requirements of this Order implement the Basin Plan.

I. **California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, and 2005. The State Water Board adopted the latest amendment on April 21, 2005, and it became effective on February 14, 2006. The Ocean Plan applies, in its entirety, to point source discharges to the territorial waters of the State as defined by California law to the extent that these waters are outside of enclosed bays, estuaries, and coastal lagoons. The Ocean Plan identifies the following beneficial uses of ocean waters of the State: Industrial Water Supply; Water Contact and Non-contact Recreation, Including Aesthetic Enjoyment; Navigation; Commercial and Sport Fishing; Mariculture; Preservation and Enhancement of Designated Areas of Special Biological Significance; Rare and Endangered Species; Marine Habitat; Fish Migration; Fish Spawning; and Shellfish Harvesting. To protect beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation for discharges to State territorial waters.

Discharge Point 001, the Southwest Ocean Outfall, is 3.4 to 3.6 nautical miles offshore in federal waters. The territorial waters of the State end three nautical miles from shore. The Ocean Plan (Appendix 1, Ocean Waters) states, "If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters." For the reasons set forth in the Fact Sheet (Appendix F), the Regional Water Board finds that the discharge at Discharge Point 001 could not affect the quality of the waters of the State during dry weather. During wet weather, the Ocean Plan defers to the Combined Sewer Overflow Control Policy, discussed in Finding K, below. Therefore, this Order does not regulate the discharge at Discharge Point 001 directly through the Water Board's Ocean Plan authorities.

J. **Determination of Unreasonable Degradation of the Marine Environment.** Discharges from the Southwest Ocean Outfall are to waters of the United States beyond the territorial waters of the State of California. Federal regulations at 40 CFR 125.122 require the permitting authority to determine whether a discharge will cause unreasonable degradation of the marine environment. Based on 40 CFR 125.22(b), USEPA conducted a reasonable potential analysis using Ocean Plan objectives and included numeric permit limitations, based on the Ocean Plan's dilution procedures, for toxicity and mercury, the only numeric Ocean Plan objectives for which USEPA found reasonable potential to cause or contribute to an exceedance of water quality standards. USEPA also included narrative receiving water limitations for the Ocean Plan narrative objectives for which it found reasonable potential. For determining reasonable potential for the dioxins, USEPA used recently updated Toxicity Equivalency Factors (TEFs) published by the World Health Organization in 2005, as well as the congener-specific Bioconcentration Equivalency Factors (BEFs) used for the Great Lakes System. The "Bay Area Clean Water Agencies' Draft Dioxin Issue Paper: Expert Panel Response and Recommendations," dated April 4, 2008, proposed using both TEFs and BEFs in developing NPDES permit limits for dioxins. This approach incorporates recent scientific information for dioxins on a congener-specific basis, while continuing to use the Ocean Plan water quality objective for dioxins (TCDD equivalents) and standards implementation procedures. Given the unique issues dioxins present, USEPA has prepared a determination of no unreasonable degradation based on the ten factors under 40 CFR 125.122(a) (Appendix 1 to the Fact Sheet). USEPA has determined that no unreasonable degradation of the marine environment will result from

the discharges of dioxins through the Southwest Ocean Outfall as authorized under this Order, with all the limitations, conditions, and monitoring requirements in effect.

K. **Combined Sewer Overflow Control Policy.** Wet weather flows from combined sewer systems are subject to CWA §301(b)(1)(A) and are not subject to secondary treatment regulations. Wet weather flows from combined sewer systems are addressed by the Combined Sewer Overflow Control Policy (59 Federal Register 18688-18698). The *Wet Weather Water Quality Act of 2000* incorporated this policy into the CWA.

The policy establishes a consistent national approach for controlling discharges from combined sewers to the nation's waters. Using the NPDES permit program, the policy initiates a two-phased process. During the first phase, a discharger is required to implement "nine minimum controls" (e.g., prevent dry weather overflows). These controls constitute the technology-based requirements of the CWA as applied to combined sewer facilities (i.e., best conventional pollutant control technology, BCT, and best available control technology economically achievable, BAT). The controls are intended to provide immediate and relatively low-cost water quality improvements for facilities that, unlike the Discharger, have not implemented a long-term control plan. During the first phase, a discharger is required to initiate development of a long-term control plan to select controls to comply with water quality standards, based on consideration of the discharger's financial capabilities.

The second phase of the process involves implementation of the long-term control plan developed in the first phase. The purpose of this long-term control plan is to comply with CWA water quality requirements. The Discharger's program, which continues to implement the Discharger's long-term plan, is consistent with the policy. This Order implements the policy and is consistent with the Regional Water Board policy on wet weather overflows described in Basin Plan Section 4.9. During wet weather, CSODs from shoreline discharge points CSD-001 through CSD-007 and the Southwest Ocean Outfall are subject to this policy.

L. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes [65 FR 24641 (April 27, 2000) (codified at 40 CFR 131.21)]. Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

M. **Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on biochemical oxygen demand (BOD), total suspended solids (TSS), and pH. Restrictions on these pollutants are discussed in Section IV.B of the Fact Sheet (Attachment F). This Order's technology-based pollutant restrictions implement the minimum applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum federal technology-based requirements. The water quality-based limits are

necessary to meet water quality standards. They are not more stringent than required by the CWA.

Water quality-based effluent limitations have been derived to implement water quality objectives that protect beneficial uses. Both beneficial uses and water quality objectives in State waters have been approved pursuant to federal law and are the applicable water quality standards. The procedures used for this Order to calculate individual water quality-based effluent limitations for State waters are based on the California Ocean Plan, which was approved by USEPA on February 14, 2006.

N. **Antidegradation Policy**. NPDES regulations at 40 CFR 131.12 require that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law and requires that existing quality of waters be maintained unless degradation is justified based on specific findings. Water quality plans implement and incorporate by reference, both the State and federal antidegradation policies. The permitted discharges are consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16 because there is no increase in authorized flow and effluent limitations are at least as stringent as in the previous permit.

O. **Anti-Backsliding Requirements.** CWA Sections 402(o)(2) and 303(d)(4) and NPDES regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. With the exception of acute and chronic toxicity, all effluent limitations in this Order are at least as stringent as the effluent limitations in the previous permit. Compliance with anti-backsliding requirements is discussed in Fact Sheet section IV.C.6.

P. **Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the State. The Discharger is responsible for meeting all requirements of applicable State and federal law pertaining to threatened and endangered species.

Section 7(a)(2) of the federal Endangered Species Act requires USEPA, in reissuing this NPDES permit, to ensure, after consultation with appropriate agencies that discharges at the Southwest Ocean Outfall are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of critical habitat for such species. USEPA has initiated informal consultation with National Oceanic Atmospheric Administration.

Q. **Monitoring and Reporting.** NPDES regulations at 40 CFR 122.48 require that all NPDES permits specify requirements for recording and reporting monitoring results. CWC §13267

and §13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program accompanying this Order (Attachment E) establishes monitoring and reporting requirements to implement federal and State requirements.

R. **Standard and Special Provisions.** Federal Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Discharger must comply with all federal standard provisions and with those additional conditions that apply pursuant to 40 CFR 122.42. The Regional Water Board has also included State standard provisions in this Order as Attachment G. The rationale for these special provisions is provided in the Fact Sheet (Attachment F). Where federal standard provisions are duplicative with State standard provisions, the federal standard provisions will apply and any excursion from a duplicative standard provision will not be interpreted as two excursions.

S. **Notification of Interested Parties.** The USEPA and Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharges described herein and has provided them with an opportunity to submit written comments and recommendations. Details of the notification are provided in the Fact Sheet, which accompanies this Order.

T. **Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharges. Details of the public hearing are provided in the Fact Sheet of this Order.

THEREFORE, IT IS HEREBY ORDERED, that this Order supersedes Order No. R2-2003-0073, except for enforcement purposes, and in order to meet the provisions contained in CWC Division 7 (commencing with §13000) and regulations adopted hereunder, and the provisions of the federal CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of treated wastewater at a location or in a manner different from that described by this Order is prohibited.

B. Discharge from Discharge Point 001 that does not receive an initial dilution of at least 150:1 is prohibited.

C. Bypass of secondary treatment facilities at the Oceanside Plant is prohibited, except during a wet weather day, as defined by this Order (see Definitions, Attachment A), or as provided for by NPDES regulations at 40 CFR 122.41(m)(4) and in Section IV.B of *Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits*, July 2009 (Attachment G).

D. Discharge of wastewater at a location other than Discharge Point 001 is prohibited, except on wet weather days (as defined in Attachment A) when the capacity of the system to discharge to Discharge Point 001 has been exceeded.

E. Discharge of wastewater at Discharge Points CSD-001 through CSD-007 is prohibited, except on wet weather days (as defined in Attachment A) and in accordance with the terms of this Order.

F. Plant discharges shall not exceed 43 MGD at Monitoring Location EFF-001 during dry weather. Compliance with this prohibition shall be based on average dry weather flow determined over three consecutive dry weather months.

G. Any CSO that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited. This does not include authorized combined sewer overflow discharges (CSODs).

H. The discharge of municipal and industrial waste sludge directly or indirectly to the ocean, or into a waste stream that discharges to the ocean without further treatment, is prohibited.

I. The discharge of waste to designated Areas of Special Biological Significance, except as provided by Ocean Plan Chapter III.E, is prohibited.

J. Degradation of harvestable shellfish in the area as a result of dry weather discharge from Discharge Point 001 is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations for Dry Weather – Discharge Point 001

The following effluent limitations apply during dry weather days, as defined in Attachment A. Limitations, conditions, and other requirements applicable during wet weather conditions are established in Section VI.C of this Order.

1. Effluent Limitations – Discharge Point 001

a. The Discharger shall comply with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the attached Monitoring and Reporting Program:

Table 6. Effluent Limitations for Conventional Pollutants, Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD_5[(1)] @ 20°C	mg/L	30	45	---	---	---
TSS[(2)]	mg/L	30	45	---	---	---
pH[(3)]	std units	---	---	-9.0--	6.0	9.0

(1) Biochemical Oxygen Demand
(2) Total Suspended Solids
(3) The pH effluent limit of 6.0 shall not apply if the discharger can demonstrate that the addition of inorganic chemicals or industrial sources is not causing the excursion below 6.0. The regulations at 40 CFR 133.102(c) allow the modification or elimination of pH limitations when it can be demonstrated that the addition of inorganic chemicals or industrial sources is not causing an excursion above or below the limits.

b. Percent Removal: The average monthly percent removal of BOD_5 @ 20°C and TSS shall not be less than 85 percent.

2. Effluent Limitations for Toxic Substances – Discharge Point 001

The Discharger shall comply with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the attached Monitoring and Reporting Program:

Table 7. Effluent Limitations for Toxic Pollutants, Discharge Point 001

Parameter	Units	Effluent Limitations[(1)][(3)]		
		6-month median	Maximum Daily	Instantaneous Maximum
Chronic Toxicity	TUc	N/A	150	N/A
Mercury[(2)]	µg/L	5.9	24	N/A

(1) Limitations apply to the concentration of all samples collected during the period (daily = 24-hour period)

(2) Mercury limitations are expressed as total recoverable metal.

(3) A daily or 6-month median value for a given constituent shall be considered noncompliant with the effluent limitations only if it exceeds the effluent limitation and the Reporting Level (RL) for that constituent. Ocean Plan Appendix II indicates the Minimum Level (ML) upon which the Reporting Level is based for compliance purposes. For mercury this is 0.2 µg/L.

3. Effluent Limits for Disinfectants

The effluent is not disinfected; thus there are no limits on chlorine or other disinfectant residuals.

B. Land Discharge Specifications

Not Applicable.

C. Reclamation Specifications

Not Applicable.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Ocean Plan water quality objectives were used to determine the receiving water limitations in this Order. Dry Weather Day discharges authorized by this Order at Discharge Point 001 shall not cause exceedances of the following surface water limitations in ocean receiving waters. As indicated in the Fact Sheet (Attachment F, Section IV.C.6), disinfection to meet bacteria level objectives is not required. Attachment F Section III.C.4 describes an Ocean Plan exception for combined sewer overflows discharges.

1. Floating particulates and grease and oil shall not be visible.

2. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.

3. Natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge of waste.

4. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.

5. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as a result of the discharge of oxygen demanding waste material.

6. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

7. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.

8. The concentration of organic materials in marine sediments shall not be increased to levels that would degrade marine life.

9. Nutrient levels shall not cause objectionable aquatic growths or degrade indigenous biota.

10. Marine communities, including vertebrate, invertebrate and plant species, shall not be degraded.

11. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.

12. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

B. Groundwater Limitations

Not Applicable

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in **Attachment D** of this Order.

2. The Discharger shall comply with all applicable items of the *Regional Standard Provisions and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits*, July 2009 **(Attachment G)**, including any amendments thereto.

3. If any discrepancies exist between requirements in the Order, the federal standard provisions included in Attachment D, and the Regional Standard Provisions included in Attachment G, the requirements in this Order prevail over requirements in Attachment D, which prevail over requirements in Attachment G.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E. The Discharger shall also comply with all applicable items of the *Regional Standard Provisions and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits*, July 2009 **(Attachment G)**.

C. Special Provisions

1. Re-opener Provisions

The Regional Water Board or USEPA, as appropriate, may modify or re-open this Order prior to its expiration date in any of the following circumstances as allowed by law.

a. If present or future investigations demonstrate that a discharge governed by this Order will have, or will cease to have, a reasonable potential to cause or contribute to adverse impacts on water quality or beneficial uses of the receiving waters.

b. If new or revised Water Quality Objectives (WQOs) or TMDLs come into effect for the receiving waters, effluent limitations may be modified as necessary to reflect the updated WQOs and waste load allocations in TMDLs. Adoption of effluent limitations as contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs, TMDLs, or as otherwise permitted under regulations governing permit modifications.

c. If translator or other water quality studies provide a basis for determining that a permit condition should be modified.

d. If an administrative or judicial decision on a separate NPDES permit or WDR necessitates modifications of the requirements established by this Order.

e. As otherwise authorized by law.

The Discharger may request permit modification in any of the circumstances described above. Such a request shall include appropriate antidegradation and anti-backsliding analyses.

2. Special Studies, Technical Reports, and Additional Monitoring Requirements

a. Combined Sewer Collection System Overflow Study

The combined sewer system commingles stormwater and domestic and industrial sewage. Heavy storm events can potentially result in flows that exceed the collection system capacity, at least in some areas. The Discharger shall submit a report, for planning purposes, by June 30, 2012, evaluating the potential locations of such system excursions and the primary conditions that result in such events. The report shall evaluate the feasibility and effectiveness of alternatives to minimize these events.

b. Dilution Model Update and Stratification Data Collection

Available ambient data to determine stratification for the purposes of dilution modeling for this discharge is out-dated. The Discharger shall submit with the permit application for the next permit reissuance, ambient data collected during the term of this permit, as well as updated dilution modeling for use during the next permit reissuance. The discharger shall:

(1) Submit a work plan to USEPA and the Regional Water Board for stratification data collection no later than one year after the effective date of this Order. The purpose of the data collection effort is to determine the months of maximum stratification based on actual ocean observations. At a minimum, the work plan shall include the following tasks:

- Collect temperature and salinity data during the months of maximum stratification in the vicinity of the outfall uninfluenced by the waste-field;
- Record data at a minimum of five equally spaced depths and at an appropriate resolution to determine maximum stratification;
- Provide effluent temperature and salinity or density data and flow rate for the time period encompassing the study;
- Describe how the data will be collected, the location(s), sensors, and instruments to be deployed and equipment to be used; and
- Describe appropriate quality assurance protocols to be followed to ensure the data is of adequate quality and representative of actual conditions within the water column.

(2) Upon completion of data collection, the Discharger shall prepare and submit a data report in hard copy and electronic format to USEPA and the Regional Water Board. Records that include large data gaps, errors, or instrument failures may not be used for dilution modeling.

(3) No later than 4 years after the effective date of this Order, the Discharger shall submit a work plan for updated dilution modeling. This work plan shall include models to be used and model inputs and assumptions.

(4) No later than at the time of submittal of the application for permit reissuance, the Discharger shall submit updated dilution modeling runs, with all inputs and outputs presented in hard copy and electronic form.

3. Best Management Practices and Pollution Prevention

a. Pollution Minimization Program

The Discharger shall continue to implement and improve, in a manner acceptable to the Executive Officer, its existing Pollutant Minimization Program (PMP) to reduce pollutant loadings to the combined sewer system, and therefore to the receiving waters.

b. Annual Pollution Prevention Report

The Discharger shall submit an annual report, acceptable to the Executive Officer, no later than February 28th of each calendar year. The annual report shall cover January through December of the preceding year. Each annual report shall include at least the following information.

(1) *Brief description of the treatment plant, treatment plant processes and service area.*

(2) *Discussion of current pollutants of concern.* Periodically, the Discharger shall determine which pollutants are currently a problem and which pollutants may be potential future problems. This discussion shall address why the pollutants were identified as pollutants of concern.

(3) *Identification of sources of pollutants of concern.* This discussion shall address how the Discharger identifies pollutant sources. The Discharger should also identify sources or potential sources not directly within its ability or authority to control, such as pollutants in the potable water supply and air deposition.

(4) *Identification and implementation of measures to reduce the sources of the pollutants of concern.* This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement the tasks themselves or participate in a regional, State, or national group to address its pollutants of concern whenever it is efficient and appropriate to do so. A time line shall be included for the implementation of each task.

(5) *Outreach to employees.* The Discharger shall inform its employees regarding pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants. The Discharger may provide a forum for employees to provide input to the program.

(6) *Continuation of Public Outreach Program. The* Discharger shall prepare a public outreach program to communicate pollution minimization measures to its service area. Outreach may include participation in existing community events such as county fairs, initiating new community events such as displays and contests during Pollution Prevention Week, conducting school outreach programs, conducting plant tours, and providing public information in various media. Information shall be specific to target audiences. The Discharger shall coordinate with other agencies as appropriate.

(7) *Discussion of criteria used to measure PMP's and tasks' effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its PMP. This discussion shall address specific criteria used to measure the effectiveness of each task identified in provisions VI.C.3.b(3 – 6), above.

(8) *Documentation of efforts and progress.* The Discharger shall describe all its PMP activities for the reporting year.

(9) *Evaluation of PMP's and tasks' effectiveness.* The Discharger shall use the criteria established in b.7, above, to evaluate the Program's and tasks' effectiveness.

(10) *Identification of specific tasks and time schedules for future efforts.* Based on the evaluation of effectiveness, the Discharger shall describe how it will continue or change its PMP tasks to more effectively reduce the loading of pollutants to the treatment plant, and subsequently, in its effluent.

The Discharger shall develop and conduct a PMP as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the ML, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a pollutant identified in Table B of the Ocean Plan is present in the effluent above an effluent limitation that is calculated for a constituent contained in Table B of the Ocean Plan and either:

(i) The concentration of the pollutant is reported as DNQ and the effluent limitation is less than the reported ML; or

(ii) The concentration of the pollutant is reported as ND and the effluent limitation is less than the ML, using definitions described in Attachment A and reporting protocols described in MRP section X.B.4.

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

(i) An annual review and semi-annual monitoring of potential sources of the reportable pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling; or alternative measures approved by the Executive Officer when it is demonstrated that source monitoring is unlikely to produce useful analytical data;

(ii) Quarterly monitoring for the reportable pollutant(s) in the influent to the wastewater treatment system; or alternative measures approved by the Executive Officer, when it is demonstrated that influent monitoring is unlikely to produce useful analytical data;

(iii) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant(s) in the effluent at or below the effluent limitation;

(iv) Implementation of appropriate cost-effective control measures for the reportable pollutant(s), consistent with the control strategy; and

(v) An annual status report that shall be sent to the Regional Water Board including:

- All PMP monitoring results for the previous year;
- A list of potential sources of the reportable pollutant(s);
- A summary of all actions undertaken pursuant to the control strategy; and
- A description of actions to be taken in the following year.

4. Construction, Operation and Maintenance Specifications

a. Wastewater Facilities, Review and Evaluation, and Status Reports

(1) The Discharger shall operate and maintain its wastewater collection, treatment, and disposal facilities in a manner to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary, in order to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

(2) The Discharger shall regularly review and evaluate its wastewater facilities and operation practices in accordance with Section a.(1) above. Reviews and evaluations shall be conducted as an ongoing component of the Discharger's administration of its wastewater facilities.

(3) The Discharger shall provide USEPA and the Regional Water Board, upon request, a report describing the current status of its wastewater facilities and operation practices, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each annual SMR, a description or summary of its review and evaluation procedures, and wastewater facility programs or capital improvement projects.

b. Operations and Maintenance (O&M) Manual, Review and Status Reports

(1) The Discharger shall maintain an O&M Manual for the Plant and collection system. The O&M Manual shall be maintained in usable condition and be available for reference and use by all personnel.

(2) The Discharger shall regularly review, revise, or update, as necessary, the O&M Manual to ensure that it remains useful and relevant to current equipment and operation practices. The Discharger shall conduct reviews annually, and revise or update the O&M Manual as necessary. For any significant changes in treatment facility equipment or operation practices, the Discharger shall complete any revisions within 90 days.

(3) The Discharger shall provide USEPA and the Regional Water Board, upon request, a report describing the current status of its O&M Manual, including any recommended or planned actions and an estimated time schedule for these actions. The Discharger shall also include, in each annual SMR, a description or summary of review and evaluation procedures and changes to its operations and maintenance manual.

c. Contingency Plan, Review and Status Reports

(1) The Discharger shall maintain a Contingency Plan as prudent in accordance with current municipal facility emergency planning. The discharge of pollutants in violation of this Order when the Discharger has failed to develop

and adequately implement a Contingency Plan will be the basis for considering such a discharge a willful and negligent violation of this Order pursuant to CWC §13387.

(2) The Discharger shall annually review the Contingency Plan and update it, as necessary, so that the plan may remain useful and relevant to current equipment and operation practices.

(3) The Discharger shall provide USEPA and the Regional Water Board, upon request, a report describing the current status of its Contingency Plan review and update. The Discharger shall also include, in each annual SMR, a description or summary of its review and evaluation procedures and any changes to its Contingency Plan.

5. Special Provisions for Municipal Facilities

a. Pretreatment Program

(1) The Discharger shall implement and enforce its approved pretreatment program in accordance with federal Pretreatment Regulations (40 CFR 403), pretreatment standards promulgated under Sections 307(b), 307(c), and 307(d) of the CWA, pretreatment requirements specified under 40 CFR 122.44(j), and the requirements in Attachment H, "Pretreatment Requirements." The Discharger's responsibilities include, but are not limited to:

(i) Enforcement of National Pretreatment Standards of 40 CFR 403.5 and 403.6;

(ii) Implementation of its pretreatment program in accordance with legal authorities, policies, procedures, and financial provisions described in the General Pretreatment regulations (40 CFR 403) and its approved pretreatment program;

(iii) Submission of reports to USEPA, the State Water Board, and the Regional Water Board, as described in Attachment H "Pretreatment Requirements".

(iv) Evaluate the need to revise local limits under 40 CFR 403.5(c)(1), and within the term of this Order, submit a report acceptable to the Executive Officer describing the changes with a plan and schedule for implementation.

(2) The Discharger shall implement its approved pretreatment program and the program shall be an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board, or USEPA may take enforcement actions against the Discharger as authorized by the CWA .

b. Sludge Management Practices Requirements

(1) All sewage sludge generated by the discharger shall be disposed in a municipal solid waste landfill that meets the requirements of 40 CFR 258, land applied in accordance with the requirements in 40 CFR 503 Subpart B, or delivered to a composter for treatment and land application in accordance with the requirements in 40 CFR 503 Subpart B. The Discharger shall notify USEPA and the Regional Water Board 60 days prior to any change in use or disposal practices.

(2) Sludge treatment, storage, and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.

(3) The Discharger shall take all reasonable steps to prevent or minimize any sludge use or disposal that has a likelihood of adversely affecting human health or the environment.

(4) The discharge of sludge shall not cause waste material to be in a position where it is or can be carried from the sludge treatment and storage site and deposited in waters of the United States.

(5) The sludge treatment and storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect boundaries of the site from erosion, and to prevent any conditions that would cause drainage from the materials in the temporary storage site. Adequate protection is defined as protection from at least a 100-year storm and protection from the highest possible tidal stage that may occur.

(6) For sludge applied to land, placed on a surface disposal site, or fired in a sludge incinerator as defined in 40 CFR 503, the Discharger shall submit an annual report to USEPA and the Regional Water Board containing monitoring results and pathogen and vector attraction reduction requirements as specified by 40 CFR 503, by February 19 of each year, for the period covering the previous calendar year.

(7) Sludge disposed of in a municipal solid waste landfill shall meet the requirements of 40 CFR 258. In the annual self-monitoring report, the Discharger shall include the amount of sludge disposed of and the landfill to which it was sent.

(8) Permanent on-site sludge storage or disposal activities are not authorized by this Order. A report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity.

(9) Sludge Monitoring and Reporting Provisions of this Order (Attachment G) apply to sludge handling, disposal, and reporting practices.

(10) The USEPA and the Regional Water Board may amend this Order prior to expiration if changes occur in applicable state and federal sludge regulations.

6. Combined Sewer Overflow (CSO) Control Policy Requirements (Wet Weather Controls)

In accordance with the Nine Minimum Controls of the USEPA *Combined Sewer Overflow Control Policy* (1994) and the Discharger's Long Term Control Plan, the Discharger shall maximize flow to the Plant and pollutant removal during wet weather.

a. Combined Sewer Operations and Maintenance Plan. The Discharger shall revise and update its Combined Sewer Operations and Maintenance Plan as necessary to ensure compliance with the Nine Minimum Controls and the Long Term Control Plan requirements of the Combined Sewer Overflow Control Policy. The Discharger shall submit a revised plan to the Regional Water Board by September 30, 2010, and following any subsequent revisions during the term of this Order.

b. Nine Minimum Controls. The Discharger shall continue to implement and comply with the following technology-based requirements.

(1) *Conduct Proper Operations and Regular Maintenance Programs*. The Discharger shall implement its Combined Sewer Operations and Maintenance Plan, which shall include the elements described below. The Discharger shall update the plan to incorporate changes to the system and shall operate and maintain the system according to the plan. The Discharger shall maintain records to document the implementation of the Combined Sewer Operations and Maintenance Plan.

(i) *Designation of a Manager for CSOs.* The Discharger shall designate a person to be responsible for the wastewater collection system and serve as the contact person regarding the operation of the combined sewer system. The Discharger shall notify USEPA and the Regional Water Board within 90 days of the designation of a new contact person.

(ii) *Inspection and Maintenance of the Combined Sewer System.* The Discharger shall:

- Inspect and maintain all overflow structures, regulators, pumping stations, and tide gates to ensure that they are in good working condition and adjusted to minimize overflows and prevent tidal inflow.

- Inspect each overflow outfall at least once per year. The inspection shall include, but not be limited to, entering the regulator structure, if accessible; determining the extent of debris and grit buildup; and removing any debris that may constrict flow, cause blockage, and result in a dry weather CSO. For overflow outfalls that are inaccessible,

the Discharger may perform a visual check of the overflow pipe to determine whether CSOs have occurred or could potentially occur during dry weather flow conditions.

- Record the results of the inspections in a maintenance log.

(iii) *Provision for Trained Staff*. The Discharger shall provide adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this Order. Each member of the staff shall receive appropriate training.

(iv) *Allocation of Funds for Operation and Maintenance*. The Discharger shall allocate adequate funds specifically for CSO operation and maintenance activities.

(2) *Maximize Use of the Collection System for Storage.* The Discharger shall continue to maximize the use of the collection system for in-line storage. (Note that this provision refers to the use of collection system piping, not the storage basins/transports, for storage.)

(3) *Review and Modify Pretreatment Program*. The Discharger shall continue to implement selected controls to minimize the impact of non-domestic discharges to its collection system. At three-year intervals, the Discharger shall re-evaluate whether additional modifications to its pretreatment program are feasible or practical. The Discharger shall maintain records to document this evaluation and to document implementation of the selected controls to minimize non-domestic discharges to its collection system.

(4) *Maximize Flow to Plant*. The Discharger shall operate the Plant at maximum treatable flow during wet weather flow conditions. The Discharger shall report rainfall and influent flow data to USEPA and the Regional Water Board with SMRs required by the attached Monitoring and Reporting Program (Attachment E.)

Consistent with the objectives of the Combined Sewer Operations and Maintenance Plan, the Discharger shall ensure that the facility Operation and Maintenance Plan is implemented to maximize the volume of wastewater treated at the Plant and discharged via Discharge Point 001, consistent with the hydraulic capacities of the storage, transport, treatment, and disposal facilities.

(5) *Prohibit CSOs During Dry Weather*. Dry weather CSOs from Discharge Points CSO-001 through CSO-007 or other locations are prohibited. All CSOs must be responded to in accordance with Regional Standard Provisions, and Monitoring, and Reporting Requirements (Section V.E.2) as provided in Attachment G. The Discharger shall document in the inspection log each CSO event, the duration of the event, the cause of the event and the corrective measures taken.

(6) *Control Solid and Floatable Materials in CSODs.* The Discharger shall continue to implement measures to control solid and floatable materials in CSODs. These measures shall include:

(i) ensuring that all the CSO structures are baffled or that other means are used to reduce the volume of floatable materials in CSOs, and

(ii) removing solid or floatable materials captured in the storage/transport system in an acceptable manner prior to discharge to receiving waters.

(7) *Develop and Implement a Pollution Prevention Program*. The Discharger shall continue to implement a Pollution Prevention Program focused on reducing the impact of CSOs on receiving waters. This Pollution Prevention Program is authorized by federal regulations on CSOs. This program shall be developed and implemented in accordance with Provision VI.C.3.

(8) *Notify the Public of Overflows*. The Discharger shall continue to implement a public notification plan to inform citizens of when and where CSOs occur. The process shall include:

(i) a mechanism to alert persons using all receiving waters affected by overflows.

(ii) a system to determine the nature and duration of conditions resulting from overflows that are potentially harmful to users of these receiving waters.

Specifically, warning signs must be posted at beach locations where water contact recreation occurs whenever there is a discharge from the diversion structures. Such warning signs shall be posted on the same days as the overflow events unless the overflow occurs after 4:00 p.m., in which case, signs shall be posted by 8:00 a.m. The Discharger shall maintain records documenting public notification.

(9) *Monitor to Effectively Characterize CSO Impacts and the Efficacy of CSO Controls*. To comply with the Nine Minimum Controls as well as post construction compliance monitoring under the CSO Control Policy, the Discharger shall continue regular monitoring necessary to evaluate CSO controls. The monitoring shall build on the efforts and results of the Discharger described in its August 30, 2007, report, *Westside Study to Effectively Characterize Overflow Impacts and the Efficacy of Combined Sewer Overflow Controls.* The Discharger shall provide a summary report annually and submit a final report to USEPA and the Regional Water Board by September 30, 2014. The report shall include:

(i) Summary of existing data in order to show status and trends;
(ii) Monitoring of wet weather discharges;
(iii) Evaluation of results in order to effectively characterize CSO impacts and efficacy of CSO controls;

(iv) Review of CSO impacts and, if necessary, proposal of revisions to the CSOD control program, including the Nine Minimum Controls;
(v) Recreational use surveys, as described in the MRP, following CSO events, to track changes in uses over time; and
(vi) Summary of post-construction monitoring results and an analysis of CWA compliance with water quality standards and the protection of beneficial uses.

If water quality standards are not being attained, the Discharger shall submit a revised CSO control program that, once implemented, will attain water quality standards. The Discharger may also wish to consider the review and appropriate revision of water quality standards and implementation procedures on CSO-impacted waters.

c. Long-Term Control Plan. The Discharger shall comply with the following provisions:

(1) The Discharger shall optimize the operation of its system to minimize combined sewer discharges and maximize pollutant removal during all wet weather conditions.

(2) The Discharger shall capture for treatment, or storage and subsequent treatment, 100 percent of the combined sewage flow collected in the combined sewage system during precipitation events. Captured combined sewage shall be directed to either the Plant or the storage/transports. All combined sewage captured shall receive a minimum of the following treatment:

- Secondary treatment (at Plant), or
- Primary treatment (at Plant), or
- Flow-through treatment (in storage/transports).

(3) The Discharger shall comply with the following for wet weather Plant operations:

(i) The Plant shall have an influent flow rate of at least 43 MGD prior to initiating decant from the Westside Transport to Discharge Point 001.

(ii) The flow rate at Discharge Point 001 shall be at least 165 MGD within 2 hours of a discharge into the Pacific Ocean from Discharge Point CSD-002 or CSD-003.

(iii) The Sea Cliff Pump Station I shall be operated at maximum capacity prior to an overflow at Discharge Point CSD-005.

(iv) The Sea Cliff Pump Station II shall be operated at maximum capacity prior to an overflow at Discharge Point CSD-007.

(4) The Discharger shall comply with the following after rains subside:

(i) Treatment at the Plant shall continue until the Westside Drainage Basin storage/transports are empty of stormwater flows.

(ii) If the National Weather Service predicts a 30 percent chance of rain within the next 24 hours:

- Pumping shall be maximized from the Westside storage/transport via the Westside Pump Station to the Oceanside Plant and Discharge Point 001 until the level of combined sewage in the East Box is between 5 and 10 feet.

- Pumping shall be maximized from the Westside storage/transport via the Westside Pump Station to the Plant and/or Discharge Point 001 until the level of combined sewage in the West Box is essentially zero.

(iii) If the National Weather Service does not predict rain within the next 24 hours:

- Pumping shall be maximized from the Westside storage and transport until the level of combined sewage in the West Box is zero and total flow to the Oceanside Plant is less than 43 MGD.

7. Sensitive Areas Feasibility Report for Overflows

The Discharger shall submit a report, by December 31, 2011, implementing the "consideration of sensitive areas" section of the Combined Sewer Overflow Control Policy. At a minimum, the Discharger shall assess techniques (including green infrastructure and low impact development) to eliminate or relocate CSODs from sensitive areas and discuss the level of treatment for any remaining CSODs necessary to meet water quality standards.

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

A. General

Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in the Monitoring and Reporting Program (Attachment E) and Fact Sheet Section VI. For purposes of reporting and administrative enforcement, the Discharger shall be deemed out of compliance with single-sample effluent limitations if the concentration of the pollutant in the monitoring sample is greater than the effluent limitation. For averaged or median-based effluent limitations, the Discharger shall be deemed out of compliance if the average or median concentration in the data set is greater than the effluent limitation.

B. Multiple Sample Data

When determining compliance with a pollutant limit and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of “Detected, but Not Quantified” (DNQ) or “Not Detected” (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle, unless one or both of these points are ND or DNQ, in which case the median value shall be the lower of the two data points, where DNQ is lower than a value, and ND is lower than DNQ.

ATTACHMENT A – DEFINITIONS

Acute Toxicity

a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{\text{96-hr LC 50\%}}$$

b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard marine test species as specified in Ocean Plan Appendix III. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log (100 - S)}{1.7}$$

where:

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

Areas of Special Biological Significance (ASBS)
Those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable. All Areas of Special Biological Significance are also classified as a subset of STATE WATER QUALITY PROTECTION AREAS.

Average Dry Weather Discharge
The average dry weather discharge is the average discharge rate over three consecutive months of dry weather (i.e., a wet weather day has not occurred)

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Chlordane
Shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

Chronic Toxicity
This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Ocean Plan Appendix III.

Combined Sewer System
A combined sewer system (CSS) is a wastewater collection system owned by a State or municipality which conveys sanitary wastewaters (domestic, commercial, and industrial wastewaters) and stormwater through a single-pipe system to a Publicly Owned Treatment Works (POTW) Treatment Plant.

Combined Sewer Overflow
A combined sewer overflow (CSO) is the discharge from a combined sewer system at a point prior to the POTW Treatment Plant.

Combined Sewer Overflow Discharge
A combined sewer discharge (CSOD) is an authorized, treated discharge from the near-shore discharge structures, offshore discharge structures, or treatment facilities during a wet weather day.

Daily Discharge
Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

DDT
Shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.

Degrade
Degradation shall be determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

Detected, but Not Quantified (DNQ)
Sample results that are less than the reported Minimum Level, but greater than or equal to the laboratory's MDL.

Dichlorobenzenes
Shall mean the sum of 1,2- and 1,3-dichlorobenzene.

Downstream Ocean Waters
Waters downstream with respect to ocean currents.

Dredged Material
Any material excavated or dredged from the navigable waters of the United States, including material otherwise referred to as "spoil".

Dry Weather Day
Any day that is not a wet weather day. During dry weather, all wastewater collected is treated to secondary levels at the Plant and discharged at Discharge Point 001.

Enclosed Bays
Indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes but is not limited to: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

Endosulfan
The sum of endosulfan-alpha and -beta and endosulfan sulfate.

Estuaries and Coastal Lagoons are waters at the mouths of streams that serve as mixing zones for fresh and ocean waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant mixing of fresh and salt water occurs in the open coastal waters. The waters described by this definition include but are not limited to the Sacramento-San Joaquin Delta as defined by Section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride).

HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

Initial Dilution
The process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and non-buoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Water Board, whichever results in the lower estimate for initial dilution.

Instantaneous Maximum Effluent Limitation
The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Kelp Beds
For purposes of the bacteriological standards of the Ocean Plan, are significant aggregations of marine algae of the genera Macrocystis and Nereocystis. Kelp beds include the total foliage canopy of Macrocystis and Nereocystis plants throughout the water column.

Mariculture
The culture of plants and animals in marine waters independent of any pollution source.

Material
(a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of the Ocean Plan relating to waste disposal, dredging and the disposal of dredged material and fill, MATERIAL means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, DREDGED MATERIAL.

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant.

Method Detection Limit (MDL)
The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B.

Minimum Level (ML)
The concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Natural Light
Reduction of natural light may be determined by the Regional Water Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Regional Water Board.

Not Detected (ND)
Those sample results less than the laboratory's MDL.

Ocean Waters
The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the state could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

PAHs (polynuclear aromatic hydrocarbons)
The sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

PCBs (polychlorinated biphenyls)
The sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260.

Pollutant Minimization Program (PMP)
PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce

all potential sources of pollutants of concern through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Reported Minimum Level
The ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix II of the Ocean Plan in accordance with section III.C.5.a. of the Ocean Plan or established in accordance with section III.C.5.b. of the Ocean Plan. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the reported ML.

Satellite Collection System
The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Shellfish
Organisms identified by the California Department of Public Health as shellfish for public health purposes (i.e., mussels, clams and oysters).

Significant Difference
Defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

Six-Month Median Effluent Limitation
The highest allowable moving median of all daily discharges for any 180-day period.

State Water Quality Protection Areas
Non-terrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) that were previously designated by the State Water Board in Resolution Numbers 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by the Ocean Plan.

TCDD Equivalents
In this Order, TCDD Equivalents means the sum of the concentrations of chlorinated dibenzodioxins and chlorinated dibenzofurans multiplied by their Toxicity Equivalency Factor

(TEF) and their Bioaccumulation Equivalency Factor (BEF). This is based on 40 CFR Part 132, Appendix F, Procedure 4, Tables 1 and 2.

$(TEC)_{TCDD}$= The sum of $(C)_x(TEF)_x(BEF)_x$

Where $(TEC)_{TCDD}$ = TCDD Equivalents concentration in effluent

$(C)_x$ = concentration of total congener x in effluent

$(TEF)_x$ =TCDD toxicity equivalency factor for congener x

$(BEF)_x$ = TCDD bioaccumulation equivalency factor for congener x

Toxicity Equivalency Factor and Bioaccumulative Equivalency Factors are listed in the table below.

Congener	Toxicity Equivalency Factor (TEF)	Bioaccumulation Equivalency Factors (BEF)
2,3,7,8-TCDD	1.0	1.0
1,2,3,7,8-Pe-CDD	0.5	0.9
1,2,3,4,7,8-HxCDD	0.1	0.3
1,2,3.6,7,8-HxCDD	0.1	0.1
1,2,3,7,8,9-HxCDD	0.1	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.05
OCDD	0.0003	0.01
2,3,7,8-TCDF	0.1	0.8
1,2,3,7,8-PeCDF	0.03	0.2
2,3,4,7,8-PeCDF	0.3	1.6
1,2,3,4,7,8-HxCDF	0.1	0.08
1,2,3,6,7,8-HxCDF	0.1	0.2
2,3,4,6,7,8-HxCDF	0.1	0.7
1,2,3,7,8,9-HxCDF	0.1	0.6
1,2,3,4,6,7,8-HpCDF	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.4
OCDF	0.0003	0.02

Toxicity Reduction Evaluation (TRE)
A study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation

of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

Waste
As used in the Ocean Plan, waste includes a discharger's total discharge, of whatever origin, i.e., gross, not net, discharge.

Water Reclamation
The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

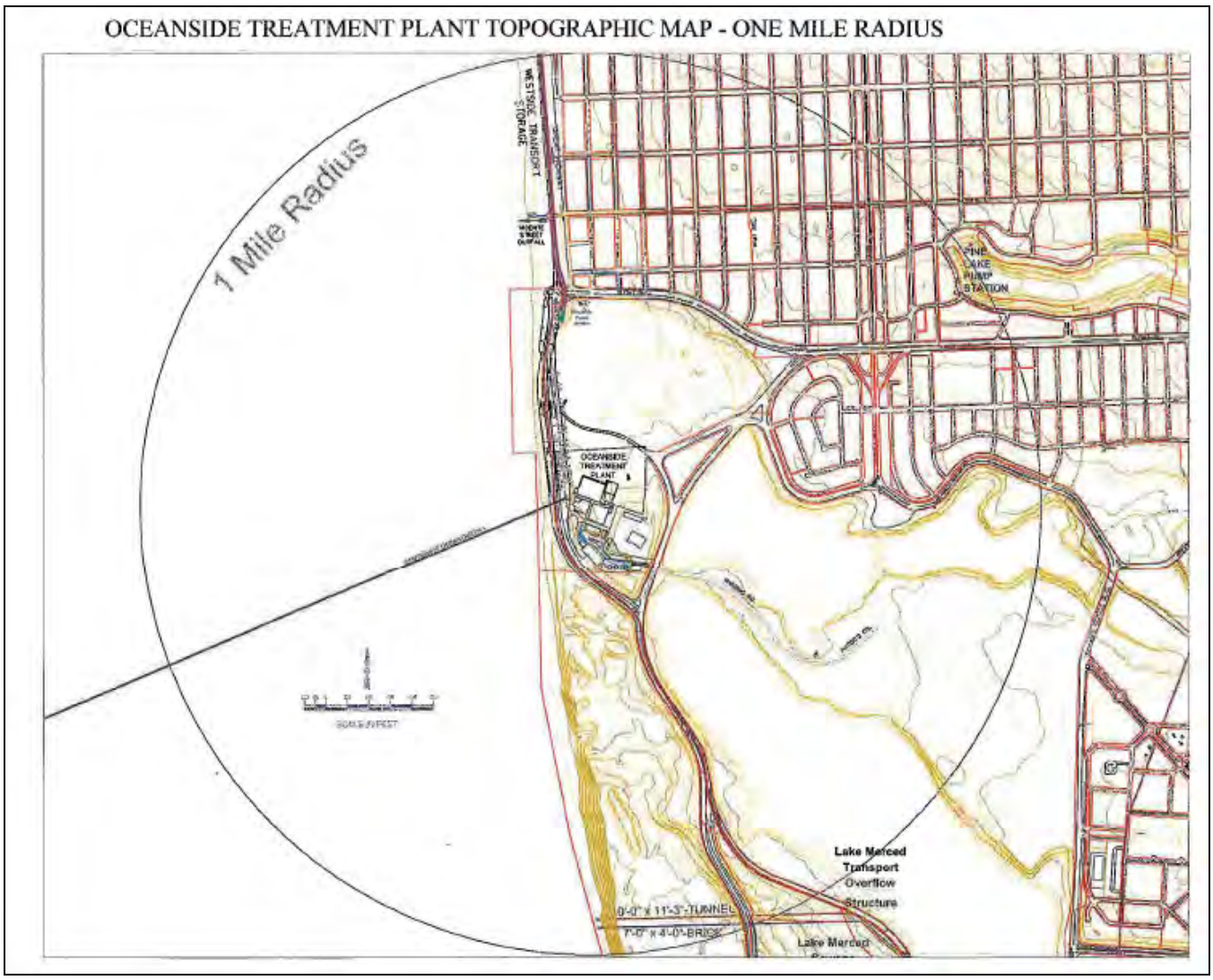
Wet Weather Day
A wet weather day is any day in which one of the following conditions exists as a result of rainfall:

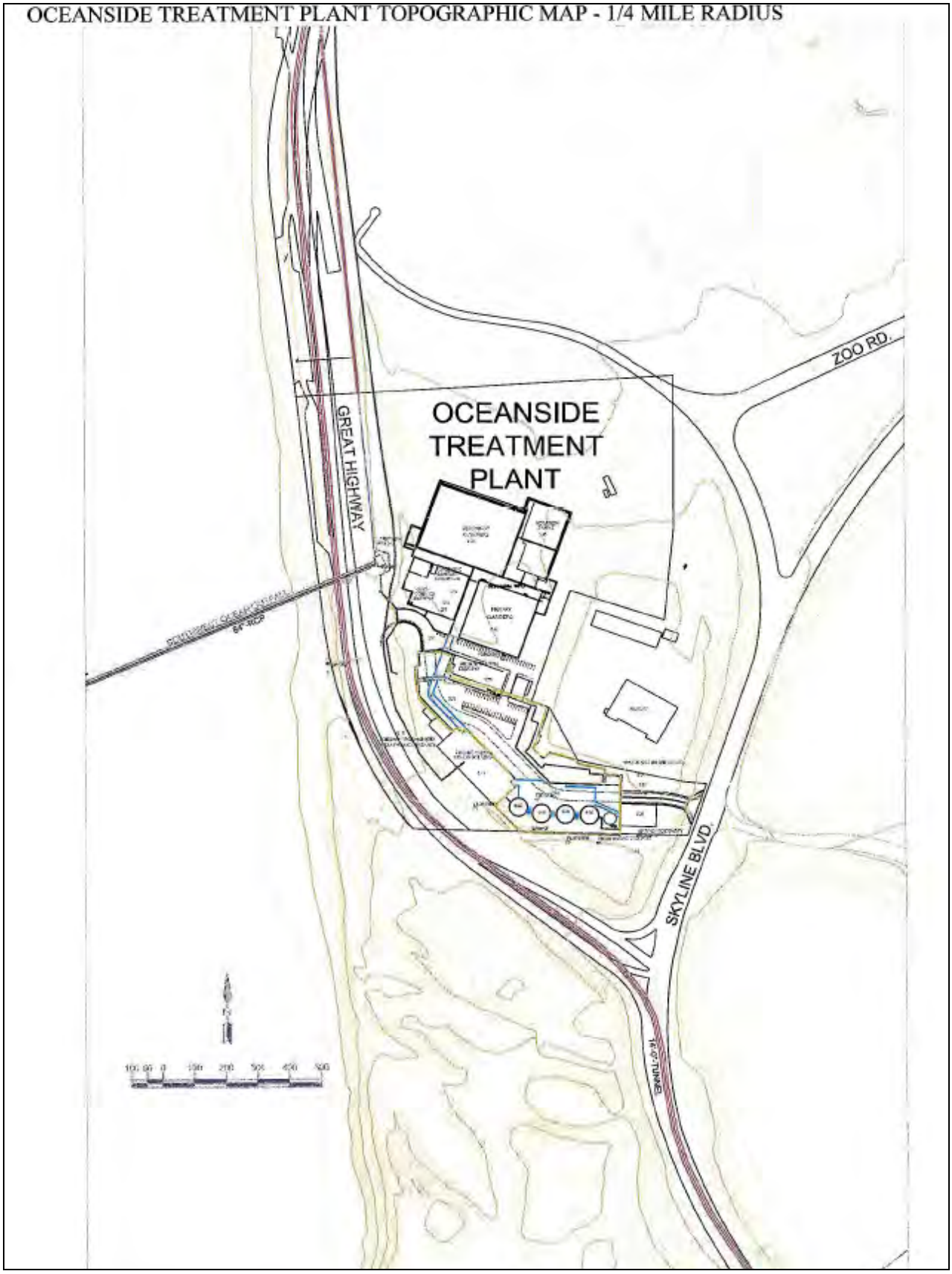
1. Instantaneous influent flow to the Plant exceed 43 MGD; or

2. The average daily influent flow concentration of TSS or BOD is less than 100 mg/L; or

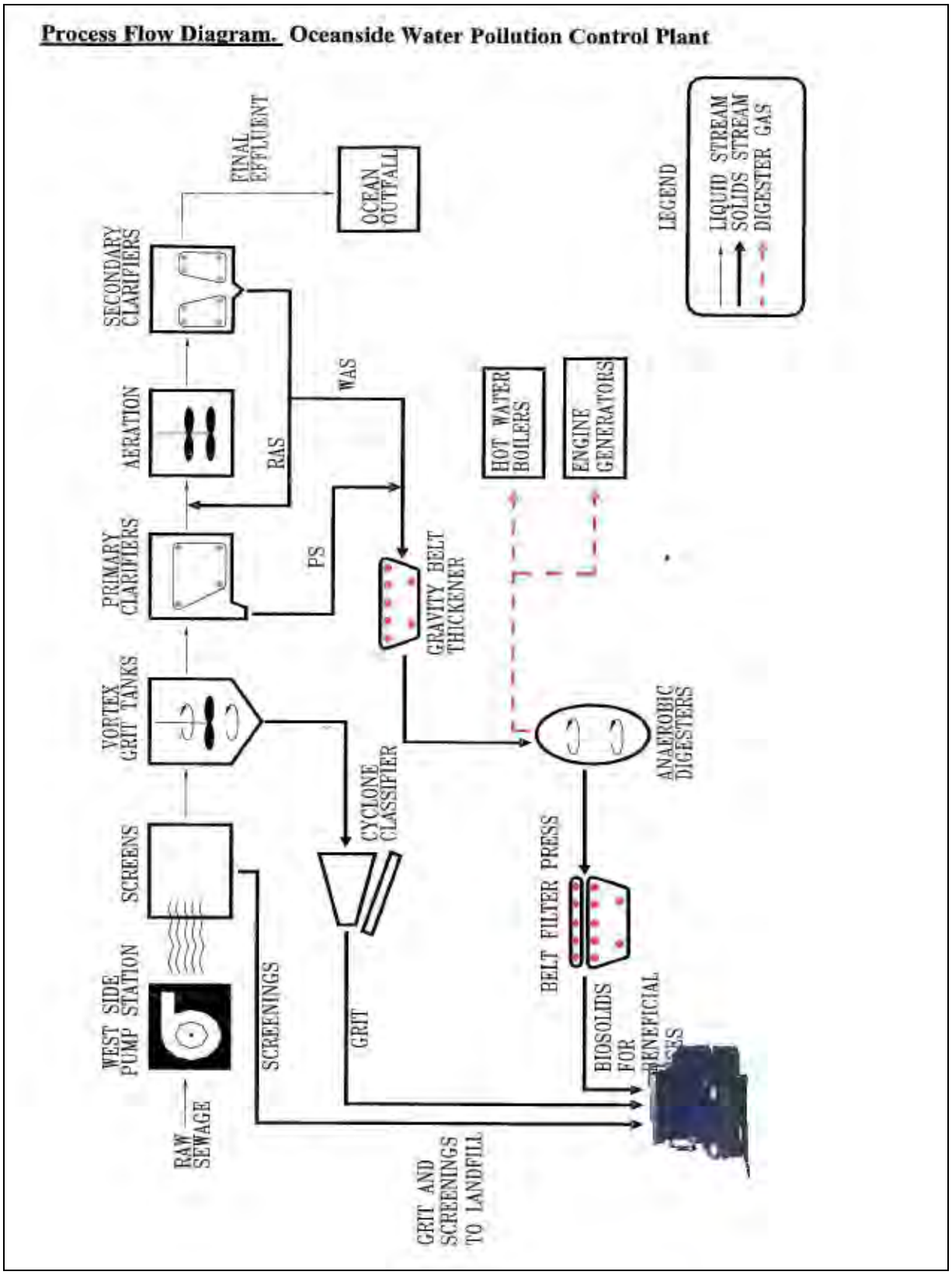
3. The Westside storage/transport flow elevation exceeds 0 feet in the West Box or 18 feet in the East Box. (Flow is decanted to the West Box from the East Box only when the East Box storage level exceeds 18 feet.)

ATTACHMENT B – MAP

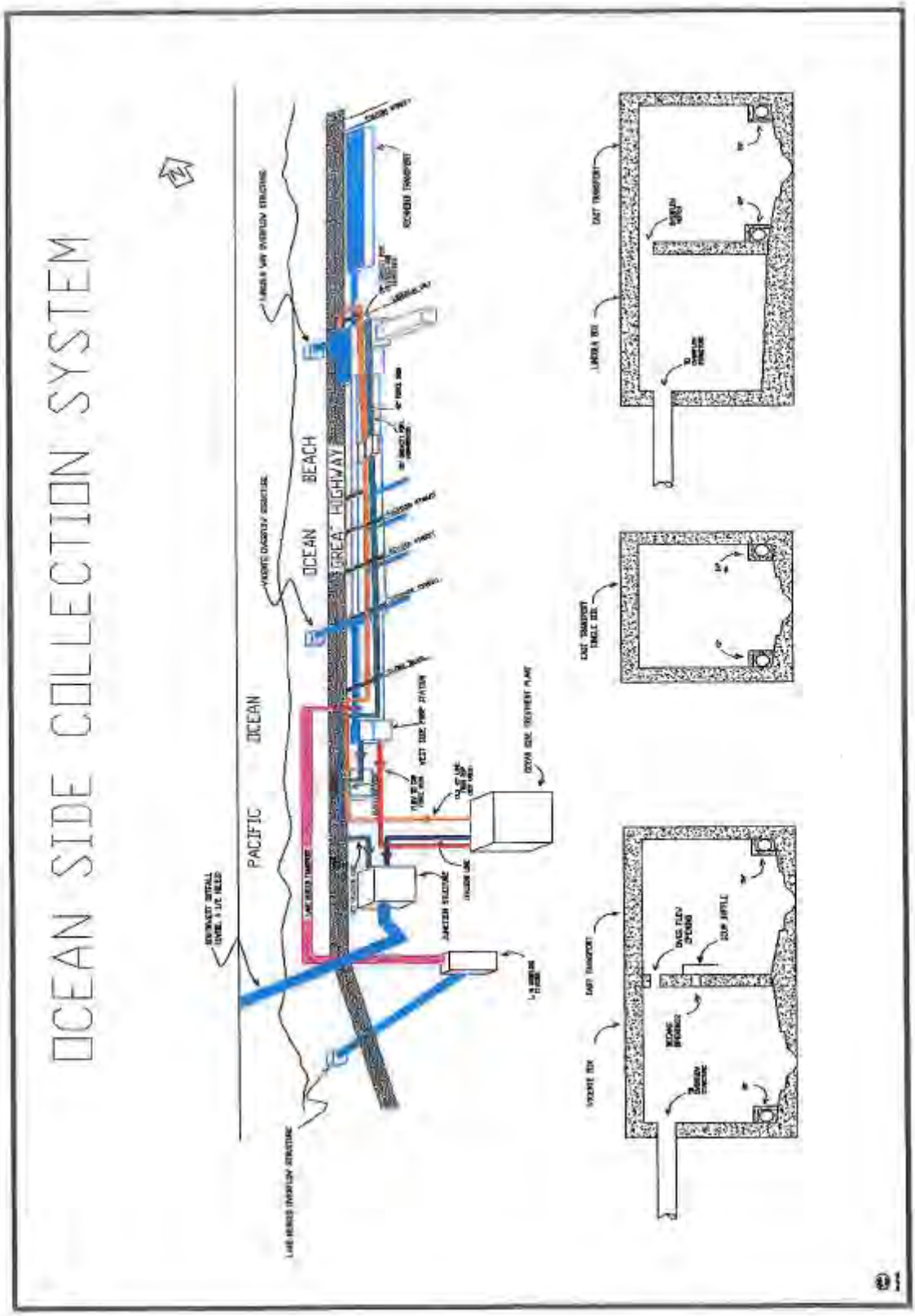



OCEANSIDE TREATMENT PLANT TOPOGRAPHIC MAP - 1/4 MILE RADIUS
OCEANSIDE TREATMENT PLANT
GREAT HIGHWAY
ZOO RD.
SKYLINE BLVD.

ATTACHMENT C – FLOW SCHEMATIC



Process Flow Diagram. Westside Transport



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR §122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR §122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order, 40 CFR §22.41(c).

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment, 40 CFR §122.41(d).

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order, 40 CFR §122.41(e).

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR §122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR §122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR §122.41(i); Water. Code, §13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR. § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR §122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR §122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 CFR §122.41(i)(4).)

G. Bypass

1. Definitions

a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR §122.41(m)(1)(i).)

b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR §122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR §122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR §122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR §22.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR §122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR §122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR §122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR §122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR §122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation, 40 CFR §122.41(n)(1).

Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review, 40 CFR §122.41(n)(2).

6. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR §122.41(n)(3)):

a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR §122.41(n)(3)(i));

b. The permitted facility was, at the time, being properly operated (40 CFR §122.41(n)(3)(ii));

c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR §122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above,. 40 CFR §122.41(n)(3)(iv).

7. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition,. 40 CFR §122.41(f).

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit,. 40 CFR §122.41(b).

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code, 40 CFR §122.41(l)(3); §122.61.

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR §122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order, 40 CFR §122.41(j)(4); §122.44(i)(1)(iv).

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 CFR §122.41(j)(2))

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR §122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 CFR §122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR §122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR §122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR §122.41(j)(3)(v)); and

6. The results of such analyses, 40 CFR §122.41(j)(3)(vi).

C. Claims of confidentiality for the following information will be denied (40 CFR § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR §122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 CFR §122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order, 40 CFR §122.41(h); Water Code, §13267.

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR §122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR §122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR §122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR §122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR §122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR §122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware

that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 CFR §122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR §122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR §122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR §122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR §122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date, 40 CFR §122.41(l)(5).

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR §122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR §122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR §122.41(l)(6)(ii)(A).)

b. Any upset that exceeds any effluent limitation in this Order. (40 CFR §122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR §122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR §122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR §122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements, 40 CFR §122.41(l)(2).

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above, 40 CFR §122.41(l)(7).

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information, 40 CFR §122.41(l)(8).

VI. STANDARD PROVISIONS – ENFORCEMENT

The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

Additional Provisions – Notification Levels

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 CFR §122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 CFR §122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 CFR §122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 CFR §122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

NPDES regulations at 40 CFR 122.48 require that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) §13267 and §13383 authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, that implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with the MRP and *Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits*, July 2009 (**Attachment G**). The MRP may be amended by the Executive Officer pursuant to USEPA regulations 40 CFR122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and the Regional Standard Provisions, the MRP prevails.

B. Sampling is required during the entire year when discharging. All analyses shall be conducted using current USEPA methods, or methods that have been approved by the USEPA Regional Administrator pursuant to 40 CFR 136.4 and 136.5, or if 40 CFR 136 methods are not available, equivalent methods that are commercially and reasonably available. Analytical methods shall provide sufficient quantification of sampling parameters and constituents to evaluate compliance with applicable effluent limits and to perform reasonable potential analyses. Equivalent methods shall be more sensitive than those specified in 40 CFR 136, shall be specified in the permit, and shall be approved for use by the Executive Officer following consultation with the State Water Quality Control Board's Quality Assurance Program.

C. For compliance and reasonable potential monitoring, analyses shall be conducted using commercially available and reasonably achievable detection levels that are lower than applicable water quality objectives or criteria, or the effluent limitations, whichever are lower. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels (MLs).

MLs are the concentrations at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

As shown in Table II-3 of Ocean Plan Appendix II, the test method the Discharger may use for compliance with mercury effluent limitations and reasonable potential monitoring is Cold Vapor Atomic Absorbance with a ML of 0.2 µg/L.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	Formerly Sampling Station A-003. At any point in the facility headworks at which all waste tributary to the system is present and preceding any phase of treatment, and exclusive of any return flows or process side streams that would significantly impact the quantity or quality of the influent.
001	EFF-001	Formerly Sampling Station E-007. At any point in the sewerage system following all phases of treatment and prior to contact with the receiving water or any effluent from the Westside Wet Weather Facilities.
CSD-001 through CSD-007	EFF-CSD	A representative monitoring location for the Westside Wet Weather Facilities, previously identified as a point prior to discharge from the Vicente Box, where all waste tributary to the diversion structure is present and treatment is complete.
---	SRF-15 east	Near shore receiving water along Baker Beach, in the surf east of SRF-15
---	SRF-15	Near shore receiving water along Baker Beach, in the surf at the terminus of Lobos Creek
---	SRF-16	Near shore receiving water along Baker Beach, in the surf opposite the Sea Cliff 2 Pump Station
---	SRF-17	Near shore receiving water in the surf along China Beach opposite the Sea Cliff 1 Pump Station
---	SRF-18	Near shore receiving water along Ocean Beach, in the surf at the foot of Balboa Street
---	SRF-19	Near shore receiving water along Ocean Beach, in the surf at the foot of Lincoln Way, opposite the Lincoln Overflow Discharge Structure
---	SRF-20	Near shore receiving water along Ocean Beach, in the surf at the foot of Pacheco Street
---	SRF-21	Near shore receiving water along Ocean Beach, in the surf at the foot of Vicente Street, opposite the Vicente Overflow Discharge Structure
---	SRF-21.1	Near shore receiving water along Ocean Beach, in the surf at the foot of Sloat Blvd
---	SRF-22	Near shore receiving water along Ocean Beach, in the surf at Fort Funston, opposite the Lake Merced Overflow Discharge Structure.

III. INFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor Plant influent at Monitoring Location INF-001 in accordance with the following table.

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow rate [1]	MGD	Continuous	Daily	Meter
$BOD^{(2)}_5$	mg/L	C-24	1/W	[3]
TSS[4]	mg/L	C-24	5/W	[3]
pH	Standard units	Grab	5/W	[3]

[1] For influent flows, the following shall be reported:

Daily: Total Daily Flow Volume (million gallons) plus total daily influent flow originating as effluent/decant from the Westside Transport

Monthly: Minimum, Average, and Maximum Daily Flow (MGD)

Monthly: Total Flow Volume (million gallons) plus total monthly influent flow originating as effluent/decant from the Westside Transport

[2] Biochemical Oxygen Demand

[3] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

[4] Total Suspended Solids

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

The Discharger shall monitor effluent at Monitoring Location EFF-001 as follows.

Table E-3. Effluent Monitoring, Monitoring Location EFF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Flow rate [1]	MGD	Cont.	Daily	Meter
BOD_5	mg/L	C-24	1/W	[2]
TSS	mg/L	C-24	5/W	[2]
Grease and Oil [3]	mg/L	C-24	1/Q	[2]
Turbidity	NTU	C-24	1/Q	[2]
pH	Standard Units	Grab	5/W	[2]
Ammonia, total	mg/L N	C-24	1/Q	[2]
Chronic Toxicity [4]	TUc	C-24	1/Q	[2]
Mercury [5]	µg/L	C-24	1/M	[2]
TCDD Equivalents	µg/L	C-24	1/Y	[2]
Table B Inorganic Pollutants [6]	µg/L	C-24	1/Q	[2]
Remaining Table B Pollutants [7]	µg/L	C-24	1/Y	[2]

[1] For effluent flows, the following shall be reported:

Daily: Total Daily Flow Volume (million gallons)

Monthly: Minimum, Average, and Maximum Daily Flow (MGD)

Monthly: Total Flow Volume (million gallons)

(2) Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. The methods shall meet the lowest minimum levels (MLs) specified in Ocean Plan Appendix II. Where no method is specified for a given pollutant, the method shall be approved by the Regional Water Board. For TCDD congeners, the Discharger shall use USEPA Method 1613 and the MLs shall be as given below. Estimated congener concentrations (below the ML) shall not be included when adding the congener concentrations to calculate TCDD equivalents.

Parameter	Minimum Level
2,3,7,8-TetraCDD	5 pg/L
1,2,3,7,8-PentaCDD	25 pg/L
1,2,3,4,7,8-HexaCDD	25 pg/L
1,2,3,6,7,8-HexaCDD	25 pg/L
1,2,3,7,8,9-HexaCDD	25 pg/L
1,2,3,4,6,7,8-HeptaCDD	25 pg/L
OctaCDD	50 pg/L
2,3,7,8-TetraCDF	5 pg/L
1,2,3,7,8-PentaCDF	25 pg/L
2,3,4,7,8-PentaCDF	25 pg/L
1,2,3,4,7,8-HexaCDF	25 pg/L
1,2,3,6,7,8-HexaCDF	25 pg/L
1,2,3,7,8,9-HexaCDF	25 pg/L
2,3,4,6,7,8-HexaCDF	25 pg/L
1,2,3,4,6,7,8-HeptaCDF	25 pg/L
1,2,3,4,7,8,9-HeptaCDF	25 pg/L
OctaCDF	50 pg/L

(3) Grease and oil samples shall consist of 3 grab samples taken at 8 hour intervals during the sample day, with each grab being collected in a glass container and analyzed separately. Results shall be expressed as a weighted average of the three results, based on the instantaneous flow rates at the time each sample was collected.

(4) Samples for whole effluent toxicity tests shall be collected coincident with routine composite effluent samples. Refer to Section V of this MRP for whole effluent toxicity testing requirements.

(5) The Discharger may, at its option, sample effluent mercury either as grab or as 24-hour composite samples.

(6) The Table B inorganic pollutants are those inorganic constituents listed in Ocean Plan Table B, excluding mercury.

(7) The remaining Table B pollutants are the pollutants listed in Ocean Plan Table B, excluding those pollutants with monitoring requirements established elsewhere in this table (i.e., inorganics, mercury, chronic toxicity, and radioactivity). Because effluent is not chlorinated, chlorine is also excluded.

B. Monitoring Locations EFF-CSD-0xx

1. During each CSOD occurrence, the Discharger shall monitor discharges at the appropriate Monitoring Location EFF-CSD-0xx in accordance with the following elements established by Table E-4. Monitoring is required only during discharge events, which may last for less than one hour or for more than one day. Composite sampling shall commence within one hour after a discharge begins or as soon as

reasonably practicable with due consideration for safety. and shall continue until the discharge stops; however, the compositing period shall not exceed 24 hours.

Table E-4. Effluent Monitoring, Monitoring Location EFF-CSD

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Flow	MGD	Cont.	Continuous during discharge	Meter (1)
BOD_5	mg/L	C-X (2)	1/occurrence	(7)
Total Suspended Solids	mg/L	C-X (2)	1/occurrence	(7)
Ammonia	mg/L N	C-X (2)	1/occurrence	(7)
Grease and Oil	mg/L	C-X (2)	1/occurrence	(7)
pH	Std Units	C-X (2)	1/occurrence	(7)
Table B Inorganics (3)	µg/L	C-X (2)	1/occurrence	(7)
Pesticides and PCBs (4)	µg/L	C-X (2)	1/occurrence	(7)
PAHs (5)	µg/L	C-X (2)	1/occurrence	(7)
Remaining Table B Pollutants (6)	µg/L	C-X (2)	1/year	(7)

(1) Alternately, flow may be estimated using models.

(2) Composite sample of 1 grab sample per hour over X hours, where X = the duration of the discharge but not exceeding 24 hours

(3) The Table B inorganic pollutants are those inorganic constituents listed in Table B of the 2005 Ocean Plan - arsenic, cadmium, hexavalent chromium, copper, lead, mercury, nickel, selenium, silver, zinc, and cyanide.

(4) As identified in EPA Method 608,

(5) As identified by the Ocean Plan and by Attachment A of this Order (Definitions).

(6) The remaining Table B pollutants are those listed in Ocean Plan Table B, excluding those with monitoring requirements established elsewhere in this table, and radioactivity. These pollutants shall be monitored during a CSOD occurrence.

(7) Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

2. The Discharger shall record the following information for each combined sewer overflow discharge event from discharge points CSD-001, CSD-002, CSD-003, CSD-005, and CSD-007.

a. Date and time that CSOD started;

b. Frequency, duration, and volume of CSOD;

c. Rainfall intensity and amount (hourly data, aggregated);

d. Data to support discharge volume estimate (if estimated); and

e. Documentation of conformance with the Operation Plan for wet weather facilities.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Chronic Toxicity Monitoring Requirements

1. *Sampling.* The Discharger shall collect 24-hour composite samples of the effluent for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.

2. *Test Species.* The Discharger shall utilize the echinoderm embryo development test, with either the sand dollar (*Dendraster excentricus*) or the purple sea urchin (*Strongylocentrotus purpuratus*), such that the test species used is in gravid condition. The Discharger is required to re-screen for the most sensitive species once during the term of this permit and shall submit the chronic toxicity screening report to the Regional Water Board no later than 180 days prior to the Order expiration date with the application for permit reissuance.

3. *Methodology.* Sample collection, handling and preservation shall be in accordance with USEPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in **Appendix E-2**. These are "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms," currently EPA/600/R-95/136, August 1995. Any methodology exceptions must be granted by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

4. *Dilution Series*. The Discharger shall conduct tests at the in-stream waste concentration (IWC), four concentrations bracketing the IWC, and a control.

B. Chronic Toxicity Reporting Requirements

1. Routine Reporting. Toxicity test results for the current reporting period shall include, at a minimum, for each test:

   (i) Sample date(s)

   (ii) Test initiation date

   (iii) Test species

   (iv) End point values for each dilution (e.g., number of young, growth rate, percent survival)

   (v) NOEC value(s) in percent effluent

   (vi) IC15, IC25, IC40, and IC50 values (or EC15, EC25 ... etc.) as percent effluent

   (vii) TUc values (100/NOEC)

(viii) Mean percent mortality (±s.d.) after 96 hours in 100% effluent (if applicable)

(ix) NOEC and LOEC values for reference toxicant test(s)

(x) IC50 or EC50 value(s) for reference toxicant test(s)

(xi) Available water quality measurements for each test (pH, D.O., temperature, conductivity, hardness, salinity, ammonia)

2. Compliance Summary. The results of the chronic toxicity testing shall be provided in the self-monitoring report and shall include a summary table of chronic toxicity data from at least eleven of the most recent samples. The information in the table shall include items listed above under 1 specifically item numbers (i), (iii), (v), (vi) (IC25 or EC25) and (vii).

C. Quality Assurance

1. Concurrent testing with reference toxicants shall be conducted.

2. If either the reference toxicant test or effluent test does not meet all test acceptability criteria as specified in the test method manual, then the Discharger must re-sample and re-test at the earliest time possible.

3. Control and dilution water should be obtained from an unaffected area of the receiving water. If the dilution water used is different from the culture water, a second control using culture water should be used. If it is not practicable to collect samples from the unaffected area of the receiving water then a laboratory prepared control and dilution water should be used.

4. If the effluent sample is significantly different from the control sample, and the minimum significant difference (% MSD) is less than 5%, the Discharger at its option may exclude this result and re-test. If control sample variability in the effluent test exceeds the upper limit of 20% MSD which is the same as the reference toxicant, the Discharger shall re-sample and re-test as soon as possible.

D. Toxicity Reduction Evaluation (TRE)

If monitoring shows a violation of the chronic toxicity effluent limitation, the Discharger shall conduct a TRE and take all reasonable steps to reduce toxicity once the source of toxicity is identified. The Discharger shall initiate a TRE in accordance with the following:

1. ,To be ready to respond to a toxicity event the Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order and update it as necessary.

2. Within 60 days of exceeding the effluent limitation for chronic toxicity, the Discharger shall submit to USEPA a TRE work plan that should be the generic work plan revised for this toxicity event after considering discharge data.

3. Within 30 days of the date of completion of the accelerated monitoring tests observed to exceed the effluent limitation, the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from USEPA. Accelerated monitoring can be achieved by the Discharger conducting six additional toxicity tests using the same species and test method, approximately every two weeks, over a 12 week period. This testing shall begin within 145 days of receipt of test results exceeding the toxicity effluent limit. If none of the additional tests exceed the toxicity limitation, then the Discharger may return to the regular testing frequency.

4. The TRE shall be specific to the discharge and be prepared in accordance with current technical guidance and reference materials, including USEPA guidance materials. The TRE shall be conducted as a tiered evaluation process as summarized below:

a. Tier 1 consists of basic data collection (routine and accelerated monitoring).

b. Tier 2 consists of evaluation of optimization of the treatment process, including operation practices and in-plant process chemicals.

c. Tier 3 consists of a toxicity identification evaluation (TIE).

d. Tier 4 consists of evaluation of options for additional wastewater treatment processes.

e. Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.

f. Tier 6 consists of implementation of selected toxicity control measures, and follow- up monitoring and confirmation of implementation success.

5. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with requirements of Section VI.C.2.a of this Order).

6. The objective of a TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies shall be employed.

7. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the sources and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with the toxicity effluent limitations.

8. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention, and stormwater control programs. TRE efforts

should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.

9. Chronic toxicity may be episodic and identification of causes of, and reduction of sources of, toxicity may not be successful in all cases. Enforcement action will be based in part on the Discharger's responses and efforts to identify and control or reduce sources of consistent toxicity.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

Not Applicable.

VII. RECLAMATION MONITORING REQUIREMENTS

Not Applicable.

VIII. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger shall conduct routine shoreline monitoring for bacteria at six monitoring locations from Baker Beach along the San Francisco County shoreline perimeter to Sloat Blvd. on Ocean Beach one day per week in accordance with the schedule established in Table E-5, below.

During CSOD events, the Discharger shall post the beach in the vicinity of the CSOD event and shall conduct shoreline monitoring for bacteria at monitoring locations in the vicinity of the CSOD event from Baker Beach along the San Francisco County shoreline perimeter to Fort Funston on Ocean Beach in accordance with the schedule established in Table E-5, below.

During CSOD events, shoreline monitoring shall be initiated as soon as reasonable, with due consideration for safety. (Darkness, tidal conditions and storm related wave activity may prevent samples from safely being collected immediately after initiation of a CSOD event.) Shoreline monitoring shall be conducted at those locations in closest proximity to the CSOD. Daily shoreline monitoring during and following CSOD events and beach posting shall continue until bacteria concentrations in the receiving water at those locations fall below single sample maximum limits.

Table E-5. Receiving Water Surf Monitoring Requirements

Routine Monitoring					
Monitoring Locations	**Bacteria Type**	**Units**	**Minimum Monitoring Frequency**	**Sample Type**	**Analytical Method**
SRF-15 east SRF-15 SRF-17 SRF-18 SRF-19 SRF-21.1	Total Coliform *E. coli* Enterococcus	MPN/100 mLs	Once / week (1)	Grab	Quanti-Tray Method - Colilert 18™ Medium (total coliform and *E. coli*), Enterolert™ Medium (enterococcus)
CSOD Event Monitoring(1)					
SRF-15 east SRF-15 SRF-16 SRF-17 SRF-18 SRF-19 SRF-20 SRF-21 SRF-21.1 SRF-22	Total Coliform *E. coli* Enterococcus	MPN/100 mLs	Daily	Grab	Quanti-Tray Method - Colilert 18™ Medium (total coliform and *E. coli*), Enterolert™ Medium (enterococcus)

(1) Monitoring is only required at those locations in the vicinity of the CSOD.

IX. PRETREATMENT AND BIOSOLIDS MONITORING REQUIREMENTS

The Discharger shall comply with the pretreatment requirements specified in Table E-2 for influent (at Monitoring Location INF-001), effluent (at Monitoring Location EFF-001), and biosolids monitoring.

Table E-6. Pretreatment and Biosolids Monitoring Requirements

Constituents	**Influent INF-001**	**Effluent(3) EFF-001**	**Biosolids(4)**	**Sample Type**	
				INF-001 & EFF-001	**Biosolids(d)**
VOC	1/quarter	1/quarter	2/year	multiple grabs(5a)	grabs
BNA	1/quarter	1/quarter	2/year	multiple grabs(5a)	grabs
Metals(1)	1/month	1/month	2/year	24-hour composite(5b)	grabs
Hexavalent Chromium(2)	1/month	1/month	2/year	multiple grabs(5a)	grabs
Mercury	1/month	1/month	2/year	24-hour composite(5b,5c)	grabs
Cyanide	1/month	1/month	2/year	multiple grabs(5a)	grabs

Legends

VOC	= volatile organic compounds
BNA	= base/neutrals and acids extractable organic compounds
1/month	= once per month
1/quarter	= once per quarter
2/year	= twice per year

Footnotes:

(1) The parameters are arsenic, cadmium, copper, lead, nickel, silver, zinc, and selenium.

(2) The Discharger may elect to run total chromium instead of hexavalent chromium. Sample collection for total chromium measurements may also use 24-hour composite sampling.
(3) Effluent monitoring conducted in accordance with Table E-3 can be used to satisfy these pretreatment monitoring requirements.
(4) Since the Discharger operates its solar drying operations only during the dry season, the biosolids monitoring frequency is once per year during those times when it does not stockpile biosolids (i.e., the dry season). However, if and when the Discharger stockpiles biosolids (e.g., during wet weather), it shall report biosolids monitoring results for the stockpile during the wet season monitoring as well (i.e., twice per year).
(5) Sample types:
   a. Multiple grabs samples for VOC, BNA, hexavalent chromium, and cyanide, must be made up of a minimum of four (4) discrete grab samples, collected equally spaced over the course of a 24-hour period, with each grab analyzed separately and the results mathematically flow-weighted or with grab samples combined (volumetrically flow-weighted) prior to analysis.
   b. 24-hour composite sample may be made up discrete grab samples and may be combined (volumetrically flow-weighted) prior to analysis, or they should be mathematically flow-weighted. If automatic compositor is used, 24-hour composite samples must be obtained through flow-proportioned composite sampling.
   c. Automatic compositors are allowed for mercury if either 1) the compositing equipment (hoses and containers) comply with ultra-clean specifications, or 2) appropriate equipment blank samples demonstrate that the compositing equipment has not contaminated the sample. This direction is consistent with the Regional Water Board's October 22, 1999, letter on this subject.
   d. Biosolids collection should comply with those requirements specified in Attachment H, Appendix H-3 of this Order for sludge monitoring. The biosolids analyzed shall be a composite sample of the biosolids for final disposal. The Discharger shall also comply with biosolids monitoring requirements required by 40 CFR 503.

X. OTHER MONITORING REQUIREMENTS

1. **Off-Shore Monitoring Areas**. The Discharger shall continue to monitor the area outside San Francisco Bay between Rocky Point in Marin County and Point San Pedro in San Mateo County to identify any environmental effects of the discharge on receiving waters, sediment, or aquatic life.

2. **Frequency of Sampling**. The Discharger shall continue the Ocean Outfall Offshore Monitoring Program, sampling annually in the fall, when sediments are least disturbed.

3. **Specific Monitoring Points**. Monitoring locations are identified in Table E-6, below. (The Discharger selected locations using the USEPA's EMAP grid system, with 15 fixed locations and 36 random locations.)

Table E-7. Ocean Outfall Offshore Monitoring Locations

EMAP Station Number	Southwest Ocean Outfall (SWOO) Station Number	Latitude	Longitude
Fixed Locations			
1	---	37º 42' 12.00''	-122º 34' 31.20''
2	---	37º 42' 37.80''	-122º 34' 30.00''
4	---	37º 42' 42.00''	-122º 35' 42.00''
6	---	37º 40' 00.00''	-122º 32' 15.00''

25	---	37º 42’ 13.80’’	-122º 34’ 30.00’’
28	---	37º 41’ 54.00’’	-122º 34’ 28.80’’
31	---	37º 43’ 28.80’’	-122º 34’ 01.80’’
Random Locations			
R1	32	37º 52’ 04.77’’	-122º 38’ 28.60’’
R2	33	37º 51’ 06.14’’	-122º 36’ 00.87’’
R3	34	37º 51’ 04.65’’	-122º 38’ 50.77’’
R4	35	37º 50’ 53.96’’	-122º 40’ 45.11’’
R5	36	37º 50’ 15.84’’	-122º 37’ 12.27’’
R6	37	37º 50’ 11.61’’	-122º 35’ 41.45’’
R7	38	37º 49’ 40.86’’	-122º 39’ 18.05’’
R8	39	37º 49’ 19.20’’	-122º 41’ 25.50’’
R9	40	37º 48’ 31.68’’	-122º 37’ 29.76’’
R12	43	37º 47’ 07.88’’	-122º 36’ 57.88’’
R14	45	37º 46’ 29.37’’	-122º 38’ 38.38’’
R16	47	37º 45’ 39.83’’	-122º 37’ 04.52’’
R17	48	37º 45’ 33.87’’	-122º 38’ 55.98’’
R19	50	37º 45’ 00.01’’	-122º 39’ 56.01’’
R20	51	37º 44’ 46.38’’	-122º 35’ 55.51’’
R21	52	37º 43’ 43.07’’	-122º 31’ 11.61’’
R22	53	37º 43’ 04.34’’	-122º 38’ 42.51’’
R23	54	37º 42’ 59.44’’	-122º 32’ 47.41’’
R24	55	37º 42’ 56.50’’	-122º 34’ 15.08’’
R25	56	37º 42’ 41.24’’	-122º 36’ 28.29’’
R26	57	37º 42’ 33.84’’	-122º 31’ 08.82’’
R27	58	37º 42’ 15.49’’	-122º 34’ 55.24’’
R28	59	37º 41’ 35.66’’	-122º 32’ 11.82’’
R29	60	37º 41’ 20.89’’	-122º 36’ 06.47’’
R30	61	37º 40’ 55.35’’	-122º 33’ 29.05’’
R31	62	37º 40’ 56.18’’	-122º 37’ 43.15’’
R32	63	37º 39’ 31.65’’	-122º 33’ 41.41’’
R33	64	37º 39’ 14.63’’	-122º 32’ 04.75’’
R34	65	37º 38’ 02.91’’	-122º 32’ 27.99’’
R35	66	37º 37’ 42.23’’	-122º 36’ 40.08’’
R36	67	37º 37’ 34.73’’	-122º 33’ 53.51’’
R37	68	37º 37’ 00.97’’	-122º 36’ 55.75’’
R38	69	37º 36’ 52.15’’	-122º 35’ 28.81’’
R39	70	37º 36’ 32.16’’	-122º 32’ 01.35’’
R40	71	37º 36’ 16.73’’	-122º 33’ 03.03’’

4. **Sediment Sampling**. The Discharger shall collect benthic samples from seven historical fixed locations (1, 2, 4, 6, 25, 28, 31) to maintain time series data, and 30 out of the 36 random locations (R1- R9, R12, R16 – R17, R19 – R40), for a total of 45 samples. Samples shall be collected using a 0.1 m^2 Smith McIntyre grab sampler. Two grabs shall be collected at each station and the top 5 centimeters of sediment shall be composited from each grab prior to analysis. Analysis of the sediment samples shall include:

    - Total volatile solids
    - Total organic carbon
    - Kjeldahl nitrogen
    - Grain size
    - Inorganic toxic pollutants [Al, As, Cd, Cr, Cr(VI), Cu, Fe, Pb, Mn, Hg, Ni, Se, Ag, Zn] [The Discharger may elect to report total chromium in lieu of chromium (VI).].
    - DDT, PCBs, and PAHs

5. **Infaunal Sampling**. One benthic grab sample collected from each of the above locations shall be analyzed for infaunal organisms. This sample shall be passed through a 1.0 mm and a 0.5 mm sieve. Organisms retained on each sieve shall be relaxed and preserved for later enumeration and taxonomic determination to the lowest taxon.

6. **Trawls***.* The Discharger shall conducts trawls once per year in the fall to assess the presence or absence of demersal fish and epibenthic invertebrates in the vicinity of the ocean outfall, and to determine any bioaccumulation of priority pollutants in these organisms.

    A fish community analysis shall be conducted at a minimum of one of four fixed sampling locations (SWOO 1, 2, 25, or 28) and at one reference location outside of the influence of the discharge. Fish and invertebrates shall be collected, identified to the lowest identifiable taxon, and enumerated. The following information shall be recorded.

    - Fish
        - Abnormalities and disease symptoms, such as fin erosion, lesions, or tumors
        - Standard length of all fish specimens; disk width for skates and rays

    - Invertebrates
        - Carapace length and identification of unsexed or gravid females of shrimp
        - Carapace width and sex of crabs

    Tissue samples to assess the bioaccumulation of pollutants shall be composite samples collected at one of four fixed sampling locations (SWOO 1, 2, 25, 28) and at one or more reference locations outside of the influence of the discharge. Three composite samples shall be collected of one fish species and one macroinvertebrate species at each location. Each composite sample shall consist of ten or more organisms of each species, with the preferred species being English sole (*Pleuronectes vetulus)* and dungeness crab (*Cancer magister).* Muscle and liver/hepatopancreas tissues shall be

analyzed for inorganic pollutants (As, Cd, Cr, Cu, Pb, Hg, Se, Ag, and Zn), and DDT, PCBs, and PAHs.

7. **Adaptive Management**. The Discharger shall confer with USEPA and the Regional Water Board regarding any proposed changes to the monitoring program in response to ongoing analyses of monitoring data to maximize the amount of relevant and useful data that can be collected within the five year permit term.

8. **Reporting**. All offshore monitoring data shall be reported to USEPA and the Regional Water Board in an Annual Report submitted by August 30 of the year following sampling to allow for time to make modifications, if necessary, for the following sampling event. The report shall include raw data tables and summaries for each monitoring component. A comprehensive cumulative summary report shall be submitted with the next application for permit reissuance.

XI. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (Attachment D) and Regional Standard Provisions, and Monitoring Requirements (Attachment G) related to monitoring, reporting, and recordkeeping.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html) or to any other Internet web site specified by the Regional Water Board or USEPA. Until such notification is given, the Discharger shall submit paper copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall submit monthly SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order for each calendar month. Monthly SMRs shall be due on the 30th day following the end of each calendar month, covering samples collected during that calendar month; Annual Reports shall be due on February 1 following each calendar year.

3. The Discharger shall comply with the following schedule of monitoring periods and reporting.

Table E-8. Monitoring Periods

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Day after permit effective date	All
Cont./D	Day after permit effective date	All
Daily	Day after permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday
5/Week	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1st day of calendar month through last day of calendar month
2/Month	First day of calendar month following permit effective date or on permit effective date if that date is first date of the month	1st day of calendar month through last day of calendar month
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
Annually	January 1 following (or on) permit effective date	January 1 through December 31. July 1 through June 30 for shoreline CSD and other rainfall initiated data.
<X> / Discharge Event	As soon as possible after discharge begins	For the duration of the discharge event

4. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL) as determined by the procedure in Part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated

Concentration" (which may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numeric estimates of the data quality for the reported result. Numeric estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected" or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve except in reporting estimated sample results less than the RL, but greater than or equal to the laboratory MDL as stated in 4.b. above.

5. The Discharger shall comply with effluent limitations for reportable pollutants determined using sample reporting protocols defined above and in Attachment A of this Order. For purposes of reporting and administrative enforcement, the Discharger shall be deemed out of compliance with single-sample effluent limitations if the concentration of the reportable pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the ML. For averaged or median-based effluent limitations, the Discharger shall be deemed out of compliance if the average or median concentration in the data set is greater than the effluent limitation

6. The Discharger shall submit SMRs in accordance with the following requirements:

a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of this Order; corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations shall include the requirement violated and a description of the violation.

c. If the Discharger wishes to invalidate any measurement, the letter of transmittal shall include identification of the measurement suspected to be invalid and notification of intent to submit a formal request to invalidate the measurement , within 60 days. This request shall include the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results etc.), and discussion of the corrective actions taken or planned (with time schedule for

completion) to prevent recurrence of the sampling or measurement problem. The invalidation of a measurement by USEPA or Regional Water Board staff will be based solely on the documentation submitted at that time.

d. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Executive Officer
California Regional Water Quality Control Board
San Francisco Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
ATTN: NPDES Wastewater Division

C. Discharge Monitoring Reports (DMRs)

1. As described in Section X.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of DMRs. Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

APPENDIX E-1
CHRONIC TOXICITY
DEFINITION OF TERMS AND SCREENING PHASE REQUIREMENTS

I. Definition of Terms

A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25}. If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.

C. Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a nonlethal, nonquantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as USEPA's Bootstrap Procedure.

D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

A. The Discharger shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, and at least once during the Order term.

2. Screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

B. Design of the screening phase shall, at a minimum, consist of the following elements:

1. Use of test species specified in **Appendix E-2**, attached, and use of the protocols referenced in those tables, or as approved by the Executive Officer.

2. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on **Appendix E-2** (attached).

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.

3. Appropriate controls.

4. Concurrent reference toxicant tests.

5. Dilution series should include the IWC, and four concentrations that bracket the IWC, or other concentrations approved by the Executive Officer.

C. The Discharger shall submit a screening phase proposal acceptable to the Regional Water Board. The proposal shall address each of the elements listed above. If within 30 days neither USEPA nor the Regional Water Board staff comments, the Discharger shall commence with screening phase monitoring.

APPENDIX E-2
SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS
Critical Life Stage Toxicity Tests for Marine and Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Alga	*(Skeletonema costatum)* *(Thalassiosira pseudonana)*	Growth rate	4 days	1
Red alga	*(Champia parvula)*	Number of cystocarps	7–9 days	3
Giant kelp	*(Macrocystis pyrifera)*	Percent germination; germ tube length	48 hours	2
Abalone	*(Haliotis rufescens)*	Abnormal shell development	48 hours	2
Oyster Mussel	*(Crassostrea gigas)* *(Mytilus edulis)*	Abnormal shell development; percent survival	48 hours	2
Echinoderms - Urchins Sand dollar	*(Strongylocentrotus purpuratus, S. franciscanus)* *(Dendraster excentricus)*	Percent fertilization Development test	1 hour 72 hours	2
Shrimp	*(Mysidopsis bahia)*	Percent survival; growth	7 days	3
Shrimp	*(Holmesimysis costata)*	Percent survival; growth	7 days	2
Topsmelt	*(Atherinops affinis)*	Percent survival; growth	7 days	2
Silversides	*(Menidia beryllina)*	Larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for Conducting Static 96-Hour Toxicity Tests with Microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.
2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995.
3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-90/003. July 1994.

Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay[2]	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater[1] Marine/Estuarine	0 4	1 or 2 3 or 4	3 0
Total number of tests	4	5	3

[1] The freshwater species may be substituted with marine species if:

(a) The salinity of the effluent is above 1 part per thousand (ppt) greater than 95 percent of the time, or

(b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

[2] (a) Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95 percent of the time during a normal water year.

(b) Fresh refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined to not apply to this discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	2 386009001
Discharger	City and County of San Francisco
Name of Facility	Oceanside Water Pollution Control Plant, and Collection System including the Westside Wet Weather Facilities
Facility Address	3500 Great Highway
	San Francisco, CA 94132
	San Francisco County
Facility Contact, Title and Phone	Tommy Moala, Assistant General Manager, Wastewater Enterprise (415) 554-2465
Authorized Person to Sign and Submit Reports	Arleen Navarret, Regulatory Manager, (415) 934-5731
Mailing Address	San Francisco Public Utilities Commission/Wastewater Enterprise 1155 Market St., 11th Floor, San Francisco CA 94103
Billing Address	Same as above
CIWQS Place ID	256498
CIWQS Party ID	39680
Billing Address	Same as above
Type of Facility	Publicly Owned Treatment Works
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	A
Pretreatment Program	Y
Receiving water	Pacific Ocean
Receiving Water Type	Main discharge starting at about 3.4 nautical miles from shore, CSO discharges at shoreline
Reclamation Requirements	NA
Facility Permitted Flow	43 million gallons per day (MGD), average dry weather
Facility Design Flow	Oceanside Plant 43 MGD, average dry weather design flow (providing secondary treatment) 65 MGD maximum wet weather design flow (providing secondary treatment for 43 MGD, and primary treatment for an additional 22 MGD)

	Westside Wet Weather Facilities Collection system flows greater than 65 MGD and less than 175 MGD receive the equivalent of wet weather primary treatment in the Westside Wet Weather Facilities (storage/transports) and are discharged at the Southwest Ocean Outfall. Flows greater than 175 MGD receive the equivalent of wet weather primary treatment in the Westside Wet Weather Facilities and are discharged at authorized combined sewer overflow discharge (CSOD) points.
Watershed	San Mateo Coastal
Receiving Water	Pacific Ocean
Receiving Water Type	Ocean waters

A. The City and County of San Francisco (hereinafter the Discharger) is the owner and operator of the Oceanside Water Pollution Control Plant (Plant) and Westside Wet Weather Facilities, a publicly owned treatments works (POTW). For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The facility discharges wastewater to the Pacific Ocean, waters of the United States, and is currently regulated by Order No. R2-2003-0073, which was adopted on August 20, 2003, expiring on September 30, 2008.

C. On March 28, 2008, the Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit.

II. FACILITY DESCRIPTION

A. Description of Wastewater and Biosolids Treatment or Controls

The Discharger is the owner and operator of the Oceanside Plant and its associated collection system, a combined sewer system that includes the Westside Wet Weather Facilities. The collection system includes approximately 300 miles of sewer pipes on the west side watershed of the city that covers the areas of Richmond, Sunset, and Lake Merced as well as a small portion of Daly City. The system also includes four all weather pump stations, Seacliff #1, Seacliff #2, Pine Lake and Westside and two wet weather pump stations, Seacliff #3 and the Zoo Wet-Weather Lift Station. There are no satellite systems.

Treatment at the Oceanside Plant, which has a peak secondary treatment capacity of 43 MGD, includes coarse screening at the Westside Pump Station, fine screening and grit removal at the Plant headworks, primary sedimentation, activated sludge treatment by a pure oxygen process, and secondary clarification. Secondary treated wastewater is discharged to the Pacific Ocean, 3.4 to 3.6 nautical miles offshore, at Discharge Point 001 - the Southwest Ocean Outfall. These receiving waters are waters of the United States but are beyond the territorial waters of the State of California. During wet weather periods of high influent flow, the Oceanside Plant can provide primary treatment for an additional 22 MGD of influent flow, which, following treatment, is

blended with secondary treated wastewater (i.e., a total treatment capacity of 65 MGD) and discharged at Discharge Point 001.

The Discharger's collection system includes three large storage/transport structures – the Westside Transport, a 49.3 million gallon box-like structure located beneath the Great Highway; the Richmond Transport, a 12 million gallon structure located to the north; and the Lake Merced Transport, a 10 million gallon structure located to the south. The combined storage capacity of these "Westside Wet Weather Facilities" is 73.5 million gallons, which includes 2.2 million gallons of capacity within the sewer lines.

Collection system flows that exceed the Oceanside Plant's treatment capacity of 65 MGD, are stored in the Westside Wet Weather Facilities, which provide the equivalent of wet weather primary treatment through solids settling, skimming of floatable solids, and screening at pump stations. Combined wastewater from the storage/transport structures is pumped via the Westside Pump Station to Discharge Point 001, until the pumping capacity of the combined sewer system facilities to the outfall is reached at 175 MGD. Combined wastewater flows greater than 175 MGD also receive (the equivalent of wet weather primary treatment) treatment in the storage/transport structures but are discharged at the seven, near-shore combined sewer overflow discharge structures, authorized by this Order. These receiving waters are waters of the United States and territorial waters of the State of California. To be considered a discrete combined sewer overflow discharge event, the combined sewer overflow discharge must be separated by six hours in time from any other combined sewer overflow discharge. For the purposes of this permit, authorized treated combined sewer overflow discharges from the near-shore overflow discharge structures are referred to as combined sewer overflow discharges (CSODs). Unauthorized untreated combined sewer overflows from combined sewer systems are referred to as combined sewer overflows (CSOs).

Wastewater solids removed by settling in the Westside Wet Weather Facilities are flushed to the Plant when wet weather flows subside. Primary and secondary solids from the Plant are blended and thickened using gravity belt thickeners, anaerobically digested, dewatered, and beneficially re-used at permitted sites.

Attachment B provides a map of the area around the Plant. Attachment C provides a flow schematic of the Plant.

Based on 70 years of historical rainfall records, the Westside Wet Weather Facilities were designed to achieve a long term average of eight discrete CSOD events per year. State Water Board Order No. WQ 79-16 defines a discrete combined sewer overflow discharge event as one separated from any other combined sewer overflow discharge by at least six hours. CSOD information for the period of January 2007 through December 2007 is summarized in Table F- 2, below.

Table F-2. CSOD Summary 2007

Overflow Discharge Point	CSD-001	CSD-002	CSD-003	CSD-004	CSD-005	CSD-006	CSD-007
CSOD Structure Name	Lake Merced	Vicente St.	Lincoln Way	Mile Rock	Sea Cliff 1	Sea Cliff Sewer	Sea Cliff 2
Days with Rainfall	63	63	63	63	63	63	63
Discharge Events	2	2	2	NA	0	NA	1
Average Duration (hours)	1.64	1.71	2.19	NA	NA	NA	1.1
Average Volume/Event (million gallons.)	5.98	5.83	6.17	NA	NA	NA	7.11

B. Discharge Points and Receiving Waters

The locations of the discharge points and their receiving waters are listed in Table F-3, below.

Table F-3. Outfall Locations

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Secondary Treated Wastewater, Combined Primary and Secondary Treated Wastewater and Stormwater, and the equivalent of wet weather primary treated combined Wastewater and Stormwater decant flow from a combined sewer system.	37 º 42’ 18” N	122 º 34’ 39” W	Pacific Ocean
CSD-001	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater	37 º 42’ 55” N	122 º 30’ 16” W	Pacific Ocean (Fort Funston, Ocean Beach)
CSD-002	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater	37 º 44’ 16” N	122 º 30’ 29” W	Pacific Ocean (Vicente St., Ocean Beach)
CSD-003	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater	37 º 45’ 50” N	122 º 30’ 42” W	Pacific Ocean (Lincoln Way, Ocean Beach)
CSD-004	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater	37 º 47’ 5” N	122 º 30’ 37” W	Pacific Ocean (Mile Rock)

CSD-005	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater	37 º 47' 16" N	122 º 29' 30" W	Pacific Ocean (China Beach)
CSD-006	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater	37 º 47' 22" N	122 º 29' 16" W	Pacific Ocean (Baker Beach)
CSD-007	The equivalent of wet weather Primary Treated Combined Wastewater and Stormwater	37 º 47' 22" N	122 º 29' 13" W	Pacific Ocean (Baker Beach)

Discharge Point 001 is located beginning about 3.4 nautical miles offshore, beyond the three nautical mile limit of the State's territorial waters. CSOD outfalls are located in the nearshore waters of the San Mateo Coastal Watershed.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

1. Effluent limitations contained in the existing Order for discharges from Discharge Point 001 (formerly Discharge Point 007) and representative monitoring data for Monitoring Location EFF-001 (formerly E-007) from the term of the previous permit are as follows:

Table F-4. Historic Effluent Limitations and Monitoring Data

Parameter	Unit	Effluent Limitation				Monitoring Data (From 12/03 to 12/07)		
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
BOD_5	mg/L	30	45	---	---	33	40	---
TSS	mg/L	30	45	---	---	19	30	
Grease and Oil	mg/L	25	40	---	75	9.7	9.7	9.7
Turbidity	NTU	75	100	225	---	11	25	38
pH	s.u.	Between 6 and 9 at all times			---	5.7 minimum 8.0 maximum		
Acute Toxicity	TUa	---	---	2.58	---	---	---	1.58
Chronic Toxicity	TUc	---	---	76	---	---	---	50

2. The previous permit contained weekly monitoring requirements for bacteria in the receiving water at several surf stations, and additional surf monitoring requirements for bacteria in response to CSOD events. Requirements of the previous permit included posting notices at beaches with elevated bacteria levels until monitoring indicated bacteria were below water quality objectives. The following table summarizes periods of elevated bacteria levels during the term of the previous permit.

Table F-5. Receiving Water Surf Monitoring Summary

Wet Weather Season	Rainfall (inches)	Number of Discrete[(1)] Combined Sewer Discharges	Total Number of Days Per Year One or More Beaches Were Posted for Elevated Bacteria Counts
2003-2004	18.77	8	33
2004-2005	26.2	12	31
2005-2006	31.83	13	53
2006-2007	14.76	3	12
Average	22.89	9	32.3

(1) Discrete events are separated by at least six hours between discharges, as defined in State Water Board Order No. WQ 79-16.

D. Compliance Summary

1. **Compliance with Numeric Effluent Limitations.** During the term of Order No. R2-2003-0073, the Discharger reported exceedances of effluent limitations for BOD_5 and pH as summarized in Table F-6.

Table F-6. Summary of Effluent Violations

Date of Violation	Parameter	Effluent Limitation	Reported Value
December 31, 2005	BOD_5	30 mg/L	32.5 mg/L
December 31, 2005	BOD_5 Percent Removal	85% Removal Minimum	76% Removal
October 10, 2007	pH	Between 6 and 9 at all times	5.7

Rainfall records for San Francisco indicate that 2.12 inches of rain fell on December 31, 2005, and 0.82 inches fell on the preceding day. This may have been a "wet weather" day, in which case no exceedance occurred. Similarly on October 10, 2007, the reported date of the pH exceedance, the rainfall was 0.18 inches and the rainfall for the preceding day was 0.43 inches. This rainfall could have contributed to the low pH values. Under these circumstances, Regional Water Board staff did not recommend formal enforcement.

2. **Compliance with Permit Provisions.** A list of special activities required by Order No. R2-2003-0073 and the status toward completing those requirements are shown in Table F-7, below.

Table F-7. Permit Provisions Compliance

Provision Number	Requirement	Status of Completion
F.2 [A]	Marine Mammal Report identifying monitoring methodologies to determine presence of pathogens with potential to affect marine mammals.	Report submitted October 28, 2005.
F.4.i	Nine Minimum Controls (A) Study Plan to monitor CSOD Impacts and Controls due December 1, 2003 (B) Annual Status Reports summarizing data, evaluating CSOD impacts and controls, and proposing revisions to nine minimum controls, if necessary, due August 30 annually. (C) Final Report due 1 year prior to permit expiration.	Submitted November 26, 2003 Submitted 2004, 2005, 2006, 2007 Submitted August 30, 2007

[A] In response to concerns expressed by the National Oceanic Atmospheric Administration (NOAA) Fisheries and US Fish and Wildlife Service regarding the potential of stormwater and undisinfected wastewater from the Southwest Ocean Outfall to transmit pathogens to marine mammals, the previous permit required investigation of methods to determine impacts of human pathogens on marine mammals and conveyance of the findings in a Marine Mammal Report. On October 28, 2005, the Discharger submitted a report that concluded that little information is available regarding the environmental occurrence, fate, and transport of *T. gondii*, *S. neurona*, and Morbilliviruses, microbes of concern to marine mammals, in part because methods for detection of these microbes in the environment are insufficient.

E. Planned Changes

No changes are planned

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to the federal Clean Water Act (CWA) §402 and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and California Water Code (CWC) Chapter 5.5, Division 7 (commencing with §13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to CWC Article 4, Chapter 4, Division 7 (commencing with §13260). USEPA and the Regional Water Board are jointly issuing this permit. It covers Discharge Point 001, the Southwest Ocean Outfall, which is 3.4 to 3.6 nautical miles offshore in Federal waters. (The territorial waters of the State end three nautical miles from shore.) It also covers Discharge Points CSD-001 through CSD-007, which are near-shore in State waters.

Under Water Code §13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA. Likewise, pursuant to CWA §511(c), this action to reissue an NPDES permit does not trigger the requirements of the National Environmental Policy Act (NEPA) [42 U.S.C. 4321 et seq.].

B. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The *Water Quality Control Plan for the San Francisco Bay Basin* is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Board, USEPA, and the Office of Administrative Law where required.

   Beneficial uses established by the Basin Plan for waters within the San Mateo Coastal Watershed are as follows:

Table F-8. Basin Plan Beneficial Uses

Receiving Water	Basin Plan Beneficial Uses
Territorial waters of the State of California within the Pacific Ocean	• Industrial Service Supply • Ocean, Commercial, and Sport Fishing • Shellfish Harvesting • Marine Habitat • Fish Migration • Preservation of Rare and Endangered Species • Fish Spawning • Wildlife Habitat • Water Contact Recreation • Noncontact Water Recreation • Navigation

   Requirements of this Order implement the Basin Plan.

2. **California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, and 2005. The State Water Board adopted the latest amendment on April 21, 2005, and it became effective on February 14, 2006. The Ocean Plan applies, in its entirety, to point source discharges to the territorial waters of the State as defined by California law to the extent that these waters are outside of enclosed bays, estuaries, and coastal lagoons. The Ocean Plan identifies the following beneficial uses of ocean waters of the State: Industrial Water Supply; Water Contact and Non-contact Recreation, Including Aesthetic Enjoyment; Navigation; Commercial and Sport Fishing; Mariculture; Preservation and Enhancement of Designated Areas of Special Biological Significance; Rare and Endangered Species; Marine Habitat; Fish Migration; Fish Spawning; and Shellfish Harvesting. To protect beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation for discharges to state territorial waters.

   Discharge Point 001, the deep water outfall, is 3.4 to 3.6 nautical miles offshore in federal waters. The territorial waters of the State end three nautical miles from shore. The Ocean Plan (Appendix 1, Ocean Waters) states, "If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in

ocean waters." For the reasons set forth below, the Regional Water Board finds that the discharge at Discharge Point 001 could not affect the quality of the waters of the State during dry weather. During wet weather, the Ocean Plan defers to the Combined Sewer Overflow Control Policy, discussed in Finding K. Therefore, this Order does not regulate the discharge at Discharge Point 001 directly through the Water Board's Ocean Plan authorities.

The Discharger has compiled information demonstrating that the discharge at Discharge Point 001 during dry weather could not affect the quality of the waters of the State ("Assessment of Effects on California State Waters from the Oceanside Southeast Ocean Outfall," September 26, 2008). Regional Water Board staff has supplemented the Discharger's information with independent analysis.

a. **Receiving Water Monitoring.** The Discharger has monitored the receiving waters since the 1970s, before and after the installation of the Southwest Ocean Outfall in 1986. Aquatic biological communities, including benthic communities, do not appear to be any different near the outfall than at reference locations. Sediment quality appears to be similar as well. Since the discharge does not appear to affect water quality in the vicinity of the outfall, there is no evidence that it could affect the quality of State waters.

b. **Dilution.** This Order uses a minimum initial dilution of effluent from Discharge Point 001 of 150:1. The Discharger has submitted a study indicating that initial dilution could be over 170:1 ("Dilution Modeling for the San Francisco Southwest Ocean Outfall," City and County of San Francisco, June 2007). Substantial additional dilution occurs between the outfall and State waters, which are 0.36 nautical miles (2,200 feet) away. A worst-case estimate of this far-field dilution is over 400:1. Regional Water Board staff has concluded that such highly diluted effluent from the deep water outfall could not affect the quality of State waters.

c. **Ocean Currents.** Ocean currents at the Southwest Ocean Outfall typically move parallel to the coast, not toward State waters.

d. **Effluent Toxicity Monitoring.** The Discharger routinely monitors acute and chronic toxicity in the effluent to ensure that it complies with effluent limitations. This monitoring has never indicated a violation of toxicity limitations at the outfall. Therefore, the discharge could not cause toxicity in State waters 0.36 nautical miles away. Receiving water sediment toxicity test results corroborate this conclusion.

e. **Bacteria Monitoring.** In the 1980s, the Discharger completed an extensive study to determine how discharging primary treated effluent from the deep water outfall was affecting receiving water bacteria levels (*Wastefield Transport and Bacteriological Compliance Studies of the San Francisco Ocean Outfall CH2MHill March 1989*). The Discharger now treats its wastewater to secondary treatment standards during dry weather. Regional Water Board staff used data from that study representing primary treatment to estimate the potential effects of discharging secondary-treated effluent (staff memorandum, October 10, 2008). Estimated bacteria levels in federal waters were below Ocean Plan water quality

objectives. Therefore, the deep water discharge could not affect bacteria levels in State waters.

3. **Determination of Unreasonable Degradation of the Marine Environment.** Discharges from the Southwest Ocean Outfall are to waters of the United States beyond the territorial waters of the State of California. Federal regulations at 40 CFR 125.122 require the permitting authority to determine whether a discharge will cause unreasonable degradation of the marine environment. Based on 40 CFR 125.22(b), USEPA conducted a reasonable potential analysis using Ocean Plan objectives and included numeric permit limitations, based on the Ocean Plan's dilution procedures, for toxicity and mercury, the only numeric Ocean Plan objectives for which USEPA found reasonable potential to cause or contribute to an exceedance of water quality standards. USEPA also included narrative receiving water limitations for the Ocean Plan narrative objectives for which it found reasonable potential. For determining reasonable potential for the dioxins, USEPA based its analysis on 40 CFR 125.122(a) and used recently updated Toxicity Equivalency Factors (TEFs) published by the World Health Organization in 2005, as well as the congener-specific Bioconcentration Equivalency Factors (BEFs) used for the Great Lakes System. The "Bay Area Clean Water Agencies' Draft Dioxin Issue Paper: Expert Panel Response and Recommendations," dated April 4, 2008 recommended the use of TEFs and BEFs to develop NPDES permit limits for dioxins. This approach incorporates recent scientific information for dioxins on a congener-specific basis, while continuing to use the Ocean Plan water quality objective for dioxins (TCDD equivalents) and standards implementation procedures. Given the unique issues dioxins present, USEPA has prepared a determination of unreasonable degradation for the ten factors under 40 CFR 125.122(a) (Appendix 1 of this Fact Sheet). USEPA has determined that no unreasonable degradation of the marine environment will result from the discharges of dioxins through the Southwest Ocean Outfall as authorized under this Order, with all the limitations, conditions, and monitoring requirements in effect.

4. **Combined Sewer Overflow Control Policy.** Wet weather flows from combined sewer systems are subject to CWA §301(b)(1)(A) and are not subject to secondary treatment regulations. Wet weather flows from combined sewer systems are addressed by the Combined Sewer Overflow Control Policy (59 Federal Register 18688-18698). The *Wet Weather Water Quality Act of 2000* incorporated this policy into the CWA.

   The policy establishes a consistent national approach for controlling discharges from combined sewers to the nation's water. Using the NPDES permit program, the policy initiates a two-phased process. During the first phase, the Discharger is required to implement "nine minimum controls" (e.g., prevent dry weather overflows). These controls constitute the technology-based requirements of the Clean Water Act as applied to combined sewer facilities (i.e., best conventional pollutant control technology, BCT, and best available control technology economically achievable, BAT). The controls are intended to provide immediate and relatively low-cost water quality improvements for facilities that, unlike the Discharger, have not implemented a long-term control plan. During the first phase, the Discharger is required to initiate development of a long-term control plan to select controls to comply with water quality standards, based on consideration of the Discharger's financial capabilities.

The second phase of the process involves implementation of the long-term control plan developed in the first phase. The purpose of this long-term control plan is to comply with the CWA water quality requirements. The Discharger's program, which continues to implement the Discharger's long-term plan, is consistent with the policy. This Order implements the policy and is consistent with the Regional Water Board policy on wet weather overflows described in Basin Plan Section 4.9. During wet weather, CSODs from shoreline discharge points CSD-001 through CSD-007 and the Southwest Ocean Outfall are subject to this policy.

Ocean Plan Section III.A.4 acknowledges, "Not withstanding any other provisions in this plan, discharges from the City of San Francisco's combined sewer system are subject to the USEPA's Combined Sewer Overflow Policy." In large part, this acknowledgement is a response to State Water Board Order No. WQ 79-16 (March 23, 1979), which granted an exception from the Ocean Plan for wet weather discharges from the Discharger's diversion structures in the western-most portion of the Discharger's combined sewer system. The exception was necessary because CSODs are inherently inconsistent with certain Ocean Plan standards. In accordance with Ocean Plan procedures for granting exceptions, the State Water Board found that there were unusual circumstances not anticipated at the time of the plan's adoption (the Ocean Plan had failed to address CSODs), that beneficial uses would be protected, and that the public interest would be served. Of particular importance to the State Water Board in granting the exception was the Discharger's proposal to improve its wet weather facilities to allow only an average of eight CSODs per year. The exception was subject to several conditions, including:

- The Discharger needed self-monitoring in accordance with Regional Water Board specifications (this Order requires this in Attachment E),

- Beaches and shellfish harvesting areas potentially affected by CSODs needed to be posted (this Order requires this in Section VI.C.6.b(8)),

- To the greatest extent practical, the Discharger needed to design, construct, and operate wet weather facilities to comply with Ocean Plan requirements (this Order requires this in Section VI.C.4),

- Aside from the average of eight CSOD events per year, all other storm water runoff needed to be contained, and the discharge of all other untreated waste to waters of the State was to be prohibited (this Order requires this in Section III; the provision for eight overflow events per year is the design basis of the effluent treatment system).

5. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes [65 Fed. Reg. 24641 (April 27, 2000), codified at 40 CFR §131.21]. Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards

already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

6. **Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. This Order's technology-based pollutant restrictions implement the minimum applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum federal technology-based requirements. The water quality-based limits are necessary to meet water quality standards. They are not more stringent than required by the CWA.

   Water quality-based effluent limitations have been derived to implement water quality objectives that protect beneficial uses. Both beneficial uses and water quality objectives in State waters have been approved pursuant to federal law and are the applicable federal water quality standards. The procedures used for this Order to calculate individual water quality-based effluent limitations for State waters are based on the California Ocean Plan, which was approved by USEPA on February 14, 2006.

7. **Antidegradation Policy.** NPDES regulations at 40 CFR§131.12 require that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16, which incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. Water quality plans implement, and incorporate by reference, both the State and federal antidegradation policies. The permitted discharge is consistent with the antidegradation provision of 40 CFR§131.12 and State Water Board Resolution No. 68-16 because there is no increase in authorized flow and effluent limitations are at least as stringent as in the previous permit.

8. **Anti-Backsliding Requirements.** CWA Sections 402(o)(2) and 303(d)(4) and NPDES regulations at 40 CFR §122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. With the exception of acute and chronic toxicity, all effluent limitations in this Order are at least as stringent as the effluent limitations in the previous permit. Compliance with anti-backsliding requirements is discussed in section IV.C.6.

9. **Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the State. The Discharger is responsible for meeting all

requirements of applicable State and federal law pertaining to threatened and endangered species.

§7(a)(2) of the federal Endangered Species Act requires USEPA, in reissuing this NPDES permit, to ensure, after consultation with appropriate agencies, that discharges at the Southwest Ocean Outfall are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of critical habitat for such species. USEPA has initiated informal consultation with National Oceanic Atmospheric Administration (NOAA).

C. Impaired Water Bodies on CWA 303(d) List

On November 30, 2006, USEPA approved a revised list of impaired water bodies prepared by the State [hereinafter referred to as the 303(d) list] pursuant to CWA section 303(d), which requires identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. Receiving waters for discharges from CSOD outfalls authorized by this Order are listed as impaired for indicator organisms at Baker Beach, specifically at the mouth of Lobos Creek.

1. Total Maximum Daily Loads

The Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for pollutants on the 303(d) list within ten years. Future review of the 303(d) list may provide schedules or result in revision of schedules for adoption of TMDLs.

2. Waste Load Allocations

The TMDLs will establish waste load allocations (WLAs) for point sources and load allocations for non-point sources, which will result in achieving the water quality standards for waterbodies. Future water quality-based effluent limitations for 303(d) listed pollutants will be based on WLAs contained in the respective TMDLs. If a TMDL is developed and WLAs are established independently for discharges of stormwater and wastewater, these WLAs may be combined to be met collectively by the wastewater and stormwater effluent loads.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: section 122.44(a) requires that permits include applicable technology-based limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

1. **Discharge Prohibition III.A**. (No discharge other than that described in this Order). This prohibition is retained from the previous permit and is based on CWC §13260, which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the Report of Waste Discharge, and subsequently in the Order, are therefore prohibited.

2. **Discharge Prohibition III.B**. (No discharge from Discharge Point 001 that does not receive an initial dilution of at least 150:1). This prohibition is retained from the previous permit. In addition, the Order accounts for dilution of 150:1 in the reasonable potential analysis and calculation of WQBELs. The limitations in this Order may not be protective of water quality if the discharge were to not actually achieve a 150:1 initial dilution.

3. **Discharge Prohibition III.C**. (Bypass of secondary treatment is prohibited except as described by the Order on wet weather days or as provided in 40 CFR §122.41(m)(4) and in Regional Standard Provisions, and Monitoring and Reporting Requirements [Attachment G]). This prohibition is retained from the previous permit and is based on NPDES regulations at 40 CFR §122.41(m)(4).

4. **Discharge Prohibition III.D**. (Discharge at a location other than Discharge Point 001 is prohibited except for wet weather days). This prohibition is retained from Order No. R2-2003-0073 and reflects a principle objective of USEPA's *Combined Sewer overflow Control Policy* (1994) to ensure that, if CSODs occur, they are only a result of wet weather and such discharges only occur at specified locations.

5. **Discharge Prohibition III.E**. (Discharge at Discharge Points CSOD-001 through CSOD-007 is prohibited except on wet weather days). This prohibition is retained from the previous permit and reflects a principle objective of USEPA's *Combined Sewer Overflow Control Policy* (1994) to ensure that, if CSODs occur, they are only a result of wet weather.

6. **Discharge Prohibition III.F**. (Average dry weather flow not to exceed 43 MGD). This prohibition is retained from the previous permit, and is based on the design treatment capacity of the Plant. Exceedance of the design capacity may result in lowering the reliability of achieving compliance with effluent limitations.

7. **Discharge Prohibition III.G**. (CSOs are prohibited). CSOs, as opposed to CSODs, are unauthorized discharges from the combined sewer system. This prohibition is necessary because CSOs result in the release of untreated sewage.

8. **Discharge Prohibition III.H**. (Discharge of municipal or industrial sludge to the ocean is prohibited). This prohibition implements Ocean Plan discharge prohibition III.H.3.

9. **Discharge Prohibition III.J**. (Degradation of harvestable shellfish resulting from dry weather discharges is prohibited). This prohibition is retained from the previous permit and implements Ocean Plan discharge prohibition II.B.2.

B. Technology-Based Effluent Limitations

1. Scope and Authority

a. CWA section 301(b) requires USEPA to develop secondary treatment standards for publicly owned wastewater treatment facilities. These standards implement the level of effluent quality attainable through application of secondary or equivalent treatment. USEPA promulgated technology-based effluent guidelines for POTWs at 40 CFR §133. These Secondary Treatment Regulations include the following minimum requirements, which apply to the Plant during dry weather.

Table F-9. Secondary Treatment Requirements

Parameter	30-Day Average Limitation	7-Day Average Limitation
BOD_5 (1)	30 mg/L	45 mg/L
$CBOD_5$ (2)	25 mg/L	40 mg/L
TSS (1)	30 mg/L	45 mg/L
pH	6.0 – 9.0	

(1) The 30-day average percent removal shall not be less than 85 percent.

(2) At the option of the permitting authority, these effluent limitations for $CBOD_5$ may be substituted for BOD_5 limitations.

b. The USEPA Combined Sewer Overflow Control Policy establishes the technology based requirements for combined sanitary sewer systems, which requires implementation of the Nine Minimum Controls. Related requirements are included in section VI.C.6.b. of this Order.

2. Applicable Technology-Based Effluent Limitations

This Order retains the following technology-based effluent limitations, applicable to discharges at Discharge Point 001 during dry weather, as determined at Monitoring Location EFF-001.

a.. **Compliance with limits.** The Discharger shall comply with the following effluent limitations shown in Table F-10.

Table F-10.Technology-based Effluent Limitations – Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD_5 @ 20°C	mg/L	30	45	---	---	---
TSS[(1)]	mg/L	30	45	---	---	---
pH	Standard units	---	---	9.0	6.0	9.0

The pH requirement is retained from the previous permit and is established by USEPA's Secondary Treatment Regulations at 40 CFR Part 133 and by Ocean Plan Table A.

b. Percent Removal. Based on Secondary Treatment Regulation at 40 CFR §133.102 and 133.103 and previous permit limits the average monthly percent removal of BOD_5 at 20°C and TSS shall not be less than 85%.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

CWA section 301(b) and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards.

Section 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in the Ocean Plan.

2. Minimum Initial Dilution

In accordance with the Ocean Plan, water quality-based effluent limits reflect the minimum initial dilution of the effluent as it reaches the receiving water. The minimum initial dilution can be estimated by experimental observation and computer

simulation. The reasonable potential calculation for this Order is based on a dilution ratio of 150:1. This is based on an updated dilution model submitted by the Discharger that averaged UM3 and NRFIELD results and utilized averaged oceanographic data from 1988. If the Discharger provides new information to use with new dilution modeling (see provision VI.C.2.b of this Order), any new results based on updated oceanographic data may be considered for the next permit reissuance.

3. Determining the Need for WQBELs

This Order is based on a reasonable potential analysis based on procedures described in Ocean Plan Section III.C and Ocean Plan Appendix VI to determine the need for WQBELs. In general, the procedure is a statistical method that evaluates an effluent data set while taking into account the averaging period of water quality objectives, the long term variability of pollutants in the effluent, limitations associated with sparse data sets, and uncertainty associated with censored data sets. The procedure assumes a lognormal distribution of the effluent data set and compares the 95th percentile concentration at 95 percent confidence for each pollutant in Ocean Plan Table B, accounting for dilution, to the applicable water quality criterion in Ocean Plan Table B. The reasonable potential analysis results in one of three endpoints.

Endpoint 1 – There is “reasonable potential,” and a WQBEL and monitoring are required.

Endpoint 2 – There is no “reasonable potential.” A WQBEL is not required, but monitoring may be required.

Endpoint 3 – The analysis is inconclusive. There are less than 3 detects or more than 80% of samples are non-detect. Any existing WQBEL is retained, and monitoring is required.

The Ocean Plan reasonable potential analysis involves five paths:

a. First Path

If available information about the receiving water or the discharge supports a finding of reasonable potential without analysis of effluent data, the permitting authority may decide that WQBELs are necessary after a review of such information. Such information may include the facility or discharge type, solids loading, lack of dilution, history of compliance problems, potential toxic effects, fish tissue data, 303(d) status of the receiving water, presence of threatened or endangered species or their critical habitat, or other information.

b. Second Path

If any pollutant concentration, adjusted to account for dilution, is greater than the most stringent applicable water quality criterion, there is reasonable potential for

that pollutant to cause or contribute to exceedances of water quality standards, and a WQBEL is required.

c. Third Path

If the effluent data contains three or more detected and quantified values (i.e., values that are at or above the Minimum Level [ML]), and all values in the data set are at or above the ML, a parametric reasonable potential analysis is conducted to project the range of possible effluent values. The 95th percentile concentration is determined at 95 percent confidence for each pollutant, and compared to the most stringent applicable criterion to determine reasonable potential. A parametric analysis assumes that the range of possible effluent values is distributed lognormally. If the 95th percentile value is greater than the most stringent applicable criterion, there is reasonable potential for that pollutant to cause or contribute to exceedances of water quality standards and a WQBEL is required.

d. Fourth Path

If the effluent data contains three or more detected and quantified values (i.e., values that are at or above the ML), but at least one value in the data set is less than the ML, a parametric reasonable potential analysis is conducted according to the following steps.

(1) If the number of censored values (those expressed as a “less than” value) account for less than 80 percent of the total number of effluent values, calculate the M_L (the mean of the natural log of transformed data) and S_L (the standard deviation of the natural log of transformed data) and conduct a parametric reasonable potential analysis, as described above for the Third Path.

(2) If the number of censored values account for 80 percent or more of the total number of effluent values, conduct a non-parametric reasonable potential anlaysis, as described below for the Fifth Path. (A non-parametric analysis becomes necessary when the effluent data are limited, and no assumptions can be made regarding its possible distribution.)

e. Fifth Path

A non-parametric reasonable potential analysis is conducted when the effluent data set contains less than three detected and quantified values, or when the effluent data set contains three or more detected and quantified values but the number of censored values account for 80 percent or more of the total number of effluent values. A non-parametric analysis is conducted by ordering the data, comparing each result to the applicable criterion, and accounting for ties. The sample number is reduced by one for each tie, when the dilution-adjusted method detection limit (MDL) is greater than the criterion. If the adjusted sample number, after accounting for ties, is greater than 15, the pollutant has no reasonable potential to exceed the water quality standards. If the sample number

is 15 or less, the analysis is inconclusive, monitoring is required, and any existing effluent limits in the expiring permit are retained.

4. Reasonable Potential Analysis

Table F-11 presents results of the reasonable potential analysis. Data used for this analysis are from October 2003 to December 2007 for most inorganics, and from November 2003 to November 2007 for most organics. A dilution of 150:1 was assumed as explained above. The analysis was performed in accordance with Ocean Plan procedures. The endpoint for each criterion is identified. Results show "reasonable potential" for mercury, and as a result, this Order establishes an effluent limitation for mercury. An effluent limit is retained for chronic toxicity because monitoring under the previous permit showed toxicity levels close to the limit.

As shown in the table, the reasonable potential analysis commonly resulted in Endpoint 3, meaning that the analysis is inconclusive, when a majority of the effluent data is reported as ND (not detected). In these circumstances, the "inconclusive" result is an indication of no concern for a particular pollutant; however, continued monitoring is required during the term of the permit.

a. TCDD Equivalents. The calculations to complete a reasonable potential analysis for TCDD equivalents were more complicated than the analysis for other individual pollutants since each sample is analyzed for 16 congeners (Attachment E Section IV.A). For each of the 18 samples (collected between March 2003 and November 2007) the TCDD equivalent of each congener was calculated. When a congener was identified as DNQ (detected but not quantified), then the detection limit value was used in determining the TCDD equivalent for that sample. For each congener in each sample, the TCDD equivalent was calculated using the TEF and BEF as described in Attachment A TCDD equivalents. To determine the TCDD equivalent for each sample, the TCDD equivalents of each congener in that sample were summed.

The State Water Board has developed a reasonable potential calculator (RPcalc 2.0) for use with the Ocean Plan. The use of this program is described at http://www.waterboards.ca.gov/water_issues/programs/ocean/docs/trirev/stakeholder050505/rphelp20.pdf The calculator is available at the State Water Board's web site: www.waterboards.ca.gov/plnspols/docs/oplans/rpcalc.zip. The calculator was used to determine the need for TCDD equivalents limits in this Order.

To determine the upper 95th upper confidence bound for the 95th percentile the TCDD equivalent value for the set of 18 samples, the TCDD equivalent value for each sample, or zero for samples with no congeners detected, was entered into the RPcalc program. The results, using a dilution ratio of 76:1, showed no reasonable potential for TCDD equivalents. Therefore, there would also be no reasonable potential assuming 150:1 dilution.

b. Chronic Toxicity. The reasonable potential analysis shown in Table F-11 does not show reasonable potential for chronic toxicity when accounting for at least 150:1 dilution; however, USEPA finds reasonable potential by the first path identified above because monitoring data collected during the term of the previous permit showed chronic toxicity at levels close to the limit and because similar excursions could occur in the future.

c. Total Chlorine Residual. On May 17, 1989, the Regional Water Board adopted Order No. 89-71, amending Order No. 88-106 to delete disinfection requirements for the effluent. The Regional Water Board action was based on the Discharger's technical report dated April 3, 1989, *Wastefield Transport and Bacteriological Compliance Studies of the San Francisco Ocean Outfall*. The studies were conducted in 1987 and 1988. The findings indicated that the non-disinfected wastewater discharge from the Discharge Point 001 did not violate the Ocean Plan bacteriological body-contact standards. There is no disinfection of the effluent and thus no potential for disinfectant residuals or by-products, for example from chlorine, to impact the effluent.

Table F-11. Reasonable Potential Analysis Results for the Discharge Point 001

Table B Pollutant	Most Stringent WQO (µg/L)[1]	No. of Samples	No. of Non-Detects	Max Effluent Conc. (µg/L)	Result, Comment
Objectives for Protection of Marine Aquatic Life					
Ammonia	600	93	0	44	Endpoint 2
Arsenic	8	51	34	5.9	Endpoint 2
Cadmium	1	51	32	1.9	Endpoint 2
Chlorinated Phenolics	1	15	15	ND	Endpoint 3
Chromium (VI)	2	72	42	5.4 (DNQ)	Endpoint 2
Acute Toxicity	0.3[6]				Endpoint 2
Chronic Toxicity	1[2]	53	22	50	Endpoint 3[4] **Effluent Limit** and monitoring
Copper	3	51	0	70	Endpoint 2
Cyanide	1	52	9	6.8	Endpoint 2
Endosulfan (total)	0.009	18	18	ND	Endpoint 2
Endrin	0.002	18	18	ND	Endpoint 2
HCH	0.004	18	18	ND	Endpoint 2
Lead	2	51	20	8.6	Endpoint 2
Mercury	0.04	53	0	12	Endpoint 1 –**Effluent limit** and monitoring
Nickel	5	51	3	7.2	Endpoint 2
Non-chlorinated Phenolics	30	15	14	5.0	Endpoint 3
Radioactivity[3]	-	9	3	37	Endpoint 2
Selenium	15	51	37	1.8	Endpoint 2
Silver	0.7	51	21	3.8	Endpoint 2
Total Chlorine Residual	2	0	0	0[5]	Endpoint 2
Zinc	20	51	0	146	Endpoint 2
Objectives for Protection of Human Health – Noncarcinogens					
1,1,1-Trichloroethane	540000	20	20	ND	Endpoint 2
2,4-Dinitrophenol	4.0	15	14	5.0	Endpoint 3

Table B Pollutant	Most Stringent WQO (µg/L)[1]	No. of Samples	No. of Non-Detects	Max Effluent Conc. (µg/L)	Result, Comment
2-Methyl-4,6-Dinitrophenol	220	15	15	ND	Endpoint 3
Acrolein	220	12	11	22	Endpoint 3
Antimony	1200	18	17	0.94	Endpoint 2
Bis(2-Chloroethoxy)Methane	4.4	15	15	ND	Endpoint 3
Bis(2-Chloroisopropyl)Ether	1200	15	15	ND	Endpoint 3
Chlorobenzene	570	20	18	0.44	Endpoint 2
Chromium (III)	190000	51	30	5.4	Endpoint 2
Dichlorobenzenes	5100	19	13	1.2	Endpoint 2
Diethyl Phthalate	33000	15	14	0.47	Endpoint 3
Dimethyl Phthalate	820000	15	15	ND	Endpoint 3
Di-n-Butyl Phthalate	3500	15	15	ND	Endpoint 3
Ethylbenzene	4100	20	16	0.64	Endpoint 2
Fluoranthene	15	17	17	ND	Endpoint 2
Hexachlorocyclopentadiene	58	15	15	ND	Endpoint 3
Nitrobenzene	4.9	15	15	ND	Endpoint 3
Thallium	2	18	18	ND	Endpoint 2
Toluene	85000	20	8	1.6	Endpoint 2
Tributylin	0.0014	17	16	0.008	Endpoint 2
Objectives for Protection of Human Health – Carcinogens					
1,1,2,2-Tetrachloroethane	2.3	20	20	ND	Endpoint 2
1,1,2-Trichloroethane	9.4	20	20	ND	Endpoint 2
1,1-Dichloroethylene	0.9	20	20	ND	Endpoint 2
1,2-Dichloroethane	28	20	19	0.08	Endpoint 2
1,2-Diphenylhydrazine	0.16	15	15	ND	Endpoint 3
1,3-Dichloropropylene	8.9	20	20	ND	Endpoint 2
1,4 Dichlorobenzene	18	19	13	0.84	Endpoint 2
TCDD Equivalents	3.9E-9	18	3	1.8E-09	Endpoint 2
2,4,6-Trichlorophenol	0.29	15	15	ND	Endpoint 3
2,4-Dinitrotoluene	2.6	15	15	ND	Endpoint 3
3,3'-Dichlorobenzidine	0.0081	15	15	ND	Endpoint 3
Acrylonitrile	0.10	13	13	ND	Endpoint 3
Aldrin	2.2E-5	18	18	ND	Endpoint 2
Benzene	5.9	20	20	ND	Endpoint 2
Benzidine	6.9E-5	15	15	ND	Endpoint 3
Beryllium	0.033	18	17	0.086	Endpoint 2
Bis(2-Chloroethyl)Ether	0.045	15	15	ND	Endpoint 3
Bis(2-Ethylhexyl)Phthalate	3.5	15	15	ND	Endpoint 3
Carbon Tetrachloride	0.90	17	17	ND	Endpoint 2
Chlordane	2.3E-5	18	18	ND	Endpoint 2
Chlorodibromomethane	8.6	20	19	0.95	Endpoint 2
Chloroform	130	20	5	9.8	Endpoint 2
DDT (total)	0.00017	18	18	ND	Endpoint 2
Dichlorobromomethane	6.2	18	13	0.65	Endpoint 2
Dieldrin	0.00004	18	18	ND	Endpoint 2
Halomethanes	130	19	14	0.66	Endpoint 2
Heptachlor	0.00005	18	18	ND	Endpoint 2
Heptachlor Epoxide	0.00002	18	18	ND	Endpoint 2
Hexachlorobenzene	0.00021	15	15	ND	Endpoint 3

Table B Pollutant	Most Stringent WQO (µg/L)(1)	No. of Samples	No. of Non-Detects	Max Effluent Conc. (µg/L)	Result, Comment
Hexachlorobutadiene	14	15	15	ND	Endpoint 3
Hexachloroethane	2.5	15	15	ND	Endpoint 3
Isophorone	730	15	15	ND	Endpoint 3
Methylene Chloride	450	20	14	1.6	Endpoint 2
N-Nitrosodimethylamine	7.3	15	15	ND	Endpoint 3
N-Nitrosodi-n-Propylamine	0.38	15	15	ND	Endpoint 3
N-Nitrosodiphenylamine	2.5	15	15	ND	Endpoint 3
PAHs (total)	0.0088	20	18	0.0083	Endpoint 2
PCBs	1.9E-5	18	18	ND	Endpoint 2
Tetrachloroethylene	2.0	20	9	8.4	Endpoint 2
Toxaphene	0.00021	18	18	ND	Endpoint 2
Trichloroethylene	27	20	20	ND	Endpoint 2
Vinyl Chloride	36	20	19	1.3	Endpoint 2

Table notes

(1) Ocean Plan Table B Water Quality Objectives limiting concentrations are 6-month median values.
(2) Chronic toxicity is based on a daily maximum.
(3) Measured in pCi/L, radioactivity not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30253 of the CCR§30253.
(4) Reasonable Potential was not found by calculation but was an issue in the previous permit and effluent limits retained, also monitoring is required in the Ocean Plan (Section III.C.c.(4))
(5) Chlorine is not added to the effluent for disinfection, or any other purpose, and there is no monitoring for residual chlorine
(6) The Ocean Plan does not require monitoring for acute toxicity and previous monitoring did not show reasonable potential.

- NA indicates that effluent data is not available.
- ND indicates that the pollutant was not detected.

5. WQBEL Calculations

As described by Section III. C of the Ocean Plan, Effluent limits for Table B pollutants that show reasonable potential are calculated according to the following equation.

$$Ce = Co + Dm (Co – Cs)$$

Where

Ce = the effluent limitation (µg/L)

Co = the concentration (the water quality objective) to be met at the completion of initial dilution (µg/L).

Cs = background seawater concentration (µg/L)

Dm = minimum probable initial dilution expressed as parts seawater per part wastewater

a. **Mercury**

The reasonable potential analysis showed reasonable potential for mercury because the maximum monthly average mercury concentration in the effluent was 12 µg/L, which when accounting for dilution of 150:1, results in a concentration of 0.08 µg/L, which is above the six-month median water quality objective of 0.04 µg/L. Therefore, this Order establishes mercury WQBELs as described below:

Co (6-month median) = 0.04 µg/L
Co (daily maximum) = 0.16 µg/L
Dm = 149 (based on a dilution of 150:1)
Cs = 0.0005 µg/L (based on Ocean Plan Table C)

Ce (6-month median) = Co (6-month median) + Dm (Co – Cs) = 5.9 µg/L
Ce (daily maximum) = Co (daily maximum) + Dm (Co – Cs) = 24 µg/L

b. **Chronic Toxicity**

The reasonable potential analysis using the Ocean Plan calculation method did not show reasonable potential for chronic toxicity (accounting for at least 150:1 dilution); however, USEPA finds reasonable potential because monitoring under the previous permit showed chronic toxicity at levels close to the limit and since similar excursions may occur that limit is retained in this Order. A chronic toxicity WQBEL may be calculated as follows:

Co (daily maximum) = 1.0 TUc
Dm = 149 (based on a dilution of 150:1)
Cs = 0 TUc (based on Ocean Plan Table C)
Ce (daily maximum) = Co (daily maximum) + Dm (Co – Cs) = 150 TUc

6. Anti-Backsliding/Antidegradation

Most effluent limitations established by this Order are at least as stringent as limitations in the previous permit; and therefore, CWA anti-backsliding requirements are not triggered. As for acute toxicity, monitoring required under the previous permit did not show any reasonable potential. Also, the Ocean Plan does not require acute toxicity limits for this type of discharge, but does require monitoring and an effluent limit for chronic toxicity. Thus, this permit does not contain an acute toxicity limit but does require continued monitoring, and it imposes a chronic toxicity limit.

As for chronic toxicity, the new limit is higher than the limit in the previous permit; however, this is permissible under anti-backsliding regulations. Although the permittee did not exceed the chronic toxicity limit in the previous permit, the previous permit allowed the removal of ammonia prior to chronic toxicity testing. This Order does not allow removal of ammonia prior to toxicity testing because ammonia may contribute to toxicity in the receiving water. Accordingly, the Discharger's toxicity monitoring requirements have been modified. Data provided by the Discharger

indicate that a chronic toxicity limit of 76 cannot consistently be met without ammonia removal. Therefore, this Order applies the new dilution factor of 150:1 to calculate the chronic toxicity limit and relies on the backsliding exceptions under CWA Sections 402(o)(2)(B)(i) and 402(o)(2) (E), and 40 CFR 122.44(l)(2)(b)(1) and 122.44(l)(2)(i)(E).

Because this Order does not authorize an increased rate of discharge or increased pollutant loadings to receiving waters, the antidegradation requirements of 40 CFR 131.13 and State Water Board Resolution No. 68-16 are also satisfied.

D. Land Discharge Specifications

Not Applicable.

E. Reclamation Specifications

Not Applicable.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

This Order is designed to minimize the influence of the discharge on the receiving water. Ocean Plan Section II serves as the basis for the receiving water limitations specified in Section V.A of the Order. These limits are needed to ensure that the receiving water complies with Ocean Plan water quality objectives and therefore protects beneficial uses.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

NPDES regulations at 40 CFR 122.48 require that all NPDES permits specify requirements for recording and reporting monitoring results. CWC §13267 and §13383 authorize the Regional Water Board to require technical and monitoring reports. In addition, the Ocean Discharge Criteria (40 CFR Part 125, subpart M) authorize actions necessary to prevent unreasonable degradation of the marine environment. The Monitoring and Reporting Program (MRP), Attachment E, establishes monitoring and reporting requirements to implement federal and State requirements. The rationale for the monitoring and reporting requirements contained in the MRP for this facility is presented below.

A. Influent Monitoring

In general, influent monitoring requirements are unchanged from the previous permit. Influent monitoring requirements for BOD_5 and TSS are necessary to determine compliance with this Order's 85 percent removal requirement. Influent monitoring for tributyltin and TCDD equivalents are no longer required because previous monitoring has provided for characterization of these pollutants in influent wastewater.

The influent monitoring location remains unchanged, but this Order revises its name for consistency with other NPDES permits in California.

B. Effluent Monitoring

In general, effluent monitoring requirements for discharges from Discharge Point 001 are retained from the previous permit, with the following exceptions:

- Monitoring for toxic pollutants has been updated to reflect the most recent list of pollutants in Ocean Plan Table B.
- Monitoring for mercury is required one time per month to determine compliance with new mercury effluent limitations.
- The monitoring frequency for chronic toxicity has been set at once per quarter. Monitoring data collected each month during the term of the previous permit showed results consistently below effluent limitations.

The effluent monitoring location for Discharge Point 001 has not changed; however, its name has been changed from E-007 to EFF-001, for consistency with other NPDES permits in California.

Monitoring requirements for discharges at a representative CSOD outfall are retained from the previous permit. However, this Order establishes an additional requirement to monitor for the Table B pollutants not currently monitored at this outfall to further characterize these discharges for future reasonable potential analysis.

C. Whole Effluent Toxicity Testing Requirements

The Discharger is required to conduct chronic toxicity tests as described in the MRP (Attachment E) using the Echinoderm Embryo Development test in accordance with the USEPA approved method in 40 CFR 136 (currently *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*, August 1995).

The Discharger performed a screening phase study prior to the expiration of the previous permit for the most sensitive West Coast marine species. The results of this study indicated that the giant kelp germination and growth test was the most sensitive, but suggested the test was variable in part due to the availability and quality of field-collected organisms, and suggested the use of the echinoderm embryo development test because gravid species of two alternate echinoderms, the sand dollar and the purple urchin, could alternately be obtained year-round.

This Order retains the requirement to conduct chronic toxicity monitoring with the echinoderm embryo development test and requires the Discharger to re-screen for the most sensitive species once during the term of this Order.

D. Receiving Water Monitoring

Receiving water monitoring is necessary to ensure compliance with the receiving water limits specified in Section V.A of the Order. Requirements to monitor bacteria in shoreline receiving waters and to conduct recreational use surveys, in the Provisions of

the Order, Section VI.6.(9), during and immediately after CSOD events are retained from the previous permit. The monitoring requirements in MRP (Attachment E) sections IV, VIII, and X are sufficient to characterize receiving water quality.

E. Other Monitoring Requirements

Requirements of the Southwest Ocean Outfall Offshore Monitoring Program are retained from the previous permit to determine the effect of the discharge on sediment quality in the vicinity of the outfall and to determine whether pollutants are bioaccumulating in fauna. The program includes monitoring at 45 locations, including 24 reference locations that are unaffected by the discharge. Monitoring includes chemical and physical analysis of sediment, analysis of the benthic (bottom) community, and analysis of fish and macroinvertebrate species collected by trawling.

1. Offshore Monitoring Program History

In 1986, the Southwest Ocean Outfall was completed to transport primary treated wastewater from the Richmond-Sunset Plant, which was replaced in 1993 by the Oceanside Plant. Monitoring conducted from 1986 to 1996 indicated that a single reference location was inadequate to fully characterize background conditions and to determine whether observed differences between monitoring locations were attributable to natural variation or to the discharge. These early studies also showed that the season or time of year had the greatest impact on study results, and that the relatively close proximity of the Southwest Ocean Outfall to the mouth of the San Francisco Bay confounded interpretation of monitoring results due to the effects of outflow near the Golden Gate.

Following collaboration between the Discharger and USEPA, when the Discharger's permit was reissued in 1997, the study area was expanded to include multiple reference sites, and monitoring frequency was reduced to once per year, in the Fall. In the permit, seven fixed monitoring sites were retained, and an additional 40 monitoring locations were added using USEPA's Environmental Monitoring Assessment Program (EMAP) random sample site selection process. The expanded study area included reference locations in the Gulf of the Farallones and the Monterey Bay National Marine Sanctuaries.

In 2002, additional benthic monitoring locations, south of the discharge pipe, were included in the program to investigate whether the pipe structure itself was affecting benthic infauna abundance through an induced reef affect. When the Discharger's permit was reissued in 2003, the number of required trawls was reduced from eight to two, following observation of no differences among mobile organisms between outfall and reference locations, and in an effort to reduce mortality of collected organisms. At that time, some sediment monitoring locations were also removed from the program because they were found to be inconsistent with the rest of the study area.

As stated in Order No. R2-2003-0073, "This program will be implemented dynamically to maximize the amount of relevant and useful data that can be gathered within the five-year permit life by allowing the EPA, the Regional Water Board, and the City and

County of San Francisco to agree to program corrections in response to ongoing analyses of monitoring data."

2. Monitoring Results from Previous Permit

In January 2006, the Discharger submitted the most recent summary report covering the years from 1997 through 2004. The report indicates no adverse trends in sediment characteristics as a result of the discharge. The mean particle sizes at the outfall area have not changed since pre-construction and pre-discharge periods, which suggests that the Southwest Ocean Outfall does not affect sediment grain size distribution. Additional data collected in 2005 and 2006 show that the outfall area continues to reflect pre-construction and pre-discharge sediment grain size distribution.

Chemical analysis for total solids; total volatile solids; total organic carbon; total Kjeldahl nitrogen; organic pollutants, such as PAHs, PCBs, and DDTs; and trace metals were used to assess the chemical quality of the sediment. Total volatile solvent measurements correlated with areas with high fractions of silt and clay, while total organic carbon and total Kjeldahl nitrogen results correlated with areas of fine sand. All three parameters are historically highest in the northern reference region, indicating little influence of the Southwest Ocean Outfall discharge on these parameters. Sediment chemical quality data collected in 2005 and 2006 indicate that reference stations exceeded tolerance bounds derived from previous monitoring data for percent silt and clay and total organic carbon, but outfall areas were within tolerance bounds for all constituents.

PAH contaminants were present in the sediments prior to discharge and, over the 8 years of measurements, appear to be transitory and affected by sediment movement via currents and winter storms. Concentrations were compared to the Effects Range Medium (ERM) of Sediment Quality Guidelines, which are concentrations of individual compounds that demonstrate the 50% probability of toxic effects. No ERM values for any individual PAH, PCB, or DDT were exceeded during the eight year period. Trace metal analysis of the sediment resulted in consistent exceedances of the ERM values for nickel during the eights years of monitoring; however, nickel occurs naturally in large amounts in the San Francisco Bay area. Overall, the sediment data for the eight years between 1997 an 2004 indicate that the Southwest Ocean Outfall discharge has not negatively affected sediment quality. In 2005, concentrations of 18 PAHs and three PCBs were detected throughout the study area, and total DDTs were detected at three stations. One DDT and 18 PAH compounds were detected in the sediment in 2006. Cadmium, nickel, zinc, and selenium were significantly lower at outfall stations in 2005 over the 2004 results, while nickel concentrations were elevated at all stations in the study area in 2005 and 2006, similar to previous years. Arsenic, selenium, and silver were significantly higher at outfall stations in 2006 versus 2005, while aluminum and mercury were significantly lower at outfall stations in 2006 versus 2005.

The trend of the benthic community analysis over the eight year period indicated that community abundance was more affected by climate than by the discharge, because decreases in abundance correlated with reduced upwelling of the California Current, associated with oceanographic events like El Niño. Analyses of demersal fish and

epibenthic invertebrate communities for the eight year period did not indicate any apparent effects related to the Southwest Ocean Outfall and observed differences in species composition and abundance correlated with El Niño and La Niña events. Benthic infauna community abundance decreased in 2005 and 2006 to the lowest documented overall abundance for the previous ten years. The local upwelling index in 2004 through 2006 was lower than normal, and the sequential years of decreased summer current upwelling occurrences may be related to an overall increase in infauna abundance. Trawl organisms collected in 2005 and 2006 represented a general assortment of native species common to central California near-shore communities; however, the demersal fish community measures of abundance and diversity were at or below the lower tolerance bounds for the outfall location in 2006. Physical anomalies of collected species were similar in all the 2004, 2005, and 2006 sample events.

Samples were screened for physical anomalies, and tissues were analyzed for bioaccumulative substances. Overall organism conditions were similar between the outfall locations and reference locations. The English sole and the Dungeness crab were species selected for bioaccumulation analysis. Three DDTs, 11 PAHs, and 31 PCB congeners were detected in the liver and hepatopancreas tissues. PCB concentrations were statistically significantly higher in the livers of fish collected from the outfall area over those of fish collected in the reference area throughout the study years, and total PAHs frequently exceeded the screening value in all tissue types in organisms from both the reference and outfall areas. There were not any statistically significant trends in bioaccumulation in any organism from either the reference or outfall areas, nor any trends between organism tissue and sediment concentrations. Mercury levels in fish muscle and zinc concentrations in the fish liver at the outfall area were significantly greater than those sampled in the reference area; however, all concentrations were below the mercury screening value the Discharger chose for the purposes of the study (mercury 0.5 ppm wet weight, and zinc 1500 ppm wet weight). Total PAH concentrations above the screening value were detected in every tissue type (except for fish liver) at both the reference and outfall locations in 2005, and were detected above the screening value in fish liver in 2006. Trace metal concentrations in 2005 and 2006 were similar to previous years and were similar to California coastal organisms in other studies.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D to the Order.

Section 122.41(a)(1) and (b) through (n) establish conditions that apply to all State issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified

in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Monitoring and Reporting Program

The rationale for these requirements is described in Section VI, above and in Attachment G, Regional Standard Provisions and Monitoring Requirements for NPDES Wastewater Discharge Permits, July 2009.

C. Special Provisions

1. Reopener Provisions

These provisions are based on 40 CFR Part 123 and allow future modification of this Order and its effluent limitations as necessary.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Combined Sewage Collection System Overflow Study

The combined sewer system commingles storm water and domestic and industrial sewage. Heavy storm events can potentially result in flows that exceed the collection system capacity, at least in some areas. Although all overflows would be captured by the collection system at another point and not be discharged to surface waters, the presence of storm water and sewage on and around streets and sidewalks where human exposure could occur would constitute a nuisance as defined by CWC §13050. Such nuisances are prohibited by Regional Standard Provisions, and Monitoring and Reporting Requirements for NPDES Wastewater Discharge Permits (Attachment G). The purpose of this study is to determine whether nuisance conditions occur during wet weather and, if so, the extent to which they occur and what can be done to minimize or eliminate them.

b. Dilution Model Update and Stratification Data Collection

The available ambient data to determine stratification for the purposes of dilution modeling for this discharge is out-dated and incomplete. This provision requires the Discharger to submit updated data during the next permit reissuance to support new findings related to the most appropriate dilution allowance.

3. Best Management Practices and Pollution Prevention

The provision to continue implementation of a Pollutant Minimization Program is retained from the previous permit and is based on Ocean Plan Section C.9. The provision for pollution prevention is also required as one of the Nine Minimum Controls for combined sewer systems, described in under item 6, below.

4. Construction, Operation, and Maintenance Specifications

a. Wastewater Facilities, Review and Evaluation, and Status Reports

This provision is retained from the previous permit.

b. Operations and Maintenance (O&M) Manual, Review and Status Reports

This provision is based on 40 CFR Part 122 and is retained from the previous permit.

c. Contingency Plan, Review, and Status Reports

This provision is required by Regional Water Board Resolution No. 74-10 and 40 CFR Part 122, and is retained from the previous permit.

5. Special Provisions for Municipal Facilities

a. Pretreatment Program Requirements. This provision requires the Discharger to implement and enforce its approved pretreatment program in accordance with federal pretreatment regulations at 40 CFR Part 403.

b. Sludge Management Practices Requirements. This provision is based on the Basin Plan Chapter IV, Section 14.17, and 40 CFR Parts 257 and 503.

6. Combined Sewer Overflow Control Policy Requirements

The requirements of this provision specify performance criteria for operating the Combined Sewer System under wet weather controls, and are retained from the previous permit. The USEPA *Combined Sewer Overflow Control Policy* (59 FR 18688) regulates the operation of combined sewer systems. The Discharger has designed, constructed, and implemented control and treatment strategies that effectively address wet weather flow conditions, including treatment for 100% of the combined effluent.

The requirements of the USEPA *Combined Sewer Overflow Control Policy* are summarized below:

a. CSO Operation Plan. The Operation Plan is required as part of the Nine Minimum Controls and is revised as necessary to include the long term controls implemented in the long term control plan. This Order retains a provision to revise and update this Plan.

b. Nine Minimum Controls. The Combined Sewer Overflow Control Policy requires "Nine Minimum Controls" to satisfy the CWA technology-based requirements regarding CSOs. These are specifically stated in the provisions of this Order (Section VI.C.6.b) and described generally below .

(1) Conduct proper operations and regular maintenance programs. This control includes a requirement for continuing development and implementation of an Operations Plan.

(2) Maximize use of the collection system for storage. This control refers specifically to the sewer lines, which provide 2.2 million gallons of storage.

(3) Review and modify pretreatment program. This control is intended to minimize the impacts of non-domestic discharges.

(4) Maximize flow to the Plant. Maximizing flow to the Plant maximizes the volume of combined sewer flow treated.

(5) Prohibit CSOs during dry weather. The CWA prohibits CSOs during dry weather, and that prohibition is implemented as one of the Nine Minimum Controls.

(6) Control solid and floatable materials in the CSOs. The control of solids and floatable material is implemented via a baffle system within the combined sewer system and removal of the collected solids captured in the storage/transports.

(7) Develop and implement a Pollution Prevention Program. The Discharger is required to implement a Pollution Prevention Program, as described in section VI.C.3.a. of this Order.

(8) Notify the public of overflows. The Discharger's current notification process fulfills these requirements. The process includes permanent information signs at all beach locations around the perimeter of San Francisco. These signs inform the public in English, Spanish, and Chinese that international NO SWIMMING signs will be posted when it is unsafe to enter the water, and they warn users that bacteria concentrations may be elevated during periods of heavy rainfall. NO SWIMMING signs are posted at beach locations whenever an overflow occurs in the vicinity. These signs remain posted until water sampling indicates that bacteria concentrations have dropped below the level of concern for water contact recreation. Both signs reference the Discharger's toll-free water quality hotline (1-877-SFBEACH), which is updated weekly or whenever beach conditions change. The Discharger also provides color coded indicators (green/open; red/posted) of beach water quality conditions on the Internet (http://beaches.sfwater.org).

(9) Monitor to effectively characterize overflow impacts and the efficacy of CSOD controls. Monitoring requirements established by this Order include all of the Ocean Plan Table B toxic pollutants to better characterize the potential impacts of CSODs on the receiving water.

c. Long-Term Control Plan. In conformance with the *Combined Sewer Overflow Control Policy*, the Discharger developed a long-term control plan to select CSOD controls to comply with water quality standards, based on consideration of the Discharger's financial capability. The purpose of the long-term control plan is to fulfill the water quality-based requirements of the Clean Water Act. The Discharger's program is consistent with the USEPA *Combined Sewer Overflow Control Policy* Presumptive Approach, which presumes that an adequate level of

control is provided to meet the water quality requirements of the CWA contingent upon the satisfaction of any of the following criteria: (1) no more than an average of four overflow events per year, provided that the permitting authority may allow up to two additional overflow events per year (for the purpose of this criterion, an overflow event is one or more CSOs as a result of a precipitation event that does not receive the minimum treatment provided below); (2) the elimination or capture for treatment of no less than 85 percent by volume of the combined sewage collected in the system during precipitation events on a system-wide annual average basis; or (3) the elimination or removal of no less than the mass of pollutants, identified as causing water quality impairment through the sewer system characterization, monitoring, and modeling effort, for the volumes that would be eliminated or captured for treatment under (2) above. Combined sewer overflow treatment shall be a minimum of primary clarification for removal of floatables and settleable solids, solids and floatables disposal, and if necessary to meet water quality standards, disinfection.

The Discharger will continue to implement the Long-Term Control Plan and will characterize combined sewer discharges and the efficacy of the Long-Term-Control-Plan controls through combined sewer discharge monitoring, a requirement that is carried over from the previous permit.

The CSODs are consistent with the requirements of the Presumptive Approach because the Discharger captures and provides treatment to 100 percent of the combined sewer flow, which is greater than the minimum treatment requirement of 85 percent specified under the Presumptive Approach, and results in zero untreated CSOs per year. The effluent is not disinfected because State Water Board Order No.79-16 concluded that allowing an average of eight CSODs per year from Ocean Plan requirements would serve the public interest and would not compromise beneficial uses of the receiving waters.

7. Sensitive Areas Feasibility Report for Overflows

Under the Combined Sewer Overflow Control Policy, the combined sewer discharge points for the Oceanside plant are located in a sensitive area where primary contact recreation occurs. Section II. C. 3 of the Combined Sewer Overflow Control Policy, “Consideration of Sensitive Areas,” states that the Discharger’s long-term combined sewer overflow control plan should:

a. Prohibit new or significantly increased overflows;

b. (1) Eliminate and relocate overflows that discharge to sensitive areas wherever physically possible and economically achievable, except where elimination or relocation would provide less environmental protection than additional treatment.

(2) Where elimination or relocation is not physically possible and economically achievable, or would provide less environmental protection than additional treatment, provide the level of treatment for remaining

overflows deemed necessary to meet WQS for full protection of existing and designated uses. In any event, the level of control should not be less than those described in Evaluation of Alternatives below; and

c. Where elimination or relocation has been proven not to be physically possible and economically achievable, permitting authorities should require, for each subsequent permit term, a reassessment based on new or improved techniques to eliminate or relocate, or on changed circumstances that influence economic achievability."

The Discharger is to submit a report, no later than two years after the effective date of this Order, implementing the "consideration of sensitive areas" section of the Combined Sewer Overflow Control Policy. At a minimum, the discharger is to assess techniques to eliminate or relocate CSODs to sensitive areas, and discuss the level of treatment for any remaining CSODs necessary to meet water quality standards.

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for City and County of San Francisco Oceanside Water Pollution Control Plant and Collection System, including the Westside Wet Weather Facilities. As a step in the WDR adoption process, Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided an opportunity to submit their written comments and recommendations. Notification was provided through a public notice in the San Francisco Recorder during the time period June 8 to June 14, 2009.

Staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail or email to

Derek Whitworth
San Francisco Bay Regional Water Quality Control Board
1515 Clay St., Suite 1400
Oakland, CA 994612

Phone: 510 622 2349
Email: DWhitworth@waterboards.ca.gov

Written comments must be received at the Regional Water Board offices by 5:00 p.m. on July 6, 2009, to be given full consideration and to be fully responded to by Regional Water Board staff.

B. Public Hearings

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular meeting on the following date and time and at the following location:

Date: August 12, 2009
Time: 9:00 a.m.
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Interested persons are invited to attend. At this public hearing, the Regional Water Board will hear testimony, if any, on this Tentative Order.. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

The Order may then be adopted by the Regional Water Board and USEPA at the subsequent hearing to be held on September 9, 2009, at the same time and place.

Please be aware that dates and venues may change. One can access the current agenda for any changes at: www.waterboards.gov/sanfranciscobay.

C. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

D. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged by calling 510-622-2300.

E. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

F. Additional Information

Requests for additional information or questions regarding this order should be directed to Derek Whitworth at 510-622-2349 or email DWhitworth@waterboards.ca.gov.

Appendix 1

Ocean Discharge Criteria Evaluation
NPDES Permit CA0037681
City and County of San Francisco
Oceanside Water Pollution Control Plant (Southwest Ocean Outfall)
Prepared by EPA, Region 9 Water Division
April 27, 2009

Background and Purpose

The purpose of this analysis is to provide supporting documentation for the EPA's evaluation of unreasonable degradation of the marine environment under Section 403 of the Clean Water Act (CWA) for the City and County of San Francisco's Oceanside draft permit. This draft permit is jointly proposed by the EPA and the State of California's San Francisco Bay Regional Water Quality Control Board (Water Board). This analysis applies to the discharge to Federal waters from the Southwest Ocean Outfall.

EPA Region 9 is proposing to comply with the CWA evaluation of unreasonable degradation for this discharge by applying State water quality standards contained in the California Ocean Plan (COP) to the discharge from the Southwest Ocean Outfall, with the exception of the pollutant TCDD equivalents (dioxin). In calculating NPDES permit limitations and conditions for dioxin for this discharge, EPA is using the COP numeric criterion for this pollutant, as well as the COP standard implementation procedures, such as dilution procedures. However, we are proposing to use additional, more recent scientific information that has not yet been considered for inclusion in the COP water quality standards, based on EPA's ocean discharge criteria regulations at 40 CFR 125.122(a). For the calculation of NPDES permit limitations for dioxin, we are proposing to use recently updated toxicity equivalency factors (TEFs), published by the World Health Organization in 2005, as well as the congener-specific bioconcentration equivalency factors (BEFs) used for the Great Lakes System. This approach to developing NPDES permit limits for dioxin was recommended in the "Bay Area Clean Water Agencies' Draft Dioxin Issue Paper: Expert Panel Response and Recommendations," dated April 4, 2008. It incorporates recent scientific information for dioxins on a congener-specific basis, while continuing to use the COP criterion and standards implementation procedures. Region 9's use of the TEFs and BEFs in the draft permit at this time does not constitute EPA endorsement of this approach in other situations.

Because we are proposing to supplement the State water quality standards with some additional information for dioxin, we have developed an analysis of the 10 factors under 40 CFR 125.122(a) to determine unreasonable degradation of the marine environment. The definition of unreasonable degradation of the marine environment in 40 CFR 125.121(e) states:

Unreasonable degradation of the marine environment means:

(1) Significant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities,
(2) Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms, or
(3) Loss of esthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge.

The remainder of this evaluation discusses each of the 10 factors and describes our conclusion that the discharge of dioxin will not cause unreasonable degradation of the marine environment under the Federal regulations.

Evaluation of the Ten Ocean Discharge Criteria under 40 CFR 125.122(a)(1)-(10)

Factor 1: Quantities, Composition, and Potential for Bioaccumulation or Persistence of Pollutants to be Discharged

The quantities and composition of the discharge reflect the main source of dioxins to the plant influent, which appears to be stormwater collected in the combined sewer system. In addition to effluent monitoring, the prior NPDES permit for the Southwest Ocean Outfall required a sampling program to assess dioxin in the City's wastewater discharged to the ocean, and the discharger completed a City-wide dioxin monitoring and assessment report in 2000 (Rourke et. al., 2000). The City's combined sewer system commingles wastewater from homes and businesses with stormwater. The sampling results show that stormwater has significantly higher concentrations of dioxins than dry weather wastewater influent flowing to the plant.

Because all of the City's stormwater receives some level of treatment prior to discharge, the discharge of dioxin to the environment is less than would be expected in a similar community with separate storm sewers. In fact the City's monitoring report (Rourke et. al., 2000) estimated that the wastewater control facilities remove more than 80% of dioxin contained in all stormwater runoff from the City. Communities with separate storm sewers are not categorically required to provide treatment and therefore generally remove no dioxin from their stormwater.

According to the discharger's report, influent to the City's Southeast plant was significantly higher in dioxin on wet weather days than the influent to the Oceanside plant. The sampling report attributed this result to the fact that the service area for the Southeast plant is primarily industrial, so the eastern side of the City would be expected to have a heavier loading due to emissions from diesel engines and other combustion sources. Influent to the Southeast plant during wet weather was on average 35 pg/l TEQ. The report measured average untreated dry weather influent to the Oceanside plant as 1.3 pg/l TEQ, while the average influent during wet weather was 16 pg/l TEQ. At the Oceanside Plant, wet weather effluent (primary/secondary blend) averaged 1.7 pg/l TEQ, while dry weather effluent was less than 0.06 pg/l.

The quantities and composition of the dioxin discharge from the Southwest Ocean Outfall are fairly well characterized, as the discharger has monitored Southwest Ocean Outfall effluent for the dioxin congeners specified in the COP for over 10 years. However, because the detection levels for available quantitation methods (EPA method 1613 is typically used) are often one or more orders of magnitude higher than the water quality criterion, there is some scientific

uncertainty associated with the analysis. Of the 18 sample points used to develop this draft permit, the sample taken on February 13, 2007 contained the highest measured level of TCDD equivalents at 1.35x10-7ug/l with the BEFs and TEFs applied, and 1.0x10-6 ug/l with only TEFs applied. On this day, 6 dioxin congeners were detected: 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 2,3,4,6,7,8-HxCDF, OCDD, and OCDF. The most toxic congener, 2,3,7,8-TCDD, was not detected on any of the days. On most days, most of the congeners were not detected, with the exception of OCDD, which is the most commonly detected congener in the effluent.

Results from the dry weather effluent monitoring data required as a condition of the previous NPDES permit show levels of dioxin consistent with dry weather data from other wastewater treatment plants. Using EPA method 1613, the samples shows a majority of non-detect values, with the congener OCDD most commonly detected. The Water Board and EPA applied COP reasonable potential procedures to the dry weather effluent data, with the addition of updated TEF values and the use of the default Great Lakes BEF values. The result of the analysis was no reasonable potential for the discharge of dioxin to cause or contribute to a water quality exceedance, and thus a water quality-based effluent limitation for TCDD equivalents is not required.

Factor 1 also includes the potential for bioaccumulation or persistence. Dioxin is a bioaccumulative and persistent pollutant. The COP water quality criterion was developed to take this into account, and the BEFs quantify the bioaccumulative properties of each congener regulated under the COP. EPA and the Water Board appropriately considered the bioaccumulative properties of the dioxin congeners in the development of the proposed NPDES permit provisions. Additionally, the location of the outfall along with the diffuser ensures that mixing and dispersion occur, and thus it is unlikely that dioxin in the water column or sediments will build to levels expected to threaten human health due to the consumption of exposed aquatic organisms.

In summary, because the main source of dioxin to the Southwest Ocean Outfall discharge appears to be stormwater and because all the stormwater receives treatment, EPA believes the discharge of dioxin to the environment is less than that from other similar communities with separate storm sewers. While the introduction of dioxins continues to be of concern on a global scale, the dioxin contribution from the Southwest Ocean Outfall discharge is not likely to be a significant source in comparison to that from other urban communities.

Factor 2: Potential for Biological, Physical, or Chemical Transport

Biological transport could occur through the bioaccumulative properties of dioxin. This is taken into account by the COP criterion, as human health impacts through the consumption of aquatic organisms are the bases for the most limiting COP criterion for dioxin relevant to this discharge.

As is the case for many organic pollutants in wastewater, dioxin is associated with effluent suspended solids. Thus, physical transport can occur through the movement of sediment, as well as through the water column. The Westside Wet Weather Facilities treatment, which

consists of solids settling, is effective in removing some dioxin from the discharge (Rourke et. al., 2000).

Because dioxins are persistent compounds that remain stable in the environment, chemical transport is not significant.

The Southwest Ocean Outfall discharges 3.4 to 3.6 nautical miles from the shore, which provides dilution, mixing, and dispersion of pollutants into the open ocean environment. These processes decrease the likelihood that dioxin concentrations in the water column or in sediment would build to levels of concern. The San Francisco Bay is listed as impaired for dioxins under section 303(d) of the CWA, but the receiving waters for the Southwest Ocean Outfall are not listed as impaired. The San Francisco Bay is surrounded by urban development, with more sources of dioxins and fewer opportunities for dispersion into the ocean than the Southwest Ocean Outfall discharge. A comparison of data from the San Francisco Bay's Regional Monitoring Program to sediment and fish tissue data collected as part of the prior NPDES permit's Southwest Ocean Outfall receiving water monitoring requirements concludes that organic pollutants in fish and sediments from San Francisco Bay were higher than those in fish and sediments on the coast (Melwani, undated).

Although the Southwest Ocean Outfall receiving water monitoring does not directly measure dioxins in the sediment and fish tissue of the receiving waters, analysis of bioaccumulative compounds such as mercury and PCBs, including dioxin-like PCBs, was conducted. Based on data collected over ten years, the discharger's analysis did not find any upward trends in the levels of bioaccumulative pollutants in sediments or fish tissue, or any differences between the outfall stations and the reference stations that would indicate an outfall effect (SFPUC, 2006). Thus, EPA does not believe the potential for biological, physical, or chemical transport will cause unreasonable degradation of the ocean environment.

Factor 3: Composition and Vulnerability of Biological Communities

The discharger has conducted benthic infauna community monitoring as well as trawl studies. Fishes collected in the study area represent a general assortment of native species common to central California near-shore waters, with occasional occurrences of species from warmer, southern waters. The biological communities in the vicinity of the discharge appear to be similar to those in other sandy bottom ocean environments off the coast of central California. Federally-listed species under the Endangered Species Act as well as Essential Fish Habitat species under the Magnuson-Stevens Fishery Conservation and Management Act occur in the vicinity of the discharge. EPA is in the process of informal consultation with NOAA Fisheries for this permit reissuance. EPA received a "not likely to adversely affect" determination from NOAA Fisheries for the last two re-issuances of this NPDES permit. Accordingly, EPA is unaware of any specific concerns regarding dioxin for species of concern in the vicinity of the discharge.

Factor 4: Importance of the Receiving Water to the Surrounding Biological Community

EPA is unaware of any unique habitat in the area of the discharge, such as spawning sites, kelp beds, or "hauling out" sites for marine mammals.

Factor 5: Existence of Special Aquatic Sites

The Monterey Bay National Marine Sanctuary (MBNMS) is located in the vicinity of the discharge. However, the Southwest Ocean Outfall discharge itself is not located within the sanctuary boundary. Instead, it is located within an exclusion zone that extends from off the north coast of San Mateo County and the City and County of San Francisco between Point Bonita and Point San Pedro (NOAA 1992, 1999a). Accordingly, the discharge from the Southwest Ocean Outfall is not expected to have a significant adverse effect on the MBNMS.

Factor 6: Potential Impacts on Human Health

As described in factor 10 below, the proposed NPDES permit is based on a water quality criterion for dioxin TEQ developed for the COP which considers the risk to human health from consuming fish and shellfish. Because dioxin congeners are persistent, bioaccumulative pollutants, the discharger will continue to monitor Southwest Ocean Outfall effluent for the presence of dioxin congeners. However, the reasonable potential analysis conducted using reasonable potential procedures developed for COP water quality objectives indicate that dioxin in the Southwest Ocean Outfall effluent has no reasonable potential to cause or contribute to the exceedance of the receiving water quality standard for dioxin.

Factor 7: Recreational and Commercial Fisheries

Recreational and commercial fishing is common in the Pacific Ocean right outside the San Francisco Bay. For this reason, the discharger has been monitoring sediments and fish tissue for bioaccumulative pollutants for over 10 years as part of the Southwest Ocean Outfall monitoring program. No significant outfall effects or upward trends in pollutant concentrations have been found.

Factor 8: Coastal Zone Management Plan

The California Coastal Zone Management Plan (CZMP) incorporates the COP. Because the COP implements water quality standards for dioxin in the Southwest Ocean Outfall discharge, the COP contains the most relevant and specific CZMP requirements. As previously stated, this draft permit proposes to implement the COP criteria and policies, including the policy on dilution, with the addition of the application of TEFs and BEFs for determining reasonable potential for dioxin under the NPDES program.

The Coastal Zone Management Act requires that states make consistency determinations for any federally licensed or permitted activity affecting the coastal zone of a state with an approved CZMP. California's Coastal Management Program was approved in 1978 and established the California Coastal Commission (CCC) as lead agency for program implementation. However, CCC staff has stated that the CCC does not conduct consistency reviews for wastewater treatment plants that operate at secondary treatment levels and thus the CCC will not be providing a consistency determination for the proposed permit

Factor 9: Other Factors Relating to Effects of the Discharge

EPA is proposing to include additional, more recent scientific information that has not yet been considered for inclusion in the COP water quality standards, based on EPA's ocean discharge criteria regulations at 40 CFR 125.122(a). For the calculation of NPDES permit limitations for dioxin, we are proposing to use recently updated toxicity equivalency factors (TEFs), published by the World Health Organization in 2005, as well as the congener-specific bioconcentration equivalency factors (BEFs) used for the Great Lakes System. As explained above, this approach for developing NPDES permit limits for dioxin was recommended in the "Bay Area Clean Water Agencies' Draft Dioxin Issue Paper: Expert Panel Response and Recommendations," dated April 4, 2008, and it incorporates updated scientific information for dioxins on a congener-specific basis, while continuing to use the COP criterion and standards implementation procedures. While Region 9 has the discretion to use these factors under the ocean discharge regulations, Region 9's use of the TEFs and BEFs in the draft permit at this time does not constitute EPA endorsement of this approach in other situations.

Factor 10: Marine Water Quality Criteria Under CWA 304(a)(1)

The current recommended EPA marine water quality criteria for dioxin are 5.1E-09 ug/l for consumption of organisms only, and 5.0E-09 ug/l for consumption of water and organisms. These recommended criteria are based on a carcinogenicity of 10-6 risk. The water quality criteria adopted for dioxin in the COP is 3.9E-09 ug/l for TCDD equivalents on a 30 day average basis. Applying the TEFs and BEFs as well as a conservative 76:1 dilution, under the COP reasonable potential (RP) procedure, which closely parallels the RP procedure in "EPA's Technical Support Document for Water Quality-Based Toxics Control (TSD, USEPA 1991)," EPA and the Water Board conclude the discharge does not have RP for dioxin, and thus the draft permit contains no numeric limits for dioxin. Because the COP criterion for dioxin is more stringent than the EPA recommended criteria, this discharge would not be expected to cause exceedances of the EPA criteria.

Conclusion: Determination of No Unreasonable Degradation of the Marine Environment

Based on consideration of the ten factors discussed above, Region 9 has determined that no unreasonable degradation of the marine environment will result from the discharges of dioxin through the Southwest Ocean Outfall as proposed under NPDES permit CA003768, with all the limitations, conditions, and monitoring requirements in effect.

EPA recognizes that bioaccumulative pollutants such as dioxin are of concern in the receiving waters of the Pacific Ocean, as commercial and recreational fishing takes place in these waters. However, monitoring over a 10 year period has not shown increasing concentrations of bioaccumulative substances in sediment or fish tissue in the vicinity of the discharge. Further, EPA expects that the contribution of dioxins from the Southwest Ocean Outfall discharge is lower than in other urban areas of similar size, due to the City's stormwater treatment facilities and residential service area which, unlike industrial areas, is expected to generate fewer dioxins. The proposed NPDES permit will require continued effluent monitoring for dioxin congeners. The Southwest Ocean Outfall monitoring program will continue to monitor for selected bioaccumulative pollutants in sediment and fish tissue, including dioxin-like PCBs. Finally, because stormwater is significantly higher in dioxin than dry-weather flows, the

proposed permit requirement that the discharger develop options to reduce pollutant loading in stormwater, such as green infrastructure efforts, is expected to reduce dioxin loading to the receiving water.

References

Melwani, A.R.; Greenfield, B.K.; Targgart, L.; and Kellogg, M. “Patterns in Mercury and Trace Organic Contamination of sport fish and Sediments in San Francisco Bay Compared to the Offshore Coast.” Unpublished, undated draft paper obtained from Michael Kellogg, San Francisco Public Utilities Commission.

National Oceanic and Atmospheric Administration 1992. Monterey Bay National Marine Sanctuary. Final Environmental Impact Statement/Management Plan. Volume II: Appendices. U.S. Department of Commerce National Oceanic and Atmospheric Administration Sanctuaries and Reserves Division. 1999a. Monterey Bay National Marine Sanctuary. http://www.sanctuaries.nos.noaa.gov/oms/omsfarallones/omsfarallones.html

———— 1999b. Gulf of the Farallones National Marine Sanctuary .http://www.sanctuaries.nos.noaa.gov/oms/omsfarallones/omsfarallones.html

———— 1999c. Cordell Bank National Marine Sanctuary.: http://www.sanctuaries.nos.noaa.gov/oms/omscordell/

Rourke, Daniel; Marcellini, Kim, Krieger, Fred. “Dioxin in San Francisco Wastewater, Identification and Treatment.” Public Utilities Commission, City and County of San Francisco, Bureau of Environmental Regulation and Management. 2000.

San Francisco Public Utilities Commission, Natural Resources Division, Oceanside Biological Laboratory. “Southwest Ocean Outfall Regional Monitoring Program Eight-Year Summary Report 1997—2004.” January, 2006. http://sfwater.org/detail.cfm/MC_ID/20/MSC_ID/198/MTO_ID/515/C_ID/3102

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT G
REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS
(SUPPLEMENT TO ATTACHMENT D)

For

NPDES WASTEWATER DISCHARGE PERMITS

July 2009

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS (SUPPLEMENT TO ATTACHMENT D)

FOR

NPDES WASTEWATER DISCHARGE PERMITS

APPLICABILITY

This document applies to dischargers covered by a National Pollutant Discharge Elimination System (NPDES) permit. This document does not apply to Municipal Separate Storm Sewer System (MS4) NPDES permits.

The purpose of this document is to supplement the requirements of Attachment D, Standard Provisions. The requirements in this supplemental document are designed to ensure permit compliance through preventative planning, monitoring, recordkeeping, and reporting. In addition, this document requires proper characterization of issues as they arise, and timely and full responses to problems encountered. To provide clarity on which sections of Attachment D this document supplements, this document is arranged in the same format as Attachment D.

I. STANDARD PROVISIONS - PERMIT COMPLIANCE

A. Duty to Comply – Not Supplemented

B. Need to Halt or Reduce Activity Not a Defense – Not Supplemented

C. Duty to Mitigate – This supplements I.C. of Standard Provisions (Attachment D)

1. **Contingency Plan -** The Discharger shall maintain a Contingency Plan as originally required by Regional Water Board Resolution 74-10 and as prudent in accordance with current municipal facility emergency planning. The Contingency Plan shall describe procedures to ensure that existing facilities remain in, or are rapidly returned to, operation in the event of a process failure or emergency incident, such as employee strike, strike by suppliers of chemicals or maintenance services, power outage, vandalism, earthquake, or fire. The Discharger may combine the Contingency Plan and Spill Prevention Plan into one document. Discharge in violation of the permit where the Discharger has failed to develop and implement a Contingency Plan as described below will be the basis for considering the discharge a willful and negligent violation of the permit pursuant to California Water Code Section 13387. The Contingency Plan shall, at a minimum, contain the provisions of a. through g. below.

    a. Provision of personnel for continued operation and maintenance of sewerage facilities during employee strikes or strikes against contractors providing services.

b. Maintenance of adequate chemicals or other supplies and spare parts necessary for continued operations of sewerage facilities.

c. Provisions of emergency standby power.

d. Protection against vandalism.

e. Expeditious action to repair failures of, or damage to, equipment and sewer lines.

f. Report of spills and discharges of untreated or inadequately treated wastes, including measures taken to clean up the effects of such discharges.

g. Programs for maintenance, replacement, and surveillance of physical condition of equipment, facilities, and sewer lines.

2. **Spill Prevention Plan** - The Discharger shall maintain a Spill Prevention Plan to prevent accidental discharges and minimize the effects of such events. The Spill Prevention Plan shall:

   a. Identify the possible sources of accidental discharge, untreated or partially treated waste bypass, and polluted drainage;

   b. Evaluate the effectiveness of present facilities and procedures, and state when they became operational; and

   c. Predict the effectiveness of the proposed facilities and procedures, and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

   This Regional Water Board, after review of the Contingency and Spill Prevention Plans or their updated revisions, may establish conditions it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of the permit upon notice to the Discharger.

D. Proper Operation & Maintenance – This supplements I.D of Standard Provisions (Attachment D)

1. **Operation and Maintenance (O&M) Manual** - The Discharger shall maintain an O&M Manual to provide the plant and regulatory personnel with a source of information describing all equipment, recommended operational strategies, process control monitoring, and maintenance activities. To remain a useful and relevant document, the O&M Manual shall be kept updated to reflect significant changes in treatment facility equipment and operational practices. The O&M Manual shall be maintained in usable condition and be available for reference and use by all relevant personnel and Regional Water Board staff.

2. **Wastewater Facilities Status Report** - The Discharger shall regularly review, revise, or update, as necessary, its Wastewater Facilities Status Report. This report shall document how the Discharger operates and maintains its wastewater collection, treatment, and disposal facilities to ensure that all facilities are adequately staffed, supervised, financed, operated,

maintained, repaired, and upgraded as necessary to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

3. **Proper Supervision and Operation of Publicly Owned Treatment Works (POTWs) -** POTWs shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

E. Property Rights – Not Supplemented

F. Inspection and Entry – Not Supplemented

G. Bypass – Not Supplemented

H. Upset – Not Supplemented

I. Other – This section is an addition to Standard Provisions (Attachment D)

1. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by California Water Code Section 13050.

2. Collection, treatment, storage, and disposal systems shall be operated in a manner that precludes public contact with wastewater, except in cases where excluding the public is infeasible, such as private property. If public contact with wastewater could reasonably occur on public property, warning signs shall be posted.

3. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit continues in force and effect until a new permit is issued or the Regional Water Board rescinds the permit.

J. Storm Water – This section is an addition to Standard Provisions (Attachment D)

These provisions apply to facilities that do not direct all storm water flows from the facility to the wastewater treatment plant headworks.

1. **Storm Water Pollution Prevention Plan (SWPP Plan**)

The SWPP Plan shall be designed in accordance with good engineering practices and shall address the following objectives:

a. To identify pollutant sources that may affect the quality of storm water discharges; and

b. To identify, assign, and implement control measures and management practices to reduce pollutants in storm water discharges.

The SWPP Plan may be combined with the existing Spill Prevention Plan as required in accordance with Section C.2. The SWPP Plan shall be retained on-site and made available upon request of a representative of the Regional Water Board.

2. Source Identification

The SWPP Plan shall provide a description of potential sources that may be expected to add significant quantities of pollutants to storm water discharges, or may result in non-storm water discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing the wastewater treatment facility process areas, surface water bodies (including springs and wells), and discharge point(s) where the facility's storm water discharges to a municipal storm drain system or other points of discharge to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

b. A site map showing the following:

1) Storm water conveyance, drainage, and discharge structures;

2) An outline of the storm water drainage areas for each storm water discharge point;

3) Paved areas and buildings;

4) Areas of actual or potential pollutant contact with storm water or release to storm water, including but not limited to outdoor storage and process areas; material loading, unloading, and access areas; and waste treatment, storage, and disposal areas;

5) Location of existing storm water structural control measures (i.e., berms, coverings, etc.);

6) Surface water locations, including springs and wetlands; and

7) Vehicle service areas.

c. A narrative description of the following:

1) Wastewater treatment process activity areas;

2) Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with storm water discharges;

3) Material storage, loading, unloading, and access areas;

4) Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharges; and

5) Methods of on-site storage and disposal of significant materials.

d. A list of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities.

3. Storm Water Management Controls

The SWPP Plan shall describe the storm water management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of storm water management controls to be implemented shall include, as appropriate:

a. Storm water pollution prevention personnel

Identify specific individuals (and job titles) that are responsible for developing, implementing, and reviewing the SWPP Plan.

b. Good housekeeping

Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm drain conveyance system.

c. Spill prevention and response

Identify areas where significant materials can spill into or otherwise enter storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, and cleanup equipment and procedures shall be identified, as appropriate. The necessary equipment to implement a cleanup shall be available, and personnel shall be trained in proper response, containment, and cleanup of spills. Internal reporting procedures for spills of significant materials shall be established.

d. Source control

Source controls include, for example, elimination or reduction of the use of toxic pollutants, covering of pollutant source areas, sweeping of paved areas, containment of potential pollutants, labeling of all storm drain inlets with “No Dumping” signs, isolation or separation of industrial and non-industrial pollutant sources so that runoff from these areas does not mix, etc.

e. Storm water management practices

Storm water management practices are practices other than those that control the sources of pollutants. Such practices include treatment or conveyance structures, such as drop inlets, channels, retention and detention basins, treatment vaults, infiltration galleries, filters, oil/water separators, etc. Based on assessment of the potential of various sources to contribute pollutants to storm water discharges in significant quantities, additional storm water management practices to remove pollutants from storm water discharges shall be implemented and design criteria shall be described.

f. Sediment and erosion control

Measures to minimize erosion around the storm water drainage and discharge points, such as riprap, revegetation, slope stabilization, etc., shall be described.

g. Employee training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training shall address spill response, good housekeeping, and material management practices. New employee and refresher training schedules shall be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering storm water discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded. Inspection records shall be retained for five years.

i. Records

A tracking and follow-up procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. Annual Verification of SWPP Plan

An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up-to-date. The results of this review shall be reported in the Annual Report to the Regional Water Board described in Section V.C.f.

K. Biosolids Management – This section is an addition to Standard Provisions (Attachment D)

Biosolids must meet the following requirements prior to land application. The Discharger must either demonstrate compliance or, if it sends the biosolids to another party for further treatment or distribution, must give the recipient the information necessary to ensure compliance.

1. Exceptional quality biosolids meet the pollutant concentration limits in Table III of 40 CFR Part 503.13, Class A pathogen limits, and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8). Such biosolids do not have to be tracked further for compliance with general requirements (503.12) and management practices (503.14).

2. Biosolids used for agricultural land, forest, or reclamation shall meet the pollutant limits in Table I (ceiling concentrations) and Table II or Table III (cumulative loadings or pollutant concentration limits) of 503.13. They shall also meet the general requirements (503.12) and management practices (503.14) (if not exceptional quality biosolids) for Class A or Class B pathogen levels with associated access restrictions (503.32) and one of the 10 vector attraction reduction requirements in 503.33(b)(1)-(b)(10).

3. Biosolids used for lawn or home gardens must meet exceptional quality biosolids limits.

4. Biosolids sold or given away in a bag or other container must meet the pollutant limits in either Table III or Table IV (pollutant concentration limits or annual pollutant loading rate limits) of 503.13. If Table IV is used, a label or information sheet must be attached to the biosolids packing that explains Table IV (see 503.14). The biosolids must also meet the Class A pathogen limits and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8).

II. STANDARD PROVISIONS – PERMIT ACTION – Not Supplemented

III. STANDARD PROVISIONS – MONITORING

A. Sampling and Analyses – This section is a supplement to III.A and III.B of Standard Provisions (Attachment D)

1. Use of Certified Laboratories

Water and waste analyses shall be performed by a laboratory certified for these analyses in accordance with California Water Code Section 13176.

2. Use of Appropriate Minimum Levels

Table C lists the suggested analytical methods for the 126 priority pollutants and other toxic pollutants that should be used, unless a particular method or minimum level (ML) is required in the MRP.

For priority pollutant monitoring, when there is more than one ML value for a given substance, the Discharger may select any one of those cited analytical methods for compliance determination provided the ML is below the effluent limitation and the water quality objective. If no ML value is below the effluent limitation and water quality objective, then the Regional Water Board will assign the lowest ML value indicated in Table C, and its associated analytical method for inclusion in the MRP. For effluent monitoring, this alternate method shall also be U.S. EPA-approved (such as the 1600 series) or one of those listed in Table C. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

3. Frequency of Monitoring

The minimum schedule of sampling analysis is specified in the MRP portion of the permit.

a. Timing of Sample Collection

i. The Discharger shall collect samples of influent on varying days selected at random and shall not include any plant recirculation or other sidestream wastes, unless otherwise stipulated by the MRP.

ii. The Discharger shall collect samples of effluent on days coincident with influent sampling unless otherwise stipulated by the MRP or the Executive Officer. The Executive Officer may approve an alternative sampling plan if it is demonstrated to be representative of plant discharge flow and in compliance with all other permit requirements.

iii. The Discharger shall collect grab samples of effluent during periods of day-time maximum peak effluent flows (or peak flows through secondary treatment units for facilities that recycle effluent flows).

iv. Effluent sampling for conventional pollutants shall occur on at least one day of any multiple-day bioassay test the MRP requires. During the course of the test, on at least one day, the Discharger shall collect and retain samples of the discharge. In the event a bioassay test does not comply with permits limits, the Discharger shall analyze these retained samples for pollutants that could be toxic to aquatic life and for which it has effluent limits.

1) The Discharger shall perform bioassay tests on final effluent samples; when chlorine is used for disinfection, bioassay tests shall be performed on effluent after chlorination-dechlorination; and

2) The Discharger shall analyze for total ammonia nitrogen and calculate the amount of un-ionized ammonia whenever test results fail to meet the percent survival specified in the permit.

b. Conditions Triggering Accelerated Monitoring

i. If the results from two consecutive samples of a constituent monitored in a 30-day period exceed the monthly average limit for any parameter (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the Discharger shall, within 24 hours after the results are received, increase its sampling frequency to daily until the results from the additional sampling shows that the parameter is in compliance with the monthly average limit.

ii. If any maximum daily limit is exceeded, the Discharger shall increase its sampling frequency to daily within 24 hours after the results are received that indicate the exceedance of the maximum daily limit until two samples collected on consecutive days show compliance with the maximum daily limit.

iii. If final or intermediate results of an acute bioassay test indicate a violation or threatened violation (e.g., the percentage of surviving test organisms of any single acute bioassay test is less than 70 percent), the Discharger shall initiate a new test as soon as practical, and the Discharger shall investigate the cause of the mortalities and report its findings in the next self-monitoring report (SMR).

iv. The Discharger shall calibrate chlorine residual analyzers against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, the Discharger shall collect grab samples at least every 30 minutes until compliance with the limit is achieved, unless the Discharger monitors chlorine residual continuously. In such cases, the Discharger shall continue to conduct continuous monitoring as required by its permit.

v. When any type of bypass occurs, the Discharger shall collect samples on a daily basis for all constituents at affected discharge points that have effluent limits for the duration of the bypass, unless otherwise stipulated by the MRP.

c. Storm Water Monitoring

The requirements of this section only apply to facilities that are not covered by an NPDES permit for storm water discharges and where not all site storm drainage from process areas (i.e., areas of the treatment facility where chemicals or wastewater could come in contact with storm water) is directed to the headworks. For storm water not directed to the headworks during the wet season (October 1 to April 30), the Discharger shall:

i. Conduct visual observations of the storm water discharge locations during daylight hours at least once per month during a storm event that produces significant storm water discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor, etc.

ii. Measure (or estimate) the total volume of storm water discharge, collect grab samples of storm water discharge from at least two storm events that produce significant storm water discharge, and analyze the samples for oil and grease, pH, TSS, and specific conductance.

The grab samples shall be taken during the first 30 minutes of the discharge. If collection of the grab samples during the first 30 minutes is impracticable, grab samples may be taken during the first hour of the discharge, and the Discharger shall explain in the Annual Report why the grab sample(s) could not be taken in the first 30 minutes.

iii. Testing for the presence of non-storm water discharges shall be conducted no less than twice during the dry season (May 1 to September 30) at all storm water discharge locations. Tests may include visual observations of flows, stains, sludges, odors, and other abnormal conditions; dye tests; TV line surveys; or analysis and validation of accurate piping schematics. Records shall be maintained describing the method used, date of testing, locations observed, and test results.

iv. Samples shall be collected from all locations where storm water is discharged. Samples shall represent the quality and quantity of storm water discharged from the facility. If a facility discharges storm water at multiple locations, the Discharger may sample a reduced number of locations if it establishes and documents through the monitoring program that storm water discharges from different locations are substantially identical.

v. Records of all storm water monitoring information and copies of all reports required by the permit shall be retained for a period of at least three years from the date of sample, observation, or report.

d. Receiving Water Monitoring

The requirements of this section only apply when the MRP requires receiving water sampling.

i. Receiving water samples shall be collected on days coincident with effluent sampling for conventional pollutants.

ii. Receiving water samples shall be collected at each station on each sampling day during the period within one hour following low slack water. Where sampling during lower slack water is impractical, sampling shall be performed during higher slack water. Samples shall be collected within the discharge plume and down current of the discharge point so as to be representative, unless otherwise stipulated in the MRP.

iii. Samples shall be collected within one foot of the surface of the receiving water, unless otherwise stipulated in the MRP.

B. Biosolids Monitoring – This section supplements III.B of Standard Provisions (Attachment D)

When biosolids are sent to a landfill, sent to a surface disposal site, or applied to land as a soil amendment, they must be monitored as follows:

1. Biosolids Monitoring Frequency

Biosolids disposal must be monitored at the following frequency:

Metric tons biosolids/365 days	Frequency
0-290	Once per year
290-1500	Quarterly
1500-15,000	Six times per year
Over 15,000	Once per month

(Metric tons are on a dry weight basis)

2. Biosolids Pollutants to Monitor

Biosolids shall be monitored for the following constituents:

Land Application: arsenic, cadmium, chromium, copper, mercury, molybdenum, nickel, lead, selenium, and zinc

Municipal Landfill: Paint filter test (pursuant to 40 CFR 258)

Biosolids-only Landfill or Surface Disposal Site (if no liner and leachate system): arsenic, chromium, and nickel

C. Standard Observations – This section is an addition to III of Standard Provisions (Attachment D)

1. Receiving Water Observations

The requirements of this section only apply when the MRP requires standard observations of the receiving water. Standard observations shall include the following:

a. *Floating and suspended materials* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.

b. *Discoloration and turbidity*: description of color, source, and size of affected area.

c. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

d. *Beneficial water use*: presence of water-associated waterfowl or wildlife, fisherpeople, and other recreational activities in the vicinity of each sampling station.

e. *Hydrographic condition*: time and height of corrected high and low tides (corrected to nearest National Oceanic and Atmospheric Administration location for the sampling date and time of sample collection).

f. *Weather conditions*:

1) Air temperature; and

2) Total precipitation during the five days prior to observation.

2. Wastewater Effluent Observations

The requirements of this section only apply when the MRP requires wastewater effluent standard observations. Standard observations shall include the following:

a. *Floating and suspended material of wastewater origin* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence.

b. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

3. Beach and Shoreline Observations

The requirements of this section only apply when the MRP requires beach and shoreline standard observations. Standard observations shall include the following:

a. *Material of wastewater origin*: presence or absence, description of material, estimated size of affected area, and source.

b. *Beneficial use*: estimate number of people participating in recreational water contact, non-water contact, or fishing activities.

4. Land Retention or Disposal Area Observations

The requirements of this section only apply to facilities with on-site surface impoundments or disposal areas that are in use. This section applies to both liquid and solid wastes, whether confined or unconfined. The Discharger shall conduct the following for each impoundment:

a. Determine the amount of freeboard at the lowest point of dikes confining liquid wastes.

b. Report evidence of leaching liquid from area of confinement and estimated size of affected area. Show affected area on a sketch and volume of flow (e.g., gallons per minute [gpm]).

c. Regarding odor, describe presence or absence, characterization, source, distance of travel, and wind direction.

d. Estimate number of waterfowl and other water-associated birds in the disposal area and vicinity.

5. Periphery of Waste Treatment and/or Disposal Facilities Observations

The requirements of this section only apply when the MRP specifies periphery standard observations. Standard observations shall include the following:

a. *Odor*: presence or absence, characterization, source, and distance of travel.

b. *Weather conditions*: wind direction and estimated velocity.

IV. STANDARD PROVISIONS – RECORDS

A. Records to be Maintained – This supplements IV.A of Standard Provisions (Attachment D)

The Discharger shall maintain records in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Regional Water Board staff. The minimum period of retention specified in Section IV, Records, of the Federal Standard Provisions shall be extended during the course of any unresolved litigation regarding the subject discharge, or when requested by the Regional Water Board or Regional Administrator of USEPA, Region IX.

A copy of the permit shall be maintained at the discharge facility and be available at all times to operating personnel.

B. Records of monitoring information shall include – This supplements IV.B of Standard Provision (Attachment D)

1. Analytical Information

Records shall include analytical method detection limits, minimum levels, reporting levels, and related quantification parameters**.**

2. Flow Monitoring Data

For all required flow monitoring (e.g., influent and effluent flows), the additional records shall include the following, unless otherwise stipulated by the MRP:

a. Total volume for each day; and

b. Maximum, minimum, and average daily flows for each calendar month.

3. Wastewater Treatment Process Solids

a. For each treatment unit process that involves solids removal from the wastewater stream, records shall include the following:

1) Total volume or mass of solids removed from each unit (e.g., grit, skimmings, undigested biosolids) for each calendar month or other time period as appropriate, but not to exceed annually; and

2) Final disposition of such solids (e.g., landfill, other subsequent treatment unit).

b. For final dewatered biosolids from the treatment plant as a whole, records shall include the following:

1) Total volume or mass of dewatered biosolids for each calendar month;

2) Solids content of the dewatered biosolids; and

3) Final disposition of dewatered biosolids (disposal location and disposal method).

4. Disinfection Process

For the disinfection process, these additional records shall be maintained documenting process operation and performance:

a. For bacteriological analyses:

1) Wastewater flow rate at the time of sample collection; and

2) Required statistical parameters for cumulative bacterial values (e.g., moving median or geometric mean for the number of samples or sampling period identified in this Order).

b. For the chlorination process, when chlorine is used for disinfection, at least daily average values for the following:

1) Chlorine residual of treated wastewater as it enters the contact basin (mg/L);

2) Chlorine dosage (kg/day); and

3) Dechlorination chemical dosage (kg/day).

5. **Treatment Process Bypasses**

A chronological log of all treatment process bypasses, including wet weather blending, shall include the following:

a. Identification of the treatment process bypassed;

b. Dates and times of bypass beginning and end;

c. Total bypass duration;

d. Estimated total bypass volume; and

e. Description of, or reference to other reports describing, the bypass event, the cause, the corrective actions taken (except for wet weather blending that is in compliance with permit conditions), and any additional monitoring conducted.

6. **Treatment Facility Overflows**

This section applies to records for overflows at the treatment facility. This includes the headworks and all units and appurtenances downstream. The Discharger shall retain a chronological log of overflows at the treatment facility and records supporting the information provided in section V.E.2.

C. Claims of Confidentiality – Not Supplemented

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information – Not Supplemented

B. Signatory and Certification Requirements – Not Supplemented

C. Monitoring Reports – This section supplements V.C of Standard Provisions (Attachment D)

1. Self-Monitoring Reports

For each reporting period established in the MRP, the Discharger shall submit an SMR to the Regional Water Board in accordance with the requirements listed in this document and at the frequency the MRP specifies. The purpose of the SMR is to document treatment performance, effluent quality, and compliance with the waste discharge requirements of this Order.

a. Transmittal letter

Each SMR shall be submitted with a transmittal letter. This letter shall include the following:

1) Identification of all violations of effluent limits or other waste discharge requirements found during the reporting period;

2) Details regarding violations: parameters, magnitude, test results, frequency, and dates;

3) Causes of violations;

4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrences, and dates or time schedule of action implementation (if previous reports have been submitted that address corrective actions, reference to the earlier reports is satisfactory);

5) Data invalidation (Data should not be submitted in an SMR if it does not meet quality assurance/quality control standards. However, if the Discharger wishes to invalidate any measurement after it was submitted in an SMR, a letter shall identify the measurement suspected to be invalid and state the Discharger's intent to submit, within 60 days, a formal request to invalidate the measurement. This request shall include the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports invalidation [e.g., laboratory sheet, log entry, test results, etc.], and discussion of the corrective actions taken or planned [with a time schedule for completion] to prevent recurrence of the sampling or measurement problem.);

6) If the Discharger blends, the letter shall describe the duration of blending events and certify whether blended effluent was in compliance with the conditions for blending; and

7) Signature (The transmittal letter shall be signed according to Section V.B of this Order, Attachment D – Standard Provisions.).

b. Compliance evaluation summary

Each report shall include a compliance evaluation summary. This summary shall include each parameter for which the permit specifies effluent limits, the number of samples taken during the monitoring period, and the number of samples that exceed applicable effluent limits.

c. Results of analyses and observations

1) Tabulations of all required analyses and observations, including parameter, date, time, sample station, type of sample, test result, method detection limit, method minimum level, and method reporting level, if applicable, signed by the laboratory director or other responsible official.

2) When determining compliance with an average monthly effluent limitation and more than one sample result is available in a month, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of detected but not quantified (DNQ) or nondetect (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

i. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

ii. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

If a sample result, or the arithmetic mean or median of multiple sample results, is below the reporting limit, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the Discharger conducts a Pollutant Minimization Program, the Discharger shall not be deemed out of compliance.

3) Dioxin-TEQ Reporting: The Discharger shall report for each dioxin and furan congener the analytical results of effluent monitoring, including the quantifiable limit (reporting level), and the method detection limit, and the measured concentration. Estimated concentrations shall be reported for individual congeners, but shall be set equal to zero in determining the dioxin-TEQ value. The Discharger shall multiply each measured or estimated congener concentration by its respective toxicity equivalency factor (TEF) shown in Table A and report the sum of these values.

Table A: Toxic Equivalency Factors for 2,3,7,8-TCDD Equivalents

Congener	**TEF**
2,3,7,8-TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001

d. Data reporting for results not yet available

The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a timely manner. Certain analyses require additional time to complete analytical processes and report results. For cases where required monitoring parameters require additional time to complete analytical processes and reports, and results are not available in time to be included in the SMR for the subject monitoring period, the Discharger shall describe such circumstances in the SMR and include the data for these parameters and relevant discussions of any observed exceedances in the next SMR due after the results are available.

e. Flow data

The Discharger shall provide flow data tabulation pursuant to Section IV.B.2.

f. Annual self-monitoring report requirements

By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

1) Annual compliance summary table of treatment plant performance, including documentation of any blending events;

2) Comprehensive discussion of treatment plant performance and compliance with the permit (This discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices.);

3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater;

4) List of approved analyses, including the following:

(i) List of analyses for which the Discharger is certified;

(ii) List of analyses performed for the Discharger by a separate certified laboratory and copies of reports signed by the laboratory director of that laboratory shall not be submitted but retained onsite;

(iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all storm water to the headworks of its wastewater treatment plant); and

7) Results of facility report reviews (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.).

g. Report submittal

The Discharger shall submit SMRs to:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: NPDES Wastewater Division

h. Reporting data in electronic format

The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

1) *Reporting Method*: The Discharger shall submit SMRs electronically via a process approved by the Executive Officer (see, for example, the letter dated December 17, 1999, "Official Implementation of Electronic Reporting System [ERS]" and the progress report letter dated December 17, 2000).

2) *Monthly or Quarterly Reporting Requirements*: For each reporting period (monthly or quarterly as specified in the MRP), the Discharger shall submit an electronic SMR to the Regional Water Board in accordance with the provisions of Section V.C.1.a-e, except for requirements under Section V.C.1.c(1) where ERS does not have fields for dischargers to input certain information (e.g., sample time). However, until USEPA approves the electronic signature or other signature technologies, Dischargers that use ERS shall submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, and a violation report (a receipt of the electronic transmittal shall be retained by the Discharger). This electronic SMR submittal suffices for the signed tabulations specified under Section V.C.1.c(1).

3) *Annual Reporting Requirements*: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting the portion of the annual report required under Section V.C.1.f(1) and (3).

D. Compliance Schedules – Not supplemented

E. Twenty-Four Hour Reporting – This section supplements V.E of Standard Provision (Attachment D)

1. Spill of Oil or Other Hazardous Material Reports

a. Within 24 hours of becoming aware of a spill of oil or other hazardous material that is not contained onsite and completely cleaned up, the Discharger shall report by telephone to the Regional Water Board at (510) 622-2369.

b. The Discharger shall also report such spills to the State Office of Emergency Services [telephone (800) 852-7550] only when the spills are in accordance with applicable reporting quantities for hazardous materials.

c. The Discharger shall submit a written report to the Regional Water Board within five working days following telephone notification unless directed otherwise by Regional Water Board staff. A report submitted electronically is acceptable. The written report shall include the following:

1) Date and time of spill, and duration if known;

2) Location of spill (street address or description of location);

3) Nature of material spilled;

4) Quantity of material involved;

5) Receiving water body affected, if any;

6) Cause of spill;

7) Estimated size of affected area;

8) Observed impacts to receiving waters (e.g., oil sheen, fish kill, water discoloration);

9) Corrective actions taken to contain, minimize, or clean up the spill;

10) Future corrective actions planned to be taken to prevent recurrence, and schedule of implementation; and

11) Persons or agencies notified.

2. Unauthorized Discharges from Municipal Wastewater Treatment Plants[1]

The following requirements apply to municipal wastewater treatment plants that experience an unauthorized discharge at their treatment facilities and are consistent with and supercede requirements imposed on the Discharger by the Executive Officer by letter of May 1, 2008, issued pursuant to California Water Code Section 13383.

a. Two (2)-Hour Notification

For any unauthorized discharges that result in a discharge to a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the State Office of Emergency Services (telephone 800-852-7550), the local health officers or directors of environmental health with jurisdiction over the affected water bodies, and the Regional Water Board. The notification to the Regional Water Board shall be via the Regional Water Board's online reporting system at www.wbers.net, and shall include the following:

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

1) Incident description and cause;

2) Location of threatened or involved waterway(s) or storm drains;

3) Date and time the unauthorized discharge started;

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on); and

6) Identity of the person reporting the unauthorized discharge.

b. 24-hour Certification

Within 24 hours, the Discharger shall certify to the Regional Water Board, at www.wbers.net, that the State Office of Emergency Services and the local health officers or directors of environmental health with jurisdiction over the affected water bodies have been notified of the unauthorized discharge.

c. 5-Day Written Report

Within five business days, the Discharger shall submit a written report, via the Regional Water Board's online reporting system at www.wbers.net, that includes, in addition to the information required above, the following:

1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;

2) Efforts implemented to minimize public exposure to the unauthorized discharge;

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;

4) Corrective measures taken to minimize the impact of the unauthorized discharge;

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges; and

7) Quantity and duration of the unauthorized discharge, and the amount recovered.

d. Communication Protocol

To clarify the multiple levels of notification, certification, and reporting, the current communication requirements for unauthorized discharges from municipal wastewater treatment plants are summarized in Table B that follows.

F. Planned Changes – Not supplemented

G. Anticipated Noncompliance – Not supplemented

H. Other Noncompliance – Not supplemented

I. Other Information – Not supplemented

VI. STANDARD PROVISIONS – ENFORCEMENT – Not Supplemented

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS – Not Supplemented

Table B

Summary of Communication Requirements for Unauthorized Discharges[1] from Municipal Wastewater Treatment Plants

Discharger is required to:	Agency Receiving Information	Time frame	Method for Contact
1. Notify	State Office of Emergency Services (OES)	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Telephone – (800) 852-7550 (obtain a control number from OES)
	Local health department	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Depends on local health department
	Regional Water Board	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Electronic[2] www.wbers.net
2. Certify	Regional Water Board	As soon as possible, but not later than **24 hours** after becoming aware of the unauthorized discharge.	Electronic[3] www.wbers.net
3. Report	Regional Water Board	Within **5 business days** of becoming aware of the unauthorized discharge.	Electronic[4] www.wbers.net

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

[2] In the event that the Discharger is unable to provide online notification within 2 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the notification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the notification information into the Regional Water Board's online system in electronic format.

[3] In most instances, the 2-hour notification will also satisfy 24-hour certification requirements. This is because the notification form includes fields for documenting that OES and the local health department have been contacted. In other words, if the Discharger is able to complete all the fields in the notification form within 2 hours, certification requirements are also satisfied. In the event that the Discharger is unable to provide online certification within 24 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the certification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the certification information into the Regional Water Board's online system in electronic format.

[4] If the Discharger cannot satisfy the 5-day reporting requirements via the Regional Water Board's online reporting system, it shall submit a written report (preferably electronically in pdf) to the appropriate Regional Water Board case manager. In cases where the Discharger cannot satisfy the 5-day reporting requirements via the online reporting system, it must still complete the Regional Water Board's online reporting requirements within 15 calendar days of becoming aware of the unauthorized discharge.

VIII. DEFINITIONS – This section is an addition to Standard Provisions (Attachment D)

More definitions can be found in Attachment A of this NPDES Permit.

1. Arithmetic Calculations

   a. Geometric mean is the antilog of the log mean or the back-transformed mean of the logarithmically transformed variables, which is equivalent to the multiplication of the antilogarithms. The geometric mean can be calculated with either of the following equations:

   $$\text{Geometric Mean} = Anti\log\left(\frac{1}{N}\sum_{i=1}^{N} Log(C_i)\right)$$

   or

   $$\text{Geometric Mean} = (C_1 * C_2 * \ldots * C_N)^{1/N}$$

   Where "N" is the number of data points for the period analyzed and "C" is the concentration for each of the "N" data points.

   b. Mass emission rate is obtained from the following calculation for any calendar day:

   $$\text{Mass emission rate (lb/day)} = \frac{8.345}{N}\sum_{i=1}^{N} Q_i C_i$$

   $$\text{Mass emission rate (kg/day)} = \frac{3.785}{N}\sum_{i=1}^{N} Q_i C_i$$

   In which "N" is the number of samples analyzed in any calendar day and "Q_i" and "C_i" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" grab samples that may be taken in any calendar day. If a composite sample is taken, "C_i" is the concentration measured in the composite sample and "Q_i" is the average flow rate occurring during the period over which the samples are composited. The daily concentration of a constituent measured over any calendar day shall be determined from the flow-weighted average of the same constituent in the combined waste streams as follows:

   $$C_d = \text{Average daily concentration} = \frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$$

   In which "N" is the number of component waste streams and "Q" and "C" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" waste streams. "Q_t" is the total flow rate of the combined waste streams.

   c. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the

formulas in the paragraph above, using the effluent concentration limit specified in the permit for the period and the specified allowable flow.

d. POTW removal efficiency is the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities (expressed as a percentage). The Discharger shall determine removal efficiencies using monthly averages (by calendar month unless otherwise specified) of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

Removal Efficiency (%) = 100 × [1-(Effluent Concentration/Influent Concentration)]

2. Biosolids means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates separated from or created in wastewater by the unit processes of a treatment system. It also includes, but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow and underflow in the solids handling parts of the wastewater treatment system.

3. Blending is the practice of recombining wastewater that has been biologically treated with wastewater that has bypassed around biological treatment units.

4. Bottom sediment sample is (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertebrates.

5. Composite sample is a sample composed of individual grab samples collected manually or by an automatic sampling device on the basis of time or flow as specified in the MRP. For flow-based composites, the proportion of each grab sample included in the composite sample shall be within plus or minus five percent (+/-5%) of the representative flow rate of the waste stream being measured at the time of grab sample collection. Alternatively, equal volume grab samples may be individually analyzed with the flow-weighted average calculated by averaging flow-weighted ratios of each grab sample analytical result. Grab samples comprising time-based composite samples shall be collected at intervals not greater than those specified in the MRP. The quantity of each grab sample comprising a time-based composite sample shall be a set of flow proportional volumes as specified in the MRP. If a particular time-based or flow-based composite sampling protocol is not specified in the MRP, the Discharger shall determine and implement the most representative sampling protocol for the given parameter subject to Executive Officer approval.

6. Depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled. The Discharger shall collect depth-integrated samples in such a manner that the collected sample will be representative of the waste or water body at that sampling point.

7. Flow sample is an accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.

8. Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples represent only the condition that exists at the time the wastewater is collected.

9. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

10. Overflow is the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a transport system (e.g., through manholes, at pump stations, and at collection points) upstream from the treatment plant headworks or from any part of a treatment plant facility.

11. Priority pollutants are those constituents referred to in 40 CFR Part 122 as promulgated in the Federal Register, Vol. 65, No. 97, Thursday, May 18, 2000, also known as the California Toxics Rule, the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses.

12. Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

13. Toxic pollutant means any pollutant listed as toxic under federal Clean Water Act section 307(a)(1) or under 40 CFR 401.15.

14. Untreated waste is raw wastewater.

15. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in the permit. The requirements of the permit apply to the entire volume of water, and the material therein, that is disposed of to surface and ground waters of the State of California.

Table C

List of Monitoring Parameters and Analytical Methods

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
1.	Antimony	204.2					10	5	50	0.5	5	0.5		1000
2.	Arsenic	206.3				20		2	10	2	2	1		1000
3.	Beryllium						20	0.5	2	0.5	1			1000
4.	Cadmium	200 or 213				10	0.5	10	0.25	0.5				1000
5a.	Chromium (III)	SM 3500												
5b.	Chromium (VI)	SM 3500				10	5							1000
6.	Copper	200.9					25	5	10	0.5	2			1000
7.	Lead	200.9					20	5	5	0.5	2			10,000
8.	Mercury	1631 (note)[3]												
9.	Nickel	249.2					50	5	20	1	5			1000
10.	Selenium	200.8 or SM 3114B or C						5	10	2	5	1		1000
11.	Silver	272.2					10	1	10	0.25	2			1000
12.	Thallium	279.2					10	2	10	1	5			1000
13.	Zinc	200 or 289					20		20	1	10			
14.	Cyanide	SM 4500 CN^- C or I				5								
15.	Asbestos (only required for dischargers to MUN waters)[4]	0100.2 [5]												
16.	2,3,7,8-TCDD and 17 congeners (Dioxin)	1613												
17.	Acrolein	603	2.0	5										
18.	Acrylonitrile	603	2.0	2										
19.	Benzene	602	0.5	2										
33.	Ethylbenzene	602	0.5	2										

[1] The suggested method is the USEPA Method unless otherwise specified (SM = Standard Methods). The discharger may use another USEPA-approved or recognized method if that method has a level of quantification below the applicable water quality objective. Where no method is suggested, the Discharger has the discretion to use any standard method.

[2] Minimum levels are from the *State Implementation Policy*. They are the concentration of the lowest calibration standard for that technique based on a survey of contract laboratories. Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., U.S. EPA 200.9); Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; DCP = Direct Current Plasma.

[3] The Discharger shall use ultra-clean sampling (USEPA Method 1669) and ultra-clean analytical methods (USEPA Method 1631) for mercury monitoring. The minimum level for mercury is 2 ng/l (or 0.002 ug/l).

[4] MUN = Municipal and Domestic Supply. This designation, if applicable, is in the Findings of the permit.

[5] *Determination of Asbestos Structures over 10 [micrometers] in Length in Drinking Water Using MCE Filters*, U.S. EPA 600/R-94-134, June 1994.

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
39.	Toluene	602	0.5	2										
20.	Bromoform	601	0.5	2										
21.	Carbon Tetrachloride	601	0.5	2										
22.	Chlorobenzene	601	0.5	2										
23.	Chlorodibromomethane	601	0.5	2										
24.	Chloroethane	601	0.5	2										
25.	2-Chloroethylvinyl Ether	601	1	1										
26.	Chloroform	601	0.5	2										
75.	1,2-Dichlorobenzene	601	0.5	2										
76.	1,3-Dichlorobenzene	601	0.5	2										
77.	1,4-Dichlorobenzene	601	0.5	2										
27.	Dichlorobromomethane	601	0.5	2										
28.	1,1-Dichloroethane	601	0.5	1										
29.	1,2-Dichloroethane	601	0.5	2										
30.	1,1-Dichloroethylene or 1,1-Dichloroethene	601	0.5	2										
31.	1,2-Dichloropropane	601	0.5	1										
32.	1,3-Dichloropropylene or 1,3-Dichloropropene	601	0.5	2										
34.	Methyl Bromide or Bromomethane	601	1.0	2										
35.	Methyl Chloride or Chloromethane	601	0.5	2										
36.	Methylene Chloride or Dichlorormethane	601	0.5	2										
37.	1,1,2,2-Tetrachloroethane	601	0.5	1										
38.	Tetrachloroethylene	601	0.5	2										
40.	1,2-Trans-Dichloroethylene	601	0.5	1										
41.	1,1,1-Trichloroethane	601	0.5	2										
42.	1,1,2-Trichloroethane	601	0.5	2										
43.	Trichloroethene	601	0.5	2										
44.	Vinyl Chloride	601	0.5	2										
45.	2-Chlorophenol	604	2	5										
46.	2,4-Dichlorophenol	604	1	5										
47.	2,4-Dimethylphenol	604	1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	604	10	5										
49.	2,4-Dinitrophenol	604	5	5										
50.	2-Nitrophenol	604		10										
51.	4-Nitrophenol	604	5	10										
52.	3-Methyl-4-Chlorophenol	604	5	1										
53.	Pentachlorophenol	604	1	5										
54.	Phenol	604	1	1		50								
55.	2,4,6-Trichlorophenol	604	10	10										
56.	Acenaphthene	610 HPLC	1	1	0.5									
57.	Acenaphthylene	610 HPLC		10	0.2									
58.	Anthracene	610 HPLC		10	2									
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	610 HPLC	10	5										
61.	Benzo(a)Pyrene	610 HPLC		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene	610 HPLC		10	10									

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
63.	Benzo(ghi)Perylene	610 HPLC		5	0.1									
64.	Benzo(k)Fluoranthene	610 HPLC		10	2									
74.	Dibenzo(a,h)Anthracene	610 HPLC		10	0.1									
86.	Fluoranthene	610 HPLC	10	1	0.05									
87.	Fluorene	610 HPLC		10	0.1									
92.	Indeno(1,2,3-cd) Pyrene	610 HPLC		10	0.05									
100.	Pyrene	610 HPLC		10	0.05									
68.	Bis(2-Ethylhexyl)Phthalate	606 or 625	10	5										
70.	Butylbenzyl Phthalate	606 or 625	10	10										
79.	Diethyl Phthalate	606 or 625	10	2										
80.	Dimethyl Phthalate	606 or 625	10	2										
81.	Di-n-Butyl Phthalate	606 or 625		10										
84.	Di-n-Octyl Phthalate	606 or 625		10										
59.	Benzidine	625		5										
65.	Bis(2-Chloroethoxy)Methane	625		5										
66.	Bis(2-Chloroethyl)Ether	625	10	1										
67.	Bis(2-Chloroisopropyl)Ether	625	10	2										
69.	4-Bromophenyl Phenyl Ether	625	10	5										
71.	2-Chloronaphthalene	625		10										
72.	4-Chlorophenyl Phenyl Ether	625		5										
73.	Chrysene	625		10	5									
78.	3,3'-Dichlorobenzidine	625		5										
82.	2,4-Dinitrotoluene	625	10	5										
83.	2,6-Dinitrotoluene	625		5										
85.	1,2-Diphenylhydrazine (note)[6]	625		1										
88.	Hexachlorobenzene	625	5	1										
89.	Hexachlorobutadiene	625	5	1										
90.	Hexachlorocyclopentadiene	625	5	5										
91.	Hexachloroethane	625	5	1										
93.	Isophorone	625	10	1										
94.	Naphthalene	625	10	1	0.2									
95.	Nitrobenzene	625	10	1										
96.	N-Nitrosodimethylamine	625	10	5										
97.	N-Nitrosodi-n-Propylamine	625	10	5										
98.	N-Nitrosodiphenylamine	625	10	1										
99.	Phenanthrene	625		5	0.05									
101.	1,2,4-Trichlorobenzene	625	1	5										
102.	Aldrin	608	0.005											
103.	α-BHC	608	0.01											
104.	β-BHC	608	0.005											
105.	γ-BHC (Lindane)	608	0.02											
106.	δ-BHC	608	0.005											
107.	Chlordane	608	0.1											
108.	4,4'-DDT	608	0.01											
109.	4,4'-DDE	608	0.05											

[6] Measurement for 1,2-Diphenylhydrazine may use azobenzene as a screen: if azobenzene is measured at >1 ug/l, then the Discharger shall analyze for 1,2-Diphenylhydrazine.

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
110.	4,4'-DDD	608	0.05											
111.	Dieldrin	608	0.01											
112.	Endosulfan (alpha)	608	0.02											
113.	Endosulfan (beta)	608	0.01											
114.	Endosulfan Sulfate	608	0.05											
115.	Endrin	608	0.01											
116.	Endrin Aldehyde	608	0.01											
117.	Heptachlor	608	0.01											
118.	Heptachlor Epoxide	608	0.01											
119-125	PCBs: Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	608	0.5											
126.	Toxaphene	608	0.5											

ATTACHMENT H

Pretreatment Program Provisions

1. The Discharger shall implement all pretreatment requirements contained in 40 CFR 403, as amended. The Discharger shall be subject to enforcement actions, penalties, and fines as provided in the Clean Water Act (33 USC 1351 et seq.), as amended. The Discharger shall implement and enforce its Approved Pretreatment Program or modified Pretreatment Program as directed by the Regional Water Board's Executive Officer or the USEPA. The USEPA and/or the State may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the Clean Water Act.

2. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d) and 402(b) of the Clean Water Act. The Discharger shall cause industrial users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.

3. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 and amendments or modifications thereto including, but not limited to:

   i) Implement the necessary legal authorities to fully implement the pretreatment regulations as provided in 40 CFR 403.8(f)(1);

   ii) Implement the programmatic functions as provided in 40 CFR 403.8(f)(2);

   iii) Publish an annual list of industrial users in significant noncompliance as provided per 40 CFR 403.8(f)(2)(vii);

   iv) Provide for the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3); and

   v) Enforce the national pretreatment standards for prohibited discharges and categorical standards as provided in 40 CFR 403.5 and 403.6, respectively.

4. The Discharger shall submit annually a report to USEPA Region 9, the State Water Board and the Regional Water Board describing its pretreatment program activities over the previous twelve months. In the event that the Discharger is not in compliance with any conditions or requirements of the Pretreatment Program, the Discharger shall also include the reasons for noncompliance and a plan and schedule for achieving compliance. The report shall contain, but is not limited to, the information specified in Appendix A entitled, "Requirements for Pretreatment Annual Reports," which is made a part of this Order. The annual report is due on the last day of February each year.

5. The Discharger shall submit semiannual pretreatment reports to USEPA Region 9, the State Water Board and the Regional Water Board describing the status of its significant industrial users (SIUs). The report shall contain, but not is limited to, the information specified in Appendix B entitled, "Requirements for Semiannual Pretreatment Reports," which is made part of this Order. The semiannual reports are due July 31st (for the period January through June) and January 31st (for the period July through December) of each year. The Executive Officer may exempt a Discharger from the semiannual reporting requirements on a case by case basis subject to State Water Board and USEPA's comment and approval.

6. The Discharger may combine the annual pretreatment report with the semiannual pretreatment report (for the July through December reporting period). The combined report shall contain all of the information requested in Appendices A and B and will be due on January 31st of each year.

7. The Discharger shall conduct the monitoring of its treatment plant's influent, effluent, and sludge as described in Appendix C entitled, "Requirements for Influent, Effluent and Sludge Monitoring," which is made part of this Order. The results of the sampling and analysis, along with a discussion of any trends, shall be submitted in the semiannual reports. A tabulation of the data shall be included in the annual pretreatment report. The Executive Officer may require more or less frequent monitoring on a case by case basis.

APPENDIX A

REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS

The Pretreatment Annual Report is due each year on the last day of February. [If the annual report is combined with the semiannual report (for the July through December period) the submittal deadline is January 31st of each year.] The purpose of the Annual Report is 1) to describe the status of the Publicly Owned Treatment Works (POTW) pretreatment program and 2) to report on the effectiveness of the program, as determined by comparing the results of the preceding year's program implementation. The report shall contain at a minimum, but is not limited to, the following information:

1) **Cover Sheet**

The cover sheet must contain the name(s) and National Pollutant Discharge Elimination Discharge System (NPDES) permit number(s) of those POTWs that are part of the Pretreatment Program. Additionally, the cover sheet must include: the name, address and telephone number of a pretreatment contact person; the period covered in the report; a statement of truthfulness; and the dated signature of a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for overall operation of the POTW (40 CFR 403.12(j)).

2) **Introduction**

The Introduction shall include any pertinent background information related to the Discharger, the POTW and/or the industrial user base of the area. Also, this section shall include an update on the status of any Pretreatment Compliance Inspection (PCI) tasks, Pretreatment Performance Evaluation tasks, Pretreatment Compliance Audit (PCA) tasks, Cleanup and Abatement Order (CAO) tasks, or other pretreatment-related enforcement actions required by the Regional Water Board or the USEPA. A more specific discussion shall be included in the section entitled, "Program Changes."

3) **Definitions**

This section shall contain a list of key terms and their definitions that the Discharger uses to describe or characterize elements of its pretreatment program.

4) **Discussion of Upset, Interference and Pass Through**

This section shall include a discussion of Upset, Interference or Pass Through incidents, if any, at the POTW(s) that the Discharger knows of or suspects were caused by industrial discharges. Each incident shall be described, at a minimum, consisting of the following information:

a) a description of what occurred;
b) a description of what was done to identify the source;
c) the name and address of the IU responsible
d) the reason(s) why the incident occurred;
e) a description of the corrective actions taken; and
f) an examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing requirements may be necessary to prevent other Upset, Interference or Pass Through incidents.

5) **Influent, Effluent and Sludge Monitoring Results**

This section shall provide a summary of the analytical results from the "Influent, Effluent and Sludge Monitoring" as specified in Appendix C. The results should be reported in a summary matrix that lists monthly influent and effluent metal results for the reporting year.

A graphical representation of the influent and effluent metal monitoring data for the past five years shall also be provided with a discussion of any trends.

6) **Inspection and Sampling Program**

This section shall contain at a minimum, but is not limited to, the following information:

a) Inspections: the number of inspections performed for each type of IU; the criteria for determining the frequency of inspections; the inspection format procedures;
b) Sampling Events: the number of sampling events performed for each type of IU; the criteria for determining the frequency of sampling; the chain of custody procedures.

7) **Enforcement Procedures**

This section shall provide information as to when the approved Enforcement Response Plan (ERP) had been formally adopted or last revised. In addition, the date the finalized ERP was submitted to the Regional Water Board shall also be given.

8) **Federal Categories**

This section shall contain a list of all of the federal categories that apply to the Discharger. The specific category shall be listed including the subpart and 40 CFR section that applies. The maximum and average limits for the each category shall be provided. This list shall indicate the number of Categorical Industrial Users (CIUs) per category and the CIUs that are being regulated pursuant to the category. The information and data used to determine the limits for those CIUs for which a combined waste stream formula is applied shall also be provided.

9) **Local Standards**

This section shall include a table presenting the local limits.

10) **Updated List of Regulated SIUs**

This section shall contain a complete and updated list of the Discharger's Significant Industrial Users (SIUs), including their names, addresses, and a brief description of the individual SIU's type of business. The list shall include all deletions and additions keyed to the list as submitted in the previous annual report. All deletions shall be briefly explained.

11) **Compliance Activities**

a) **Inspection and Sampling Summary:** This section shall contain a summary of all the inspections and sampling activities conducted by the Discharger over the past year to gather information and data regarding the SIUs. The summary shall include:

(1) the number of inspections and sampling events conducted for each SIU;

(2) the quarters in which these activities were conducted; and

(3) the compliance status of each SIU, delineated by quarter, and characterized using all applicable descriptions as given below:

(a) in consistent compliance;

(b) in inconsistent compliance;

(c) in significant noncompliance;

(d) on a compliance schedule to achieve compliance, (include the date final compliance is required);

(e) not in compliance and not on a compliance schedule;

(f) compliance status unknown, and why not.

b) **Enforcement Summary:** This section shall contain a summary of the compliance and enforcement activities during the past year. The summary shall include the names of all the SIUs affected by the following actions:

(1) Warning letters or notices of violations regarding SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.

(2) Administrative Orders regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.

(3) Civil actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.

(4) Criminal actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.

(5) Assessment of monetary penalties. Identify the amount of penalty in each case and reason for assessing the penalty.

(6) Order to restrict/suspend discharge to the POTW.

(7) Order to disconnect the discharge from entering the POTW.

12) **Baseline Monitoring Report Update**

This section shall provide a list of CIUs that have been added to the pretreatment program since the last annual report. This list of new CIUs shall summarize the status of the respective Baseline Monitoring Reports (BMR). The BMR must contain all of the information specified in 40 CFR 403.12(b). For each of the new CIUs, the summary shall indicate when the BMR was due; when the CIU was notified by the POTW of this requirement; when the CIU submitted the report; and/or when the report is due.

13) **Pretreatment Program Changes**

This section shall contain a description of any significant changes in the Pretreatment Program during the past year including, but not limited to: legal authority, local limits, monitoring/ inspection program and frequency, enforcement protocol, program's administrative structure, staffing level, resource requirements and funding mechanism. If the manager of the pretreatment program changes, a revised organizational chart shall be included. If any element(s) of the program is in the process of being modified, this intention shall also be indicated.

14) **Pretreatment Program Budget**

This section shall present the budget spent on the Pretreatment Program. The budget, either by the calendar or fiscal year, shall show the amounts spent on personnel, equipment, chemical analyses and any other appropriate categories. A brief discussion of the source(s) of funding shall be provided.

15) **Public Participation Summary**

This section shall include a copy of the public notice as required in 40 CFR 403.8(f)(2)(vii). If a notice was not published, the reason shall be stated.

16) **Sludge Storage and Disposal Practice**

This section shall have a description of how the treated sludge is stored and ultimately disposed. The sludge storage area, if one is used, shall be described in detail. Its location, a description of the containment features and the sludge handling procedures shall be included.

17) **PCS Data Entry Form**

The annual report shall include the PCS Data Entry Form. This form shall summarize the enforcement actions taken against SIUs in the past year. This form shall include the following information: the POTW name, NPDES Permit number, period covered by the report, the number of SIUs in significant noncompliance (SNC) that are on a pretreatment compliance schedule, the number of notices of violation and administrative orders issued against SIUs, the number of civil and criminal judicial actions against SIUs, the number of SIUs that have been published as a result of being in SNC, and the number of SIUs from which penalties have been collected.

18) **Other Subjects**

Other information related to the Pretreatment Program that does not fit into one of the above categories should be included in this section.

Signed copies of the reports shall be submitted to the Regional Administrator at USEPA, the State Water Board and the Regional Water Board at the following addresses:

Regional Administrator
United States Environmental Protection Agency
Region 9, Mail Code: WTR-7
Clean Water Act Compliance Office
Water Division
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Pretreatment Coordinator
NPDES Permits Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

APPENDIX B:

REQUIREMENTS FOR SEMIANNUAL PRETREATMENT REPORTS

The semiannual pretreatment reports are due on July 31st (for pretreatment program activities conducted from January through June) and January 31st (for pretreatment activities conducted from July through December) of each year, unless an exception has been granted by the Regional Water Board's Executive Officer. The semiannual reports shall contain, at a minimum, but is not limited to, the following information:

1) **Influent, Effluent and Sludge Monitoring**

The influent, effluent and sludge monitoring results shall be included in the report. The analytical laboratory report shall also be included, with the QA/QC data validation provided upon request. A description of the sampling procedures and a discussion of the results shall be given. (Please see Appendix C for specific detailed requirements.) The contributing source(s) of the parameters that exceed NPDES limits shall be investigated and discussed. In addition, a brief discussion of the contributing source(s) of all organic compounds identified shall be provided.

The Discharger has the option to submit all monitoring results via an electronic reporting format approved by the Executive Officer. The procedures for submitting the data will be similar to the electronic submittal of the NPDES self-monitoring reports as outlined in the December 17, 1999 Regional Water Board letter, Official Implementation of Electronic Reporting System (ERS). The Discharger shall contact the Regional Water Board's ERS Project Manager for specific details in submitting the monitoring data.

If the monitoring results are submitted electronically, the analytical laboratory reports (along with the QA/QC data validation) should be kept at the discharger's facility.

2) **Industrial User Compliance Status**

This section shall contain a list of all Significant Industrial Users (SIUs) that were not in consistent compliance with all pretreatment standards/limits or requirements for the reporting period. The compliance status for the previous reporting period shall also be included. Once the SIU has determined to be out of compliance, the SIU shall be included in the report until consistent compliance has been achieved. A brief description detailing the actions that the SIU undertook to come back into compliance shall be provided.

For each SIU on the list, the following information shall be provided:

a. Indicate if the SIU is subject to Federal categorical standards; if so, specify the category including the subpart that applies.

b. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard.

c. Indicate the compliance status of the SIU for the two quarters of the reporting period.

d. For violations/noncompliance occurring in the reporting period, provide (1) the date(s) of violation(s); (2) the parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters and (3) a brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

3) **POTW's Compliance with Pretreatment Program Requirements**

This section shall contain a discussion of the Discharger's compliance status with the Pretreatment Program Requirements as indicated in the latest Pretreatment Compliance Audit (PCA) Report, Pretreatment Compliance Inspection (PCI) Report or Pretreatment Performance Evaluation (PPE) Report. It shall contain a summary of the following information:

a. Date of latest PCA, PCI or PPE and report.
b. Date of the Discharger's response.
c. List of unresolved issues.
d. Plan and schedule for resolving the remaining issues.

The reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Publicly Owned Treatment Works (POTW) (40 CFR 403.12(j)). Signed copies of the reports shall be submitted to the Regional Administrator at USEPA, the State Water Board and the Regional Water Board at the following addresses:

Regional Administrator
United States Environmental Protection Agency
Region 9, Mail Code: WTR-7
Clean Water Act Compliance Office
Water Division
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Pretreatment Coordinator
NPDES Permits Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

APPENDIX C

REQUIREMENTS FOR INFLUENT, EFFLUENT AND SLUDGE MONITORING

The Discharger shall conduct sampling of its treatment plant's influent, effluent and sludge at the frequency as shown in Table E-5 of the Monitoring and Reporting Program (MRP, Attachment E).

The monitoring and reporting requirements of the POTW's Pretreatment Program are in addition to those specified in Table E-2 (influent) and Table E-3 (effluent) of the MRPTable 1 of the SMP. Any subsequent modifications of the requirements specified in Tables E-2 and E-3 shall be adhered to and shall not affect the requirements described in this Appendix unless written notice from the Regional Water Board is received. When sampling periods coincide, one set of test results, reported separately, may be used for those parameters that are required to be monitored by both Tables E-2 and E-3 in the Pretreatment Program. The Pretreatment Program monitoring reports shall be sent to the Pretreatment Program Coordinator.

1. **Influent and Effluent Monitoring**

The Discharger shall monitor for the parameters using the required test methods listed in Table E-5 (the pretreatment table) Any test method substitutions must have received prior written Regional Water Board approval. Influent and Effluent sampling locations shall be the same as those sites specified in the MRP.

2. **Influent and Effluent Monitoring**

The Discharger shall monitor for the parameters using the required test methods listed in Table E-5 (the pretreatment table) of the MRP. Any test method substitutions must have received prior written Regional Water Board approval. Influent and Effluent sampling locations shall be the same as those sites specified in the MRP.

The influent and effluent sampled should be taken during the same 24-hour period. All samples must be representative of daily operations. Grab samples shall be used for volatile organic compounds, cyanide and phenol. In addition, any samples for oil and grease, polychlorinated biphenyls, dioxins/furans, and polynuclear aromatic hydrocarbons shall be grab samples. For all other pollutants, 24-hour composite samples must be obtained through flow-proportioned composite sampling. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto. For effluent monitoring, the reporting limits for the individual parameters shall be at or below the minimum levels (MLs) as stated in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) [also known as the State Implementation Policy (SIP)]; any revisions to the MLs shall be adhered to. If a parameter does not have a stated minimum level, then the Discharger shall conduct the analysis using the lowest commercially available and reasonably achievable detection levels.

The following standardized report format should be used for submittal of the influent and effluent monitoring report. A similar structured format may be used but will be subject to Regional Water Board approval. The monitoring reports shall be submitted with the Semiannual Reports.

A. Sampling Procedures – This section shall include a brief discussion of the sample locations, collection times, how the sample was collected (i.e., direct collection using vials or bottles, or other types of collection using devices such as automatic samplers, buckets, or beakers), types of containers used, storage procedures and holding times.

Include description of prechlorination and chlorination/dechlorination practices during the sampling periods.

B. Method of Sampling Dechlorination – A brief description of the sample dechlorination method prior to analysis shall be provided.

C. Sample Compositing – The manner in which samples are composited shall be described. If the compositing procedure is different from the test method specifications, a reason for the variation shall be provided.

D. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Water Board upon request.

E. A tabulation of the test results shall be provided.

F. Discussion of Results – The report shall include a complete discussion of the test results. If any pollutants are detected in sufficient concentration to upset, interfere or pass through plant operations, the type of pollutant(s) and potential source(s) shall be noted, along with a plan of action to control, eliminate, and/or monitor the pollutant(s). Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

3. **Sludge Monitoring**

Sludge should be sampled in the same 24-hour period during which the influent and effluent are sampled except as noted in (C) below. The same parameters required for influent and effluent analysis shall be included in the sludge analysis. The sludge analyzed shall be a composite sample of the sludge for final disposal consisting of:

A. Sludge lagoons – 20 grab samples collected at representative equidistant intervals (grid pattern) and composited as a single grab, or

B. Dried stockpile – 20 grab samples collected at various representative locations and depths and composited as a single grab, or

C. Dewatered sludge- daily composite of 4 representative grab samples each day for 5 days taken at equal intervals during the daily operating shift taken from a) the dewatering units or b) from each truckload, and shall be combined into a single 5-day composite.

The USEPA manual, POTW Sludge Sampling and Analysis Guidance Document, August 1989, containing detailed sampling protocols specific to sludge is recommended as a guidance for sampling procedures. The USEPA manual Analytical Methods of the National Sewage Sludge Survey, September 1990, containing detailed analytical protocols specific to sludge, is recommended as a guidance for analytical methods.

In determining if the sludge is a hazardous waste, the Dischargers shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3, "Characteristics of Hazardous Waste," of Title 22, California Code of Regulations, Sections 66261.10 to 66261.24 and all amendments thereto.

Sludge monitoring reports shall be submitted with the appropriate Semiannual Report. The following standardized report format should be used for submittal of the report. A similarly structured form may be used but will be subject to Regional Water Board approval.

A. Sampling procedures – Include sample locations, collection procedures, types of containers used, storage/refrigeration methods, compositing techniques and holding times. Enclose a map of sample locations if sludge lagoons or stockpiled sludge is sampled.

B. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Water Board upon request.

C. Test Results – Tabulate the test results and include the percent solids.

D. Discussion of Results – The report shall include a complete discussion of test results. If the detected pollutant(s) is reasonably deemed to have an adverse effect on sludge disposal, a plan of action to control, eliminate, and/or monitor the pollutant(s) and the known or potential source(s) shall be included. Any apparent generation and/or destruction of pollutants attributable to chlorination/ dechlorination sampling and analysis practices shall be noted.

The Discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants that the permittee believes may be causing or contributing to Interference, Pass Through or adversely impacting sludge quality.

EXHIBIT 5

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street, San Francisco, California 94105
(415) 947-8707 • Fax (415) 947-3549
http://www.epa.gov/region9/

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
1515 Clay Street, Suite 1400, Oakland, CA 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

ORDER No. R2-2019-0028
NPDES No. CA0037681

WASTE DISCHARGE REQUIREMENTS AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR CITY AND COUNTY OF SAN FRANCISCO OCEANSIDE WATER POLLUTION CONTROL PLANT, WASTEWATER COLLECTION SYSTEM, AND WESTSIDE RECYCLED WATER PROJECT

The following Discharger is authorized to discharge from the locations listed in Table 2 in accordance with the waste discharge requirements (WDRs) and federal National Pollutant Discharge Elimination System (NPDES) permit requirements set forth in this Order:

Table 1. Discharger Information

Discharger	City and County of San Francisco
Facility Name	Oceanside Water Pollution Control Plant, Wastewater Collection System, and Westside Recycled Water Project
Facility Address	3500 Great Highway San Francisco, CA 94132 San Francisco County
CIWQS Place Number	256498

Table 2. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated effluent, including the following: ● Secondary-treated effluent from Oceanside Water Pollution Control Plant (dry weather); ● Primary- and secondary-treated effluent from Oceanside Water Pollution Control Plant (wet weather); ● Equivalent-to-primary-treated effluent from Westside Transport/Storage Structure (wet weather); and ● Reverse osmosis concentrate from Westside Recycled Water Project, when operational (dry and wet weather).	37.70500	-122.57750	Pacific Ocean, Offshore
CSD-001	Equivalent-to-primary-treated effluent (wet weather)	37.71528	-122.50444	Pacific Ocean (Fort Funston, Ocean Beach)

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
CSD-002	Equivalent-to-primary-treated effluent (wet weather)	37.73778	-122.50806	Pacific Ocean (Vicente St., Ocean Beach
CSD-003	Equivalent-to-primary-treated effluent (wet weather)	37.76389	-122.51167	Pacific Ocean (Lincoln Way, Ocean Beach)
CSD-004	Equivalent-to-primary-treated effluent (wet weather)	37.78472	-122.51028	Pacific Ocean (Mile Rock)
CSD-005	Equivalent-to-primary-treated effluent (wet weather)	37.78778	-122.49167	Pacific Ocean (China Beach)
CSD-006	Equivalent-to-primary-treated effluent (wet weather)	37.78944	-122.48778	Pacific Ocean (Baker Beach)
CSD-007	Equivalent-to-primary-treated effluent (wet weather)	37.78944	-122.48694	Pacific Ocean (Baker Beach)

Table 3. Administrative Information

The U.S. Environmental Protection Agency, Region IX, issued this Order on:	
The San Francisco Bay Regional Water Quality Control Board adopted this Order on:	September 11, 2019
This Order shall become effective on:	November 1, 2019
This Order shall expire on:	October 31, 2024
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with California Code of Regulations, title 23, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	February 1, 2024
This discharge is classified as follows:	Major

The signatures below certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on the date indicated above, and an NPDES permit issued by the U.S. Environmental Protection Agency, Region IX, on the date above.

7/12/2019

Michael Montgomery, Executive Officer
San Francisco Bay Regional Water Board

Tomás Torres, Water Division Director
U.S. Environmental Protection Agency

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I. FACILITY INFORMATION

Information describing the Oceanside Water Pollution Control Plant, Wastewater Collection System, and Westside Recycled Water Project (collectively, the Facility) is summarized in Table 1 and in Fact Sheet (Attachment F) sections I and II.

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board), and the U.S. Environmental Protection Agency (U.S. EPA) find:

A. Legal Authorities. This Order serves as WDRs pursuant to California Water Code article 4, chapter 4, division 7 (commencing with § 13260). This Order is also issued pursuant to federal Clean Water Act (CWA) section 402 and implementing regulations adopted by U.S. EPA and Water Code chapter 5.5, division 7 (commencing with § 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States as listed in Table 2 subject to the WDRs and NPDES permit requirements in this Order.

B. Background and Rationale for Requirements. The Regional Water Board and U.S. EPA developed the requirements in this Order based on information the Discharger submitted as part of its application, information obtained through monitoring and reporting programs, and other available information. The Fact Sheet contains background information and rationale for the requirements in this Order and is hereby incorporated into and constitutes findings for this Order. Attachments A through E, G, and H are also incorporated into this Order.

C. Notification of Interested Parties. The Regional Water Board and U.S. EPA notified the Discharger and interested agencies and persons of their intent to jointly issue WDRs and NPDES permit requirements, and provided an opportunity to submit written comments and recommendations. The Fact Sheet provides details regarding the notification.

D. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard all comments pertaining to the discharge. The Fact Sheet provides details regarding the public hearing. The Regional Water Board and U.S. EPA considered all comments pertaining to the discharge.

THEREFORE, IT IS HEREBY ORDERED that Order No. R2-2009-0062 (previous order) is rescinded upon the effective date of this Order, except for enforcement purposes, and in order to meet the provisions of Water Code division 7 (commencing with § 13000) and regulations adopted thereunder and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. The Regional Water Board intends that joint issuance of this Order with U.S. EPA will serve as its certification under CWA section 401 that discharges pursuant to this Order comply with 33 U.S.C. sections 1311, 1312, 1313, 1316, and 1317. This action in no way prevents the Regional Water Board or U.S. EPA from taking enforcement action for past violations of the previous order.

III. DISCHARGE PROHIBITIONS

A. Discharge of treated wastewater at a location or in a manner different than described in this Order is prohibited.

B. Bypass of untreated or partially-treated wastewater to waters of the United States is prohibited, except as provided for in Attachment D section I.G. Combined sewer discharges during wet weather (as defined in Attachment A) authorized by this Order are not subject to this prohibition.

Blended wastewater is biologically-treated wastewater blended with wastewater diverted around biological treatment units at the Oceanside Water Pollution Control Plant. These anticipated discharges are approved under the bypass conditions when (1) the Discharger's instantaneous wet weather influent flow exceeds the capacity of the biological treatment units of 43 MGD, (2) all wet weather flows passing the headworks of the plant receive at least primary treatment, and (3) the discharge complies with the applicable effluent and receiving water limitations contained in this Order. Furthermore, the Discharger shall operate its Facility as designed and in accordance with the Operation and Maintenance Manual for the Facility. This means it shall optimize storage and use of equalization units and shall fully utilize the biological treatment units. The Discharger shall report incidents of blended effluent discharges in monthly self-monitoring reports and shall conduct monitoring of this discharge as specified in the attached Monitoring and Reporting Program (MRP) (Attachment E).

C. Discharge at Discharge Point No. 001 is prohibited when the discharge does not receive a minimum initial dilution of at least 148:1 (parts seawater per part wastewater), as modeled assuming no currents. Compliance shall be achieved by proper operation and maintenance of the discharge outfall to ensure that it (or its replacement, in whole or part) is in good working order and is consistent with, or can achieve better mixing than, 148:1. The Discharger shall describe measures taken to ensure compliance in its Report of Waste Discharge and application for permit reissuance.

D. Discharge to a water of the United States from any location other than Discharge Point No. 001 is prohibited, except from Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007 during wet weather (as defined in Attachment A) in accordance with the requirements in this Order.

E. Average dry weather Oceanside Water Pollution Control Plant influent flow in excess of 43 MGD is prohibited. Average dry weather influent flow shall be determined from three consecutive dry weather months each year, with compliance measured at Monitoring Location INF-001A as described in the MRP.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Technology-Based Effluent Limitations

1. Oceanside Water Pollution Control Plant

During dry weather, the Discharger shall comply with the following effluent limitations for discharges from the Oceanside Water Pollution Control Plant, with compliance measured at Monitoring Location EFF-001A as described in the MRP, as follows:

Table 4. Effluent Limitations - Oceanside Water Pollution Control Plant

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Carbonaceous Biochemical Oxygen Demand, 5-day @ 20°C ($CBOD_5$)	mg/L	25	40	---	---	---
Total Suspended Solids (TSS)	mg/L	30	45	---	---	---
$CBOD_5$ Removal [1]	%	85 (minimum)	---	---	---	---
TSS Removal [1]	%	85 (minimum)	---	---	---	---
pH [2]	s.u.	---	---	---	6.0	9.0

Abbreviations:

mg/L = milligrams per liter
s.u. = standard units
% = percent

Footnotes:

[1] The arithmetic mean of $CBOD_5$ and TSS, by concentration, of effluent samples collected at Monitoring Location EFF-001A as described in the MRP shall not exceed 15 percent of the arithmetic mean of the $CBOD_5$ and TSS, by concentration, of influent samples collected at Monitoring Location INF-001A as described in the MRP, at approximately the same times during the same periods.

[2] If the Discharger monitors pH continuously, pursuant to 40 C.F.R. § 401.17 the Discharger shall be in compliance with this pH limitation provided that both of the following conditions are satisfied: (i) the total time during which the pH is outside the required range shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) no individual excursion from the required pH range shall exceed 60 minutes.

During wet weather, the Discharger shall comply with the narrative technology-based effluent limitations contained in Provision VI.C.5.a (Nine Minimum Controls).

2. Westside Recycled Water Project

When recycled water is being produced, the Discharger shall comply with the following effluent limitations for discharges from the Westside Recycled Water Project, with compliance measured at Monitoring Location EFF-001R as described in the MRP, as follows:

Table 5. Effluent Limitations - Westside Recycled Water Project

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
TSS	mg/L	60	---	---	---	---
pH [1]	s.u.	---	---	---	6.0	9.0
Oil and Grease	mg/L	25	40	---	---	75
Settleable Solids	mL/L	1.0	1.5	---	---	3.0
Turbidity	NTU	75	100	---	---	225

Abbreviations:

mg/L = milligrams per liter
mL/L = milliliters per liter
NTU = nephelometric turbidity units
s.u. = standard units

Footnote:

[1] If the Discharger monitors pH continuously, pursuant to 40 C.F.R. § 401.17 the Discharger shall be in compliance with this pH limitation provided that both of the following conditions are satisfied: (i) the total time during which the pH is outside the required range shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) no individual excursion from the required pH range shall exceed 60 minutes.

B. Water Quality-Based Effluent Limitations

During dry weather, the Discharger shall comply with the following effluent limitation for discharges at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001C as described in the MRP, as follows:

Table 6. Effluent Limitations - Discharge Point No. 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Chronic Toxicity [1]	Pass or Fail	---	---	Pass	---	---

Footnote:

[1] MRP section V sets forth chronic toxicity monitoring requirements. The discharge is subject to determination of "Pass" or "Fail" from a single chronic toxicity test conducted at the in-stream waste concentration (IWC) defined in MRP section V.A.2 using the Test of Significant Toxicity (TST) statistical approach (Welch's t-test) in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1.

The TST null hypothesis shall be the following:

Mean discharge IWC response ≤ 0.75 × Mean control response

A test result that rejects this null hypothesis shall be reported as "Pass." A test result that does not reject this null hypothesis shall be reported as "Fail." The relative "Percent Effect" at the discharge IWC shall also be reported as:

([Mean control response - Mean discharge IWC response] ÷ Mean control response) × 100

During wet weather, the Discharger shall comply with the narrative water quality-based effluent limitations contained in Provision VI.C.5.c (Long-Term Control Plan) for the Discharge Points in Table 2.

V. RECEIVING WATER LIMITATIONS

Discharge shall not cause or contribute to a violation of any applicable water quality standard (with the exception set forth in State Water Board Order No. WQ 79-16) for receiving waters adopted by the Regional Water Board, State Water Resources Control Board (State Water Board), or U.S. EPA as required by the CWA and regulations adopted thereunder. If more stringent water quality standards are promulgated or approved pursuant to CWA section 303, or amendments thereto, the Regional Water Board and U.S. EPA may revise or modify this Order in accordance with the more stringent standards.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all "Standard Provisions" included in Attachment D. In Attachment D, references to "Regional Water Board" shall be interpreted as "Regional Water Board and U.S. EPA," and references to "Regional Water Board Executive Officer" shall be interpreted as "Regional Water Board Executive Officer and U.S. EPA."

2. The Discharger shall comply with all applicable provisions of the "Regional Standard Provisions, and Monitoring and Reporting Requirements" (Attachment G), except as follows:

a. Attachment G section V.C.1.d.iv (Dioxin-TEQ). The Discharger shall calculate and report dioxin-TEQs using the definition of TCDD Equivalents in Attachment A, which supersedes the definition in Attachment G.

b. Attachment G section III.A.2 (Minimum Levels). The Discharger shall comply with the minimum levels listed in Ocean Plan Appendix II in lieu of those listed in Attachment G Table B.

c. Attachment G section III.A.3.b.v(b) (Approved Wet Weather Bypasses). The Discharger shall comply with the monitoring requirements for wet weather secondary bypasses in MRP Table E-5 (Monitoring Location EFF-001B) in lieu of those listed in Attachment G section II.A.3.b.v(b).

In Attachment G, references to "Regional Water Board" shall be interpreted as "Regional Water Board and U.S. EPA," and references to "Regional Water Board Executive Officer" shall be interpreted as "Regional Water Board Executive Officer and U.S. EPA."

B. Monitoring and Reporting

The Discharger shall comply with the MRP, and future revisions thereto, and applicable sampling and reporting requirements in Attachments D and G.

C. Special Provisions

1. Reopener Provisions

The Regional Water Board or U.S. EPA may modify or reopen this Order prior to its expiration date in any of the following circumstances, as allowed by law:

a. If present or future investigations demonstrate that the discharges governed by this Order have or will have a reasonable potential to cause or contribute to, or will cease to have, adverse impacts on water quality or beneficial uses of the receiving waters.

b. As new or revised water quality standards or total maximum daily loads (TMDLs) come into effect for surface waters of the State (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order may be modified as necessary to reflect updated water quality standards and wasteload allocations in TMDLs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted water quality objectives, TMDLs, or as otherwise permitted under federal regulations governing NPDES permit modifications.

c. If translator, dilution, or other water quality studies provide a basis for determining that a permit condition should be modified.

d. If State Water Board precedential decisions, new policies, new laws, or new regulations are adopted.

e. If an administrative or judicial decision on a separate NPDES permit or WDRs addresses requirements similar to this discharge.

f. If combined sewer system discharge controls fail to meet water quality standards or protect designated uses.

g. Or as otherwise authorized by law.

The Discharger may request a permit modification based on any of the circumstances above. With any such request, the Discharger shall include antidegradation and anti-backsliding analyses.

2. Effluent Characterization Study and Report

a. Study Elements. The Discharger shall characterize and evaluate the dry weather discharge from Discharge Point No. 001 to verify that the reasonable potential analysis conclusions of this Order remain valid and to inform the next permit reissuance. The Discharger shall monitor Ocean Plan Table 1 pollutants as described in the MRP and evaluate on an annual basis whether concentrations of any Ocean Plan Table 1 pollutants significantly increase over past performance. The Discharger shall investigate the cause of any such increases. The investigation may include, but need not be limited to, increasing the monitoring frequency, monitoring internal process streams, and monitoring of influent sources. The Discharger shall establish remedial measures addressing any increases resulting in reasonable potential to cause or contribute to an exceedance of

applicable water quality objectives (see Fact Sheet Tables F-9 and F-10 for the objectives). This requirement to establish remedial measures may be satisfied through identification of the constituent as a "pollutant of concern" in the Discharger's Pollutant Minimization Program, described in Provision VI.C.3.

b. Reporting Requirements

i. Routine Reporting. The Discharger shall, within 45 days of receipt of analytical results, report the identity of any Ocean Plan Table 1 pollutant detected at or above the applicable water quality objective to the Regional Water Board and U.S. EPA.

ii. Annual Reporting. The Discharger shall summarize the annual data evaluation and source investigation in its annual self-monitoring report (see MRP § VIII.B).

3. Pollutant Minimization Program

a. The Discharger shall continue to improve its Pollutant Minimization Program to promote minimization of pollutant loadings to the sewer system and therefore to the receiving waters.

b. The Discharger shall submit an annual report no later than February 28 each year. Each annual report shall include at least the following information:

i. Brief description of treatment plant. The description shall include the service area and treatment plant processes.

ii. Discussion of current pollutants of concern. Periodically, the Discharger shall analyze its circumstances to determine which pollutants are currently a problem and which pollutants may be potential future problems. This discussion shall include the reasons for choosing the pollutants. At a minimum, the Discharger shall consider copper and zinc as pollutants of concern.

iii. Identification of sources for pollutants of concern. This discussion shall include how the Discharger intends to estimate and identify pollutant sources. The Discharger shall include sources or potential sources not directly within the ability or authority of the Discharger to control, such as pollutants in the potable water supply and air deposition.

iv. Identification of tasks to reduce the sources of pollutants of concern. This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement the tasks by itself or participate in group, regional, or national tasks that address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national tasks that address its pollutants of concern whenever it is efficient and appropriate to do so. An implementation timeline shall be included for each task.

v. Outreach to employees. The Discharger shall inform employees about the pollutants of concern, potential sources, and how they might be able to help reduce the

discharge of these pollutants of concern into the Facility. The Discharger may provide a forum for employees to provide input.

vi. **Continuation of Public Outreach Program.** The Discharger shall continue a pollution prevention public outreach program for its service area. Outreach may include participation in existing community events, such as county fairs; initiating new community events, such as displays and contests during Pollution Prevention Week; conducting school outreach programs; conducting plant tours; and providing public information in newspaper articles or advertisements, radio or television stories or spots, newsletters, utility bill inserts, or web sites. Information shall be specific to target audiences. The Discharger shall coordinate with other agencies as appropriate.

vii. **Discussion of criteria used to measure Pollutant Minimization Program and task effectiveness.** The Discharger shall establish criteria to evaluate the effectiveness of its Pollutant Minimization Program. This discussion shall identify the specific criteria used to measure the effectiveness of each task in Provisions VI.C.3.b.iii, iv, v, and vi.

viii. **Documentation of efforts and progress.** This discussion shall detail all of the Discharger's Pollutant Minimization Program activities during the reporting year.

ix. **Evaluation of Pollutant Minimization Program and task effectiveness.** The Discharger shall use the criteria established in Provision VI.C.3.b.vii to evaluate the program and task effectiveness.

x. **Identification of specific tasks and timelines for future efforts.** Based on the evaluation, the Discharger shall explain how it intends to continue or change its tasks to more effectively reduce the amount of pollutants flowing to the Facility, and subsequently in its effluent.

c. The Discharger shall develop and conduct a Pollutant Minimization Program as further described below when there is evidence that a priority pollutant is present in the effluent above an effluent limitation (e.g., sample results reported as detected but not quantified [DNQ] when the effluent limitation is less than the method detection limit [MDL], sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, or results of benthic or aquatic organism tissue sampling) and either:

i. A sample result is reported as DNQ and the effluent limitation is less than the Reporting Level (RL); or

ii. A sample result is reported as not detected (ND) and the effluent limitation is less than the MDL using definitions in Attachment A and reporting protocols described in the MRP.

d. If triggered by the reasons set forth in Provision VI.C.3.c, the Discharger's Pollutant Minimization Program shall include, but not be limited to, the following actions and submittals:

i. Annual review and semiannual monitoring of potential sources of the reportable pollutant, which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures when source monitoring is unlikely to produce useful analytical data;

ii. Quarterly monitoring for the reportable pollutant in treatment plant influent. The Regional Water Board Executive Officer and U.S. EPA may approve alternative measures when influent monitoring is unlikely to produce useful analytical data;

iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant in the effluent at or below the effluent limitation;

iv. Implementation of appropriate cost-effective control measures for the reportable pollutant, consistent with the control strategy; and

v. Inclusion of the following within the annual report required by Provision VI.C.3.b:

(a) All Pollutant Minimization Program monitoring results for the previous year;
(b) List of potential sources of the reportable pollutant;
(c) Summary of all actions undertaken pursuant to the control strategy; and
(d) Description of actions to be taken in the following year.

4. Special Provisions for Publicly-Owned Treatment Works (POTWs)

a. Sludge and Biosolids Management. The Discharger shall manage its sludge and biosolids in accordance with federal regulations (40 C.F.R. parts 258 and 503) and Attachment H.

i. Sludge and biosolids treatment and storage shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.

ii. Sludge and biosolids treatment and storage facilities shall be adequate to divert surface runoff from adjacent areas, to protect site boundaries from erosion, and to prevent conditions that would cause drainage from stored materials. Adequate protection is defined as protection from at least a 100-year storm and the highest possible tidal state that may occur.

iii. This Order does not authorize permanent onsite sludge or biosolids storage or disposal. A Report of Waste Discharge shall be filed and the site brought into compliance with applicable regulations prior to commencement of any such activity.

b. Pretreatment Program. The Discharger shall implement and enforce its approved pretreatment program in accordance with federal pretreatment regulations (40 C.F.R. part 403); pretreatment standards promulgated under CWA sections 307(b), 307(c), and 307(d); pretreatment requirements specified under 40 C.F.R. section 122.44(j); and the requirements in Attachment H, "Pretreatment Requirements." The Discharger's responsibilities include, but are not limited to, the following:

i. Enforcement of the National Pretreatment Standards of 40 C.F.R. sections 403.5 and 403.6;

ii. Implementation of its pretreatment program in accordance with legal authorities, policies, procedures, and financial provisions described in the National Pretreatment Program (40 C.F.R. part 403);

iii. Submission of reports to the State Water Board, the Regional Water Board, and U.S. EPA as described in Attachment H; and

iv. Evaluation of the need to revise local limits as required under 40 C.F.R. sections 122.44(j)(2)(ii) and 403.5(c)(1) and, by November 1, 2020, submission of a report describing the changes to local limits with a plan and schedule for implementation, or the rationale for making no changes to local limits.

c. Anaerobically-Digestible Material. If the Discharger receives hauled-in anaerobically-digestible material for injection into an anaerobic digester, the Discharger shall notify the Regional Water Board and develop and implement Standard Operating Procedures for this activity. The Standard Operating Procedures shall be developed prior to initiation of hauling. The Standard Operating Procedures shall address material handling, including unloading, screening, or other processing prior to anaerobic digestion; transportation; spill prevention; spill response; avoidance of the introduction of materials that could cause interference, pass through, or upset of the treatment processes; avoidance of prohibited material; vector control; odor control; operation and maintenance; and the disposition of any solid waste segregated from introduction to the digester. The Discharger shall train its staff on the Standard Operating Procedures and maintain records for a minimum of three years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of three years for the disposition, location, and quantity of cumulative pre-digestion segregated solid waste hauled offsite.

d. Separate Sanitary Sewer Systems. The Discharger shall properly operate and maintain its separate sanitary collection systems (see Attachments D and G, section I.D), report any noncompliance with respect to its separate sanitary collection systems (see Attachments D and G, sections V.E.1 and V.E.2), and mitigate any discharges in violation of this Order associated with its separate sanitary collection systems (see Attachments D and G, section I.C).

State Water Board Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, as amended by State Water Board Order No. WQ 2013-0058-EXEC (statewide WDRs), contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. The statewide WDRs clearly and specifically stipulate requirements for operation and maintenance and for reporting and mitigating sanitary sewer overflows. Implementing the requirements for operation and maintenance and mitigation of sanitary sewer overflows set forth in the statewide WDRs (and any subsequent order updating those requirements) shall satisfy the corresponding federal NPDES requirements

specified in Attachments D and G of this Order for the separate sanitary collection systems. Following the reporting requirements set forth in the statewide WDRs (and any subsequent order updating these requirements) shall satisfy the NPDES reporting requirements for sanitary sewer overflows specified in Attachments D and G.

5. Combined Sewer System

a. Nine Minimum Controls. The Discharger shall implement the following nine minimum controls:

i. Control No. 1: Conduct Proper Operations and Maintenance Program. The Discharger shall implement an operations and maintenance program that establishes operation, maintenance, and inspection procedures to ensure that the combined sewer system is operated and maintained in a manner that complies with the requirements of this Order. The program shall include the elements listed below:

(a) Organizational Structure. The Discharger shall maintain an up-to-date directory of operations and maintenance staff, and a designated primary contact person for the Facility. The Discharger shall notify the Regional Water Board and U.S. EPA within 90 days of designating a new primary contact person.

(b) Budget. The Discharger shall allocate sufficient funds and personnel for routine operations and maintenance, and to provide for possible emergencies.

(c) Critical Facilities and Major System Components. The Discharger shall maintain a written inventory of critical facilities and major system components (i.e., those facilities and system components that affect the performance of the combined sewer system). The inventory shall include force mains, pump stations, major treatment plant units, transport/storage structures, combined sewer discharge outfalls, Discharge Point No. 001 outfall, tide gates, overflow weirs, and baffles. The Discharger shall include the following information for each critical facility and major system component in the inventory:

(1) Physical description (e.g., capacity, dimensions, age) and location;
(2) Status (e.g., elements out of service or planned to be taken out of service); and
(3) Description of preventative maintenance planned and completed.

At a minimum, the Discharger shall review and update the inventory once every 12 months. The Discharger may combine the inventory and the Wastewater Facilities Status Report (see Attachment G section I.D.2) into one document.

(d) Procedures for Routine Maintenance. The Discharger shall document procedures for routine maintenance and timely repair of the critical facilities and major system components listed in the inventory required by Provision VI.C.5.a.i(c). Routine maintenance shall focus on preventative maintenance to avoid failures during critical times.

(e) Non-Routine Maintenance and Emergency Situations. The Discharger shall develop and implement an emergency response plan for each critical facility to

minimize the likelihood and adverse impacts of failure to the maximum extent practicable. The emergency response plan shall be consistent with the Contingency Plan required by Attachment G section I.C.1.

(f) Inspections. The Discharger shall conduct an inspection program of the combined sewer system to provide reasonable assurance that unpermitted discharges, obstructions, and damage will be discovered. At a minimum, the Discharger shall do the following:

(1) Inspect each critical facility and major system component identified in accordance with Provision VI.C.5.a.i(c), above, at least once every 12 months to ensure they are in good working condition. The inspection shall include, but not be limited to, entering the regulator structure, if accessible; determining the extent of any structural defects or debris and grit buildup; removing any debris that may constrict flow, cause blockage, or result in a prohibited discharge; and adjusting tide gates to minimize combined sewer discharges and to prevent tidal inflow.

(2) Record all inspection results, including the date and time of the inspection, the inspection findings, and description of any corrective actions taken.

(g) Training. The Discharger shall provide training to operations and maintenance staff regarding operation and maintenance duties and standard operation procedures. Training shall be consistent with the Discharger's Operation and Maintenance Manual required by Attachment G section I.D.1 (Operation and Maintenance Manual).

(h) Operation and Maintenance Program Review. The Discharger shall review and modify its operations and maintenance program as necessary and in accordance with sections I.C (Duty to Mitigate) and I.D (Proper Operation and Maintenance) of Attachments D and G. At a minimum, the Discharger shall review and update the Operation and Maintenance Manual required by Attachment G section I.D.1 (Operation and Maintenance Manual) once per calendar year.

ii. Control No. 2: Maximize Use of Collection System for Storage

(a) The Discharger shall maximize use of the combined sewer system for in-line storage to reduce the magnitude, frequency, and duration of combined sewer discharges. At a minimum, the Discharger shall implement the following controls:

(1) Prevent intrusion of receiving waters into the combined sewer system;

(2) Use all facilities, including any inoperative or unused treatment facilities, to store or treat wet weather flows to the maximum extent practicable; and

(3) Implement programs to remove and prevent flow obstructions in the combined sewer system, including but not limited to catch basin cleaning; gravity sewer cleaning; fats, oils and grease control; gravity sewer condition assessment;

gravity sewer rehabilitation and replacement; and disconnection of illegal connections.

(b) The Discharger shall notify and report sewer overflows from the combined sewer system by implementing the following within six months of the effective date of this Order:

(1) The Discharger shall complete the CIWQS Online Collection System Questionnaire, as required by the CIWQS system, and enter information regarding all sewer overflows from the combined sewer system into the CIWQS Online SSO Database, including all required database fields. The Discharger's Legally Responsible Official, as required by the CIWQS system, shall certify all information submitted. The Discharger shall update and certify the Collection System Questionnaire at least every 12 months.

(2) For sewer overflows from the combined sewer system with volumes 1,000 gallons or greater, the Discharger shall submit draft reports through the CIWQS Online SSO database within 3 business days of becoming aware of the sewer overflow from the combined sewer system and certify the reports within 15 calendar days of the end date of the sewer overflow from the combined sewer system.

(3) For sewer overflows from the combined sewer system with volumes 50,000 gallons or greater that reach surface waters, the Discharger shall submit a technical report within 45 calendar days of the end date for such overflows that further explains the causes and circumstances, including the method and data used to calculate the volume, and lists response actions completed and planned.

(4) For sewer overflows from the combined sewer system with volumes less than 1,000 gallons, the Discharger shall submit certified reports to the CIWQS Online SSO database within 30 calendar days of the end of the month during which such overflows occur.

(5) For each month during which no sewer overflow from the combined sewer system occurs, the Discharger shall certify, within 30 calendar days of the end of the month during which no sewer overflow from the combined sewer system occurred, that no sewer overflow from the combined sewer system occurred.

Following the reporting requirements set forth above shall satisfy the reporting requirements for sewer overflows from the combined sewer system specified in Attachments D and G.

iii. Control No. 3: Review and Modify Pretreatment Program. The Discharger shall implement controls to minimize the impact of non-domestic discharges to its collection system. At three-year intervals, the Discharger shall re-evaluate whether additional modifications to its pretreatment program, such as requirements for

detention during wet weather, are feasible or practical. The Discharger shall document this re-evaluation in the annual report required by Provision VI.C.4.b and Attachment H.

iv. **Control No. 4: Maximize Flow to Treatment Plant.** During wet weather, the Discharger shall maximize the volume of wastewater that receives treatment at the Oceanside Water Pollution Control Plant (i.e., secondary treatment for 43 MGD and primary treatment for an additional 22 MGD) and is discharged at Discharge Point No. 001.

v. **Control No. 5: Prohibit Dry Weather Combined Sewer Overflows.** Dry weather discharges at Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007 are prohibited (see Discharge Prohibition III.D). During any dry weather discharge at Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, or CSD-007, the Discharger shall inspect the associated outfall structure each day until the unauthorized discharge stops. For each prohibited dry weather discharge, the Discharger shall submit the information required by Attachment G section V.C.1.a (e.g., duration, cause, corrective actions taken or planned).

vi. **Control No. 6: Control Solid and Floatable Materials in Combined Sewer Discharges.** The Discharger shall implement measures to minimize the volume of solid and floatable materials in combined sewer discharges (e.g., equip Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007 with baffles, screens, racks, or other means to reduce the volume of solid and floatable materials). The Discharger shall also remove and properly dispose of solid and floatable materials captured in the combined sewer system.

vii. **Control No. 7: Develop and Implement Pollution Prevention Program.** The Discharger shall implement a pollution prevention program focused on reducing the amount of pollutants that enter the combined sewer system. The Discharger shall develop and implement this program in accordance with Provision VI.C.3 (Pollutant Minimization Program). As part of this program, the Discharger shall implement a street sweeping program and clean catch basins at a frequency sufficient to minimize large accumulations of pollutants and debris.

viii. **Control No. 8: Notify Public of Combined Sewer Discharges.** The Discharger shall inform the public of the location of combined sewer discharge outfalls (i.e., Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-005, CSD-006, and CSD-007), the actual occurrences of combined sewer discharges, the possible health and environmental impacts of combined sewer discharges, and the recreational or commercial activities (e.g., swimming, shellfish harvesting) curtailed as a result of combined sewer discharges. Notification shall include the following, at a minimum:

(a) The Discharger shall maintain permanent identification signs at the locations of Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-005, CSD-006, and CSD-007, and at public access points. The Discharger shall inspect, and replace as necessary, all permanent signs at least once per calendar year to ensure

that the signs are visible and readable. New or replacement signs shall be visible and legible from a distance of 50 feet onshore and offshore, and contain the following information, at a minimum:

- Discharge Point No. (discharge identification number).
- Telephone number to report dry weather discharges.
- Description of discharge, including the words "sewage" and "pathogens that can cause illness."
- Warning, alert, caution, or other term to notify the public that caution is needed.

(b) The Discharger shall post warning signs, including "No Swimming" signs, at beach locations whenever a combined sewer discharge occurs to inform users that bacteria concentrations may be elevated. The Discharger shall post warning signs within four hours of the time the discharge commences unless the discharge begins after 4:00 p.m., in which case, the Discharger shall post warning signs by 8:00 a.m. the following day. Signs shall remain posted until analysis indicates that water quality meets bacteriological criteria for recreation.

(c) The Discharger shall post warning signs at public access points where shellfish may be harvested for human consumption whenever a combined sewer discharge occurs. The Discharger shall post warning signs within four hours of the time the discharge commences unless the discharge begins after 4:00 p.m., in which case, the Discharger shall post warning signs by 8:00 a.m. the following day. Signs shall be posted until the City and County Health Department indicates that posting is no longer required.

(d) The Discharger shall provide electronic notification of combined sewer discharges through a free-access website and telephone hotline. The electronic notification shall include information about the location and impacts of combined sewer discharges, and provide a telephone number for the public to report discharges.

ix. Control No. 9: Monitor to Characterize Combined Sewer Discharge Impacts and Efficacy of Controls. The Discharger shall monitor to determine the occurrence and apparent impacts of combined sewer discharges, and the efficacy of controls, as described in Provision VI.C.8 and the MRP.

b. Documentation of Nine Minimum Controls. The Discharger shall maintain records documenting implementation of the nine minimum controls described in Provision VI.C.5.a. By February 1 each year, the Discharger shall submit a report to the Regional Water Board and U.S. EPA covering the prior October 1 through September 30. The first such report shall be due February 1, 2021, and cover November 1, 2019, through September 30, 2020. The report shall summarize actions taken and planned to implement the nine minimum controls.

c. Long-Term Control Plan (LTCP). The Discharger shall implement its Long-Term Control Plan (LTCP) and shall comply with the following provisions:

i. The Discharger shall optimize system operations to minimize combined sewer discharges and maximize pollutant removal during wet weather.

ii. The Discharger shall use all facilities, including any inoperative or unused facilities, to store or treat wet weather flows to the maximum extent practicable.

iii. The Discharger shall capture for treatment, or storage and subsequent treatment, 100 percent of the combined wastewater and stormwater flow collected in the combined sewer system during precipitation events. Captured flows shall receive the minimum treatment specified in Table 2.

iv. The Discharger shall operate the facilities as set forth below and maintain records documenting implementation. If the Discharger demonstrates that changes to these operating parameters will result in additional storage or treatment, it shall implement such changes after receiving written concurrence from the Regional Water Board Executive Officer and U.S. EPA.

(a) The Oceanside Water Pollution Control Plant shall have an instantaneous influent flow rate of at least 43 MGD prior to discharging primary-treated effluent from the plant to Discharge Point No. 001.

(b) The Oceanside Water Pollution Control Plant shall have an instantaneous influent flow rate of at least 60 MGD prior to initiating discharge from the Westside Transport/Storage Structure to Discharge Point No. 001.

(c) The flow at Discharge Point No. 001 shall be at least 165 MGD within 2 hours of a discharge from Discharge Point No. CSD-002 or CSD-003.

(d) The Discharger shall ensure that two duty pumps at the Sea Cliff No. 1 Pump Station are operating at maximum capacity prior to discharging at Discharge Point No. CSD-005.

(e) The Discharger shall ensure that the Sea Cliff No. 2 Pump Station is operating at maximum capacity and at least 1,100 gallons per minute prior to discharging at Discharge Point Nos. CSD-006 and CSD-007.

(f) The Discharger shall comply with the following after rain and combined sewer discharges subside:

(1) If the National Weather Service predicts at least a 30 percent chance of rain within the next 24 hours, the Discharger shall maximize storage capacity for predicted rain by pumping down the Westside Transport/Storage Structure to dry weather levels (i.e., ten feet or less in the East Box).

(2) If the National Weather Service predicts less than a 30 percent chance of rain within the next 24 hours, the Discharger shall maximize secondary treatment

at the Oceanside Water Pollution Control Plant by ceasing the discharge of primary-treated plant effluent and Westside Transport/Storage Structure effluent to Discharge Point No. 001.

d. LTCP Update. The Discharger shall update its LTCP by implementing the following tasks based on the *Combined Sewer Overflow (CSO) Control Policy* and shall submit the required reports to the Regional Water Board and U.S. EPA as specified in the table below. In doing so, the Discharger may use previously completed studies to the extent that they accurately provide the required information.

Table 7. Tasks to Update Long-Term Control Plan (LTCP)

Task	Compliance Date
1. Post-Construction Characterization, Monitoring, and Modeling of Combined Sewer System The Discharger shall submit a System Characterization Report with a comprehensive characterization of the combined sewer system developed through records review, monitoring, modeling, and other means as appropriate to establish the existing conditions upon which the Consideration of Sensitive Areas Report (Task 3) will be based. At a minimum, the System Characterization Report shall include the following: **a.** Thorough description of the entire combined sewer system, including how it responds during a modeled typical year and various precipitation events (including 3-hour duration, 5-year and 10-year return frequency storms). This description will consider the volume and frequency of combined sewer system discharges and sewer overflows from the combined sewer system, and the impacts of climate change and sea level rise; **b.** Description of each model used, including a discussion of model calibration and validation; **c.** Location, frequency, and characteristics of actual combined sewer discharges and sewer overflows from the combined sewer system, and their locations relative to sensitive areas, for at least the last 10 years; **d.** Description of any temporal or spatial trends of sewer overflows from the combined sewer system; **e.** Based on available information, evaluation of how combined sewer discharges affect receiving water quality. At a minimum, the Discharger shall compare wet weather average and maximum discharge characteristics and receiving water monitoring data with Ocean Plan Table 1 water quality objectives; and **f.** Evaluation of combined sewer discharge control efficacy (e.g., using TSS as a proxy for pollutant removal efficiency), including a description of any method used.	Within 48 months of this Order's effective date
2. Public Participation The Discharger shall submit a description of its completed and planned public participation efforts to actively involve the affected public in its decision-making process related to capital planning, including implementation of any additional long-term combined sewer system controls based on the results of the Consideration of Sensitive Areas Report. The affected public includes rate-payers (including rate-payers in separate sanitary sewer system service areas), industrial users, persons who use the receiving waters, and any other interested persons. The public participation efforts may include outreach through methods such as public meetings, direct mailers, billing inserts, press releases, postings of information on the Discharger's website, and development of advisory committees.	Within 48 months of this Order's effective date

Task	Compliance Date
3. Consideration of Sensitive Areas Based on the findings of the System Characterization Report (Task 1), the Discharger shall submit a Consideration of Sensitive Areas Report that evaluates, prioritizes, and proposes control alternatives needed to eliminate, relocate, or reduce the magnitude or frequency of discharges to sensitive areas from Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-005, CSD-006, and CSD-007. The Consideration of Sensitive Areas Report shall include the following, at a minimum: **a.** Provide updated water contact recreational use surveys, focusing particularly on recreational use following combined sewer discharges; **b.** Identify control alternatives for each combined sewer discharge structure and the combined sewer system as a whole, including but not limited to the following: **i.** Green infrastructure and low impact development; **ii.** Increased storage within the combined sewer system and at the Oceanside Water Pollution Control Plant; **iii.** Increased treatment capacity; **iv.** Operational changes; **v.** Increased pumping capacity at the Westside Pump Station; and **vi.** Use of high-rate treatment technologies and disinfection to minimize pollutant loads. **c.** Evaluate the practical and technical feasibility of the proposed alternatives; **d.** Using a model, simulate existing conditions and expected conditions after construction and operation of each proposed alternative, including how the alternative would be expected to affect water quality and combined sewer discharge volumes and frequencies at each combined sewer discharge outfall, and incorporating consideration of climate change and sea level rise; **e.** Evaluate the feasibility, costs, and benefits of the alternatives. Evaluate financial capabilities (e.g., using U.S. EPA's *Combined Sewer Overflows, Guidance for Financial Capability Assessment and Schedule Development* [EPA 832-B-97-004, February 1997] or other appropriate guidance); **f.** Consider costs relative to water quality and other public benefits, financial capabilities, other infrastructure needs, and integrated planning considerations, and prioritize and propose for implementation alternatives to eliminate, relocate, or reduce the magnitude or frequency of discharges from Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-005, CSD-006, and CSD-007 based on Tasks 3.a through 3.e, above; and **g.** Provide an implementation schedule that includes interim milestones.	Within 48 months of this Order's effective date
4. Operational Plan **a.** The Discharger shall submit a Wet Weather Operations Report that proposes a set of operational parameters to be used as performance measures to ensure that wet weather operations maximize pollutant removal and minimize the frequency, volume, and duration of combined sewer discharges and sewer overflows from the combined sewer system. The performance measures may include all or a portion of those listed in Provision VI.C.5.c.iv and shall include measures to evaluate compliance. The Discharger shall provide the technical basis for proposing new performance measures or retaining the existing ones. **b.** Within 90 days of receiving written concurrence from the Regional Water Board Executive Officer and U.S. EPA, the Discharger shall update its Operation and Maintenance Manual, implement the proposed performance measures in lieu of those in Provision VI.C.5.c.iv, and demonstrate compliance.	Within 24 months of this Order's effective date Within 90 days of receiving written concurrence

Task	Compliance Date
5. Post-Construction Compliance Monitoring Program The MRP contains post-construction compliance monitoring requirements. The Discharger shall submit a Post-Construction Compliance Monitoring Plan proposing modifications, as appropriate, to the MRP for the next permit term to verify compliance with applicable water quality standards and protection of designated uses, as well as to ascertain the effectiveness of combined sewer system controls. At a minimum, the Post-Construction Compliance Monitoring Plan shall evaluate whether any reduction or increase in monitoring, or alternative monitoring, is appropriate.	With Report of Waste Discharge

6. Westside Recycled Water Project Operations Notification

The Discharger shall notify the Regional Water Board and U.S. EPA at least 30 days prior to commencing Westside Recycled Water Project operations. The notification shall include the following:

a. Date that operations will commence;

b. Description of the project as constructed, including a description and flow diagram of all treatment processes;

c. Description and line diagram of how and where the concentrate from the reverse osmosis process is to be discharged to Discharge Point No. 001;

d. Description of anticipated changes in the quality of effluent discharged to Discharge Point No. 001; and

e. Verification that effluent discharged to Discharge Point No. 001 will comply with this Order's requirements.

If pollutant concentrations are expected to increase by more than considered in the reasonable potential analysis based on future effluent quality with the Westside Recycled Water Project (see Fact Sheet § IV.C.4.b), the notification shall also summarize anticipated maximum receiving water concentrations and compare them to the water quality objectives listed in Fact Sheet Tables F-9 and F-10.

7. Flame Retardant Special Study

The Discharger shall propose a special study to evaluate Oceanside Water Pollution Control Plant effluent flame retardant concentrations and flame retardant mass loadings to the Pacific Ocean from Discharge Point No. 001. The Discharger shall submit a special study work plan to the U.S. EPA Water Division Director within one year of the effective date of this Order and shall submit the special study final report with the application for permit reissuance.

8. Efficacy of Combined Sewer System Controls Special Study

By August 1, 2023, the Discharger shall submit a report to the Regional Water Board and U.S. EPA evaluating the quality of the combined sewer discharges and the efficacy of the combined sewer discharge controls during wet weather (i.e., control of solid and floatable

material in combined sewer discharges) at Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-005, CSD-006, and CSD-007. At a minimum, the Discharger shall monitor for TSS, copper, lead, and zinc. The Discharger shall also evaluate floatables removal.

ATTACHMENT A – DEFINITIONS

Areas of Special Biological Significance (ASBS)
Areas designated by the State Water Resources Control Board as ocean areas requiring protection of species or biological communities to the extent that maintenance of natural water quality is assured. All Areas of Special Biological Significance are also classified as a subset of State Water Quality Protection Areas.

Average Monthly Effluent Limitation (AMEL)
Highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
Highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative
Taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Chlordane
Sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

Combined Sewer Discharge
Authorized combined sewer overflow during a wet weather day from an approved combined sewer discharge point. Table 2 of the Order lists approved combined sewer discharge points.

Combined Sewer Discharge Event
Discharge from one or more approved combined sewer discharge points during wet weather separated by at least six hours from any other combined sewer discharge event. Table 2 of the Order lists approved combined sewer discharge points.

Combined Sewer Overflow
The *Combined Sewer Overflow (CSO) Control Policy* defines a combined sewer overflow as the discharge from a combined sewer system at a point prior to the POTW's treatment plant.

Daily Discharge
Either: (1) total mass of the constituent discharged over a calendar day (12:00 a.m. through 11:59 p.m.) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit) for a constituent with limitations expressed in units of mass; or (2) unweighted arithmetic mean measurement of the constituent over a day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of a day.

For composite sampling, if a day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

DDT
Sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.

Degrade
Degradation shall be determined by comparison of the waste field and reference site or sites for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

Detected, but Not Quantified (DNQ)
Sample results that are less than the reported Minimum Level, but greater than or equal to the laboratory's method detection limit (MDL). Sample results reported as DNQ are estimated concentrations.

Dichlorobenzenes
Sum of 1,2-dichlorobenzene and 1,3-dichlorobenzene.

Dilution Credit
Amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation based on the allowance of a specified mixing zone. It is calculated from the dilution ratio, or determined by conducting a mixing zone study or modeling the discharge and receiving water.

Downstream Ocean Waters
Waters downstream with respect to ocean currents.

Dredged Material
Any material excavated or dredged from the navigable waters of the United States, including material otherwise referred to as "spoil."

Dry Weather
Any weather not defined as wet weather (determined on a day-by-day basis).

Effective Concentration (EC)
Point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-

Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.

Enclosed Bays
Indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes, but is not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

Endosulfan
Sum of endosulfan-alpha, endosulfan-beta, and endosulfan sulfate.

Estuaries and Coastal Lagoons
Waters at the mouths of streams that serve as mixing zones for fresh and ocean waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant mixing of fresh and salt water occurs in the open coastal waters. The waters described by this definition include, but are not limited to, the Sacramento-San Joaquin Delta as defined by California Water Code section 12220, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

Halomethanes
Sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride).

HCH
Sum of the alpha, beta, gamma (lindane), and delta isomers of hexachlorocyclohexane.

Initial Dilution
Process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and non-buoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Water Board, whichever results in the lower estimate for initial dilution.

Instantaneous Maximum Effluent Limitation
Highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
Lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

In-Stream Waste Concentration (IWC)
The concentration of a toxicant in the receiving water after mixing.

Kelp Beds
For purposes of the Ocean Plan bacteriological standards, significant aggregations of marine algae of the genera *Macrocystis* and *Nereocystis*. Kelp beds include the total foliage canopy of *Macrocystis* and *Nereocystis* plants throughout the water column.

Mariculture
Culture of plants and animals in marine waters independent of any pollution source.

Material
(a) In common usage: (1) the substance or substances of which a thing is made or composed, (2) substantial;

(b) For Ocean Plan purposes relating to waste disposal, dredging, and the disposal of dredged material and fill: matter of any kind or description that is subject to regulation as waste or any material dredged from the navigable waters of the United States. See "dredged material."

Maximum Daily Effluent Limitation (MDEL)
Highest allowable daily discharge of a pollutant.

Method Detection Limit (MDL)
Minimum concentration of a substance that can be reported with 99 percent confidence that the measured concentration is distinguishable from method blank results, as defined in 40 C.F.R. part 136, Appendix B.

Minimum Level (ML)
Concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Natural Light
Reduction of natural light may be determined by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Regional Water Board or U.S. EPA.

No Observed Effect Concentration (NOEC)
Highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

Not Detected (ND)
Sample results less than the laboratory's MDL.

PAHs (polynuclear aromatic hydrocarbons)
Sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

PCBs (polychlorinated biphenyls)
Sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

Pollutant Minimization Program (PMP)
Waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The PMP goal shall be to reduce potential sources through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board and U.S. EPA may consider cost effectiveness when establishing PMP requirements. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), fulfill the PMP requirements.

Reporting Level (RL)
Minimum Level (ML) and its associated analytical method chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein (also known as the "Reported Minimum Level"). The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected either from Ocean Plan Appendix II in accordance with Ocean Plan chapter III.C.5.a or established in accordance with Ocean Plan chapter III.C.5.b. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Sewer Overflow from the Combined Sewer System
Release or diversion of untreated or partially-treated wastewater or combined wastewater and stormwater from the combined sewer collection system. Sewer overflows from the combined sewer system can occur in public rights of way or on private property. Sewer overflows from the combined sewer system do not include releases due to failures in privately-owned sewer laterals or authorized combined sewer discharges at Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, or CSD-007.

Shellfish
Organisms identified by the California Department of Public Health as shellfish for public health purposes (i.e., mussels, clams and oysters).

Significant Difference
Statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

Six-Month Median Effluent Limitation
Highest allowable moving median of all daily discharges for any 180-day period.

State Water Quality Protection Areas (SWQPAs)
Non-terrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All "Areas of Special Biological Significance" (ASBS) previously designated by the State Water Board in Resolutions 74-28, 74-32, and 75-61 are now also classified as a subset of SWQPAs and require the special protections the Ocean Plan affords.

TCDD Equivalents
Sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective Toxicity Equivalency Factors (TEFs) and Bioaccumulation Equivalency Factors (BEFs), as defined in Table A-1. When calculating TCDD Equivalents, the Discharger shall set congener concentrations below the minimum levels to zero. This approach is based on 40 C.F.R. part 132, Appendix F, Procedure 4, Tables 1 and 2, and TEFs listed in the Ocean Plan. This TCDD equivalents definition supersedes the dioxin-TEQ definition in Attachment G section V.C.1.d.iv.

Table A-1. Minimum Levels, Toxicity Equivalency Factors, and Bioaccumulation Equivalency Factors

Isomer Group	Minimum Level (pg/L)	Toxicity Equivalency Factor (TEF)	Bioaccumulation Equivalency Factor (BEF)
2,3,7,8-TCDD	10	1.0	1.0
1,2,3,7,8-PeCDD	50	0.5	0.9
1,2,3,4,7,8-HxCDD	50	0.1	0.3
1,2,3,6,7,8-HxCDD	50	0.1	0.1
1,2,3,7,8,9-HxCDD	50	0.1	0.1
1,2,3,4,6,7,8-HpCDD	50	0.01	0.05
OCDD	100	0.001	0.01
2,3,7,8-TCDF	10	0.1	0.8
1,2,3,7,8-PeCDF	50	0.05	0.2
2,3,4,7,8-PeCDF	50	0.5	1.6
1,2,3,4,7,8-HxCDF	50	0.1	0.08
1,2,3,6,7,8-HxCDF	50	0.1	0.2
1,2,3,7,8,9-HxCDF	50	0.1	0.6
2,3,4,6,7,8-HxCDF	50	0.1	0.7
1,2,3,4,6,7,8-HpCDF	50	0.01	0.01
1,2,3,4,7,8,9-HpCDF	50	0.01	0.4
OCDF	100	0.001	0.02

Test of Significant Toxicity (TST)
A statistical approach used to analyze toxicity test data. The TST statistical approach is described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010).

Toxicity Reduction Evaluation (TRE)
Study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical or chemicals responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

Waste
As used in the Ocean Plan, a Discharger's total discharge, of whatever origin (i.e., gross, not net, discharge).

Water Recycling
Treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

Wet Weather
Weather in which any one of the following conditions exists as a result of rain (determined on a day-by-day basis):

1. Instantaneous influent flow to the Oceanside Water Pollution Control Plant exceeds 43 MGD; or

2. Average daily influent concentration of TSS is less than 100 mg/L; or

3. Westside Transport/Storage Structure flow elevation exceeds 0 feet in the West Box or 18 feet in the East Box. (Flow from the East Box to the West Box occurs only when the East Box storage level exceeds 18 feet.)

ATTACHMENT B – FACILITY AND RECEIVING WATER MAPS

Figure B-1. Facility Overview Map

The Facility subject to this Order is shown in light red (western area) and includes the Oceanside Water Pollution Control Plant, wastewater collection system, and Westside Recycled Water Project. The Southeast Water Pollution Control Plant, North Point Wet Weather Facility, and Bayside Wet Weather Facilities are shown only for reference in light green (eastern area).

Figure B-2. Topographical Map

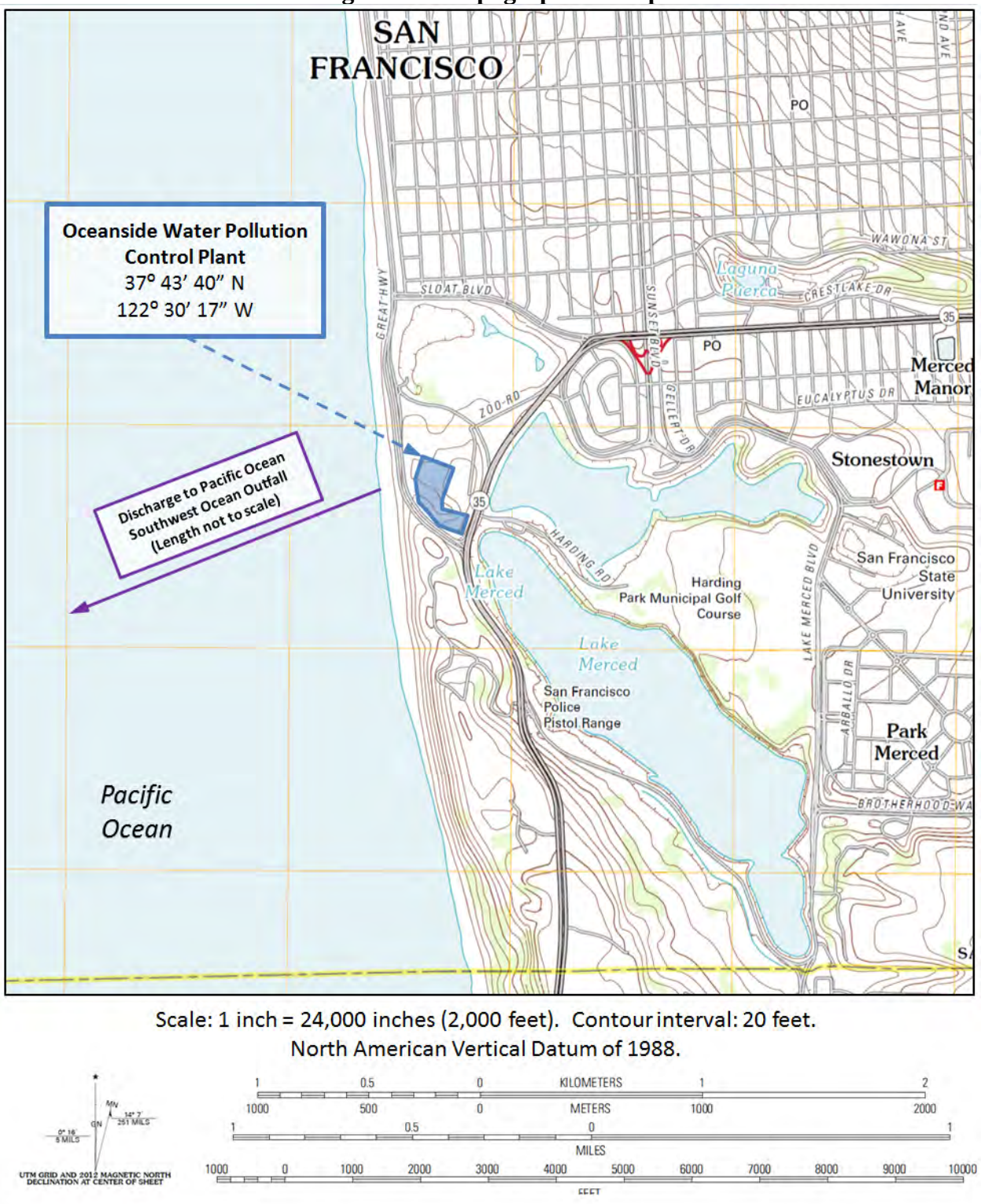


Figure B-3. Oceanside Water Pollution Control Plant Map

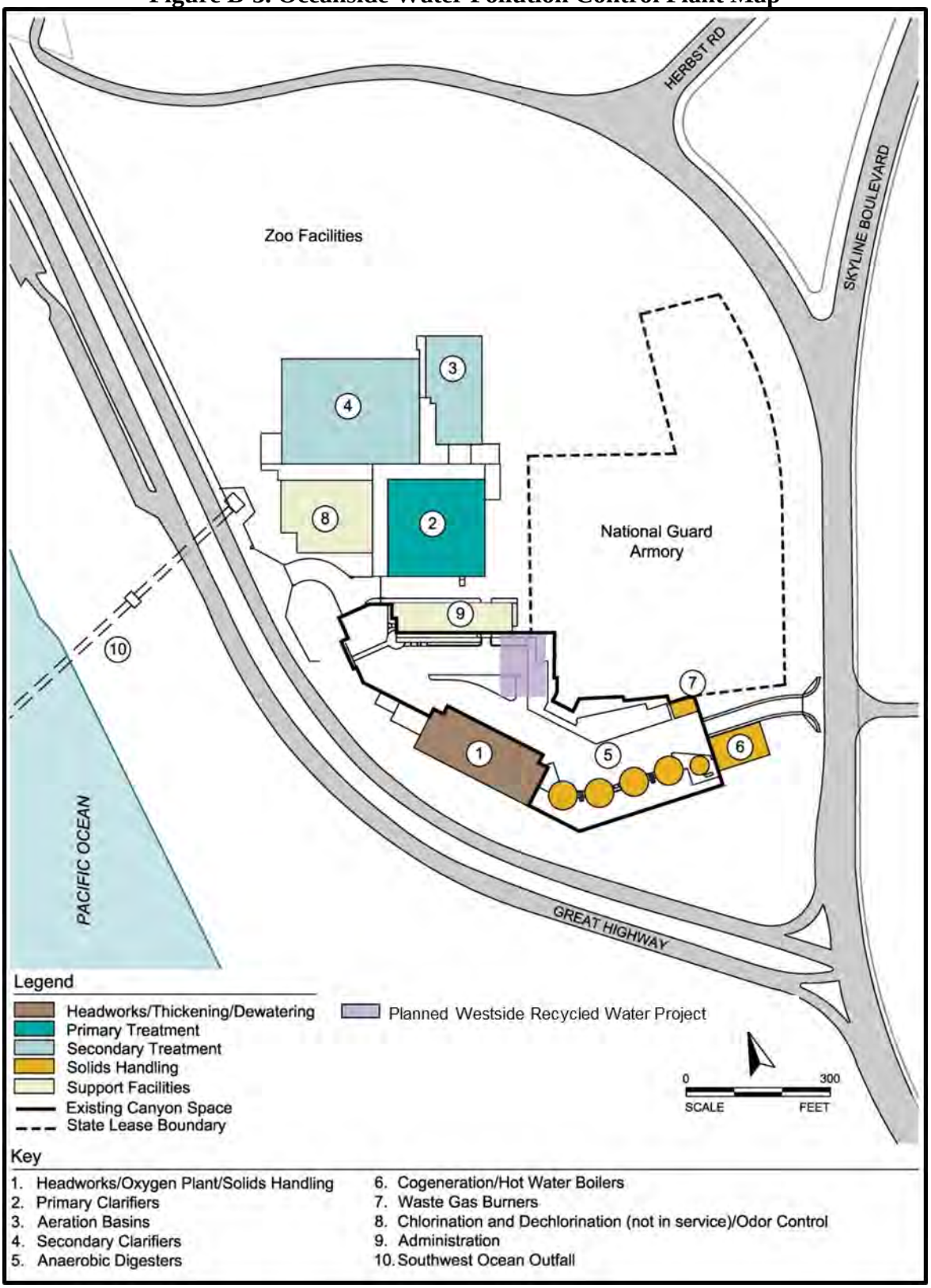


Figure B-4. Combined Sewer Discharge and Pump Station Locations

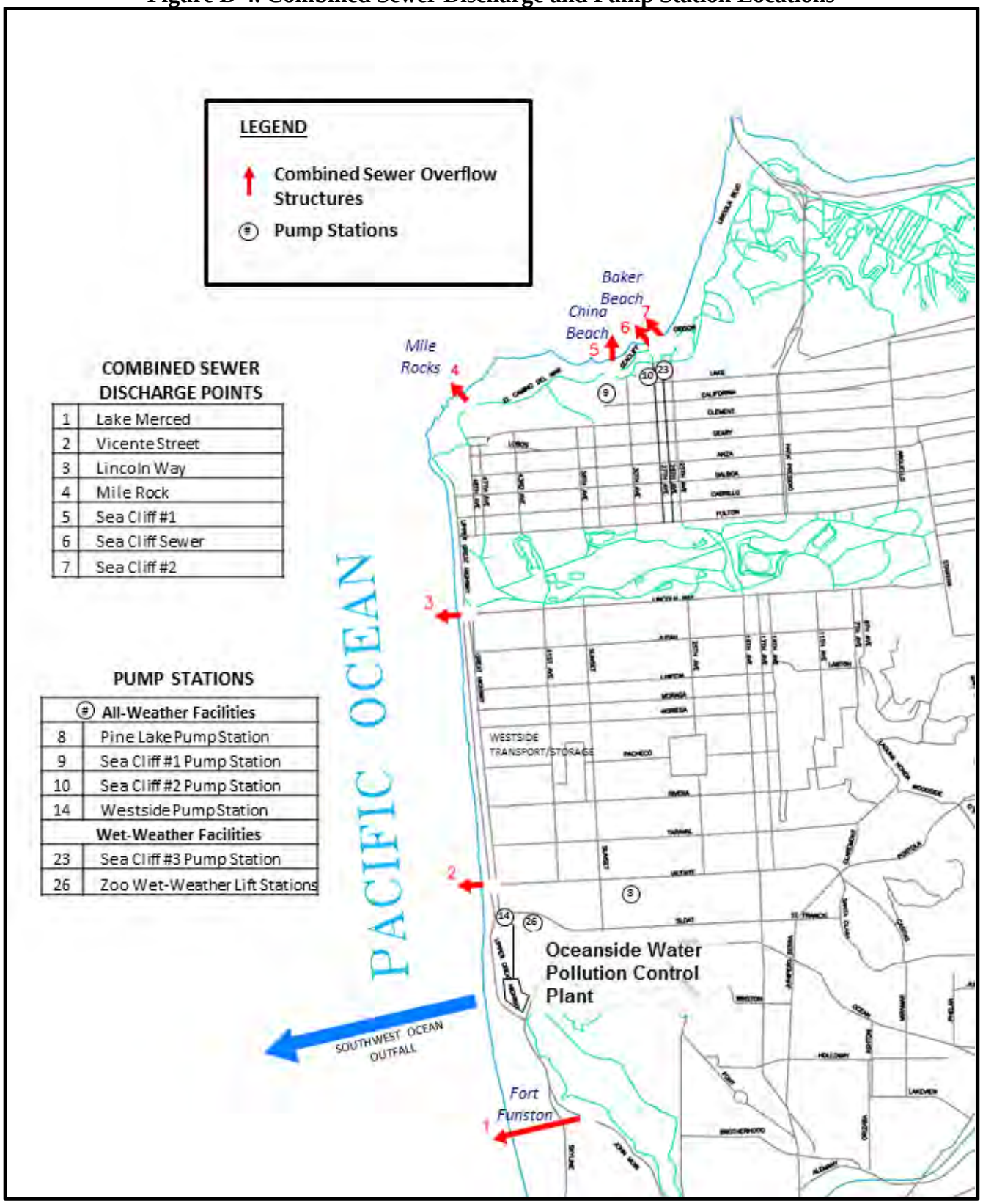


Figure B-5. Combined Sewer Discharge and Transport/Storage Structure Locations

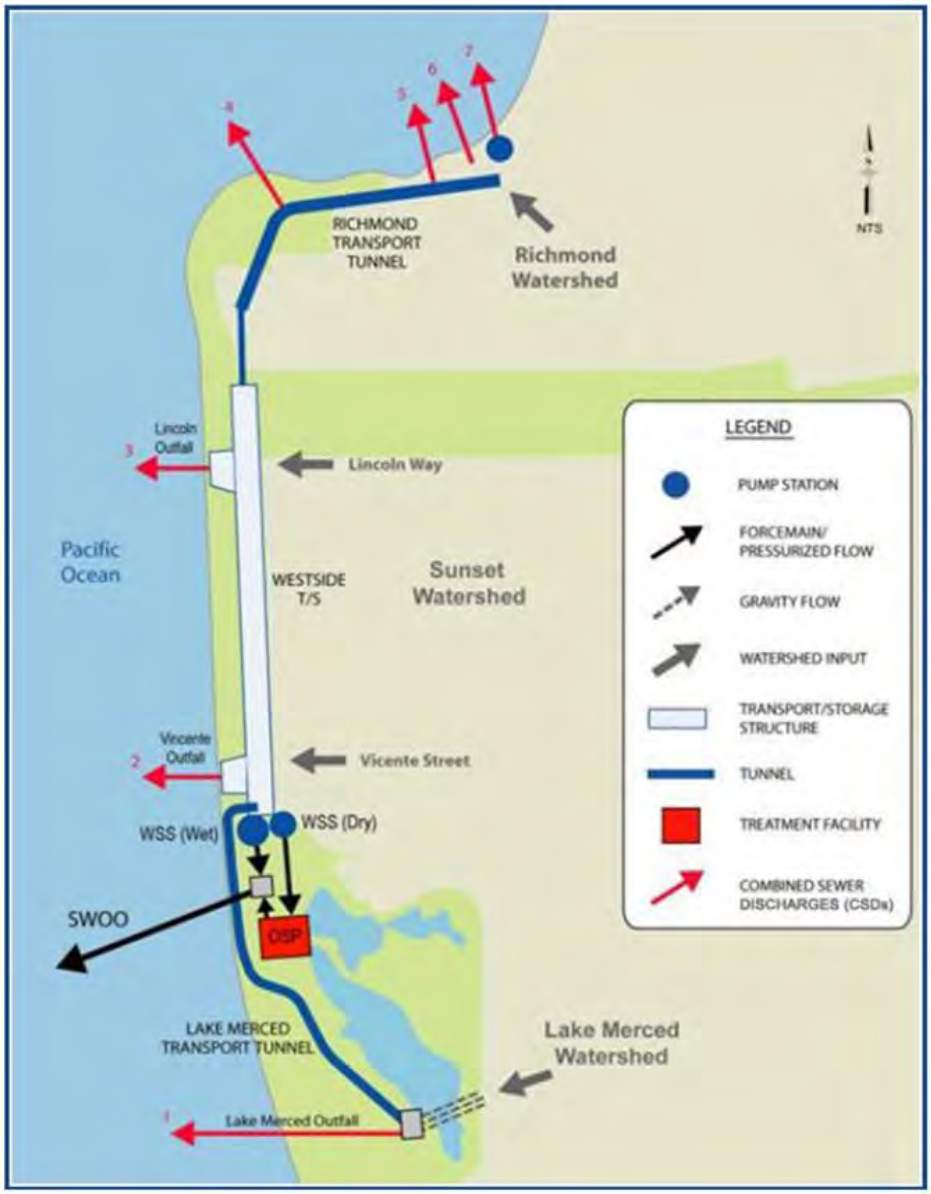
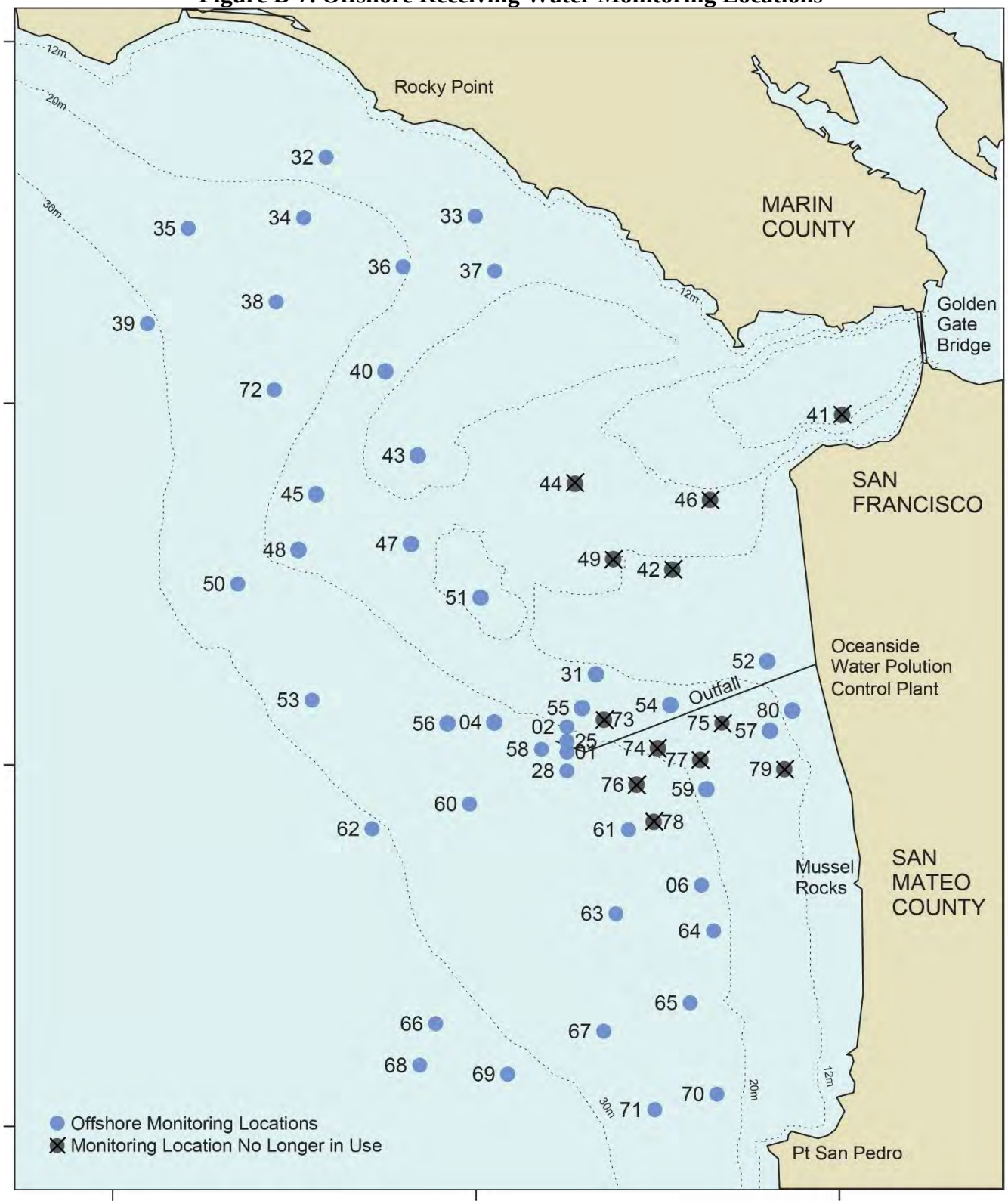


Figure B-6. Shoreline Receiving Water Monitoring Locations

Figure B-7. Offshore Receiving Water Monitoring Locations



ATTACHMENT C – PROCESS FLOW SCHEMATICS

Figure C-1. Oceanside Water Pollution Control Plant Process Flow

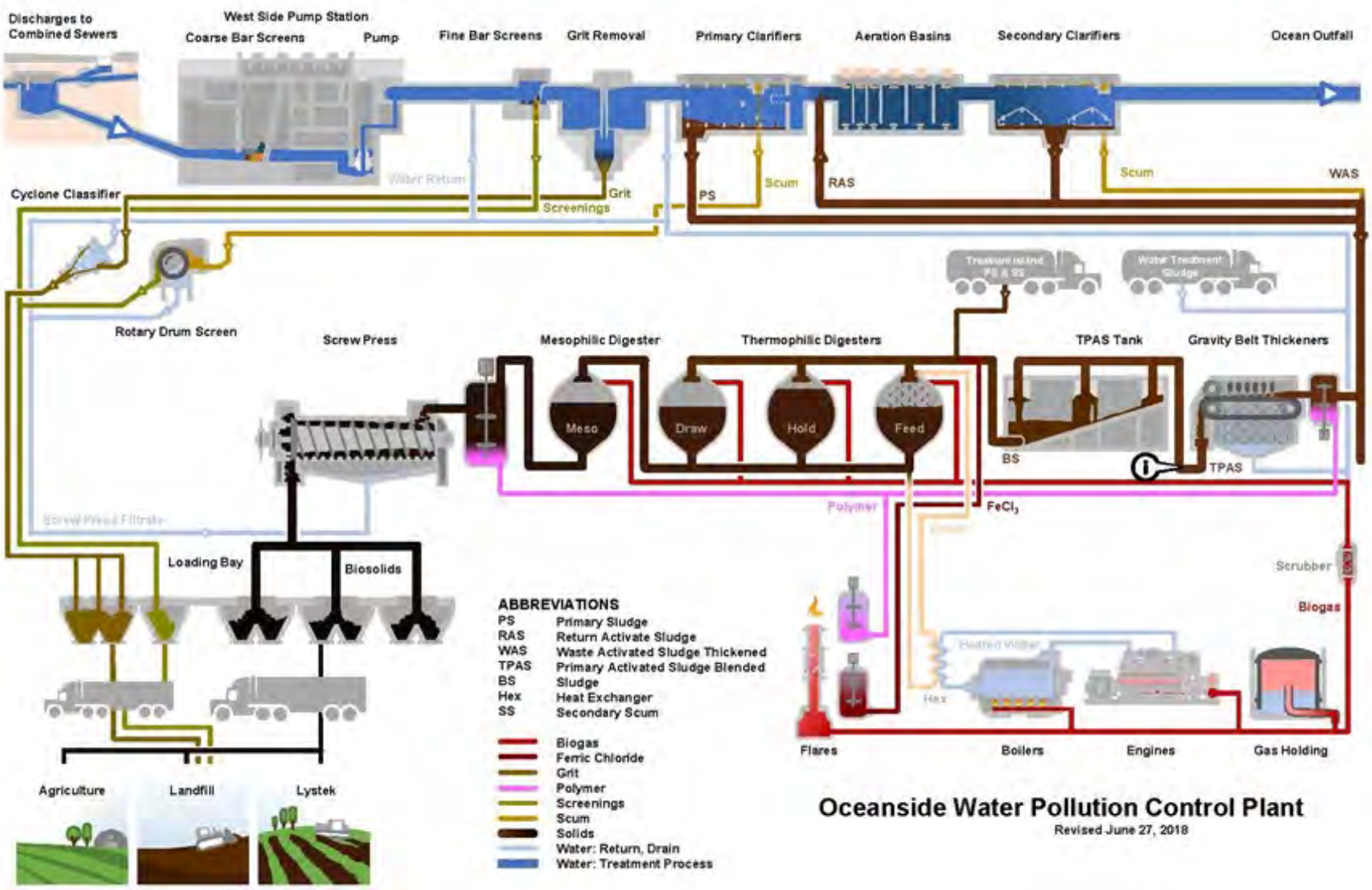
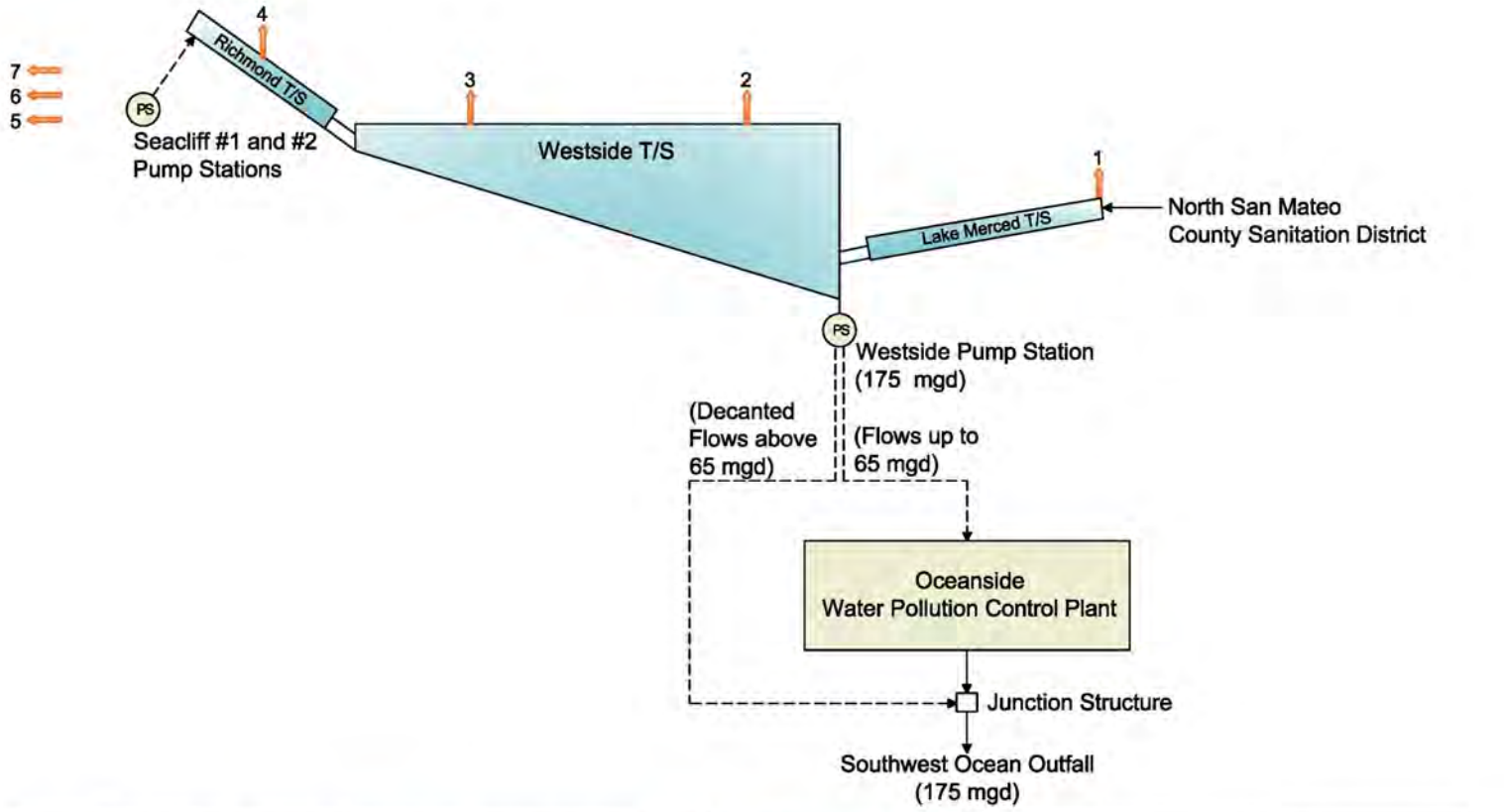


Figure C-2. Oceanside Water Pollution Control Plant Wet Weather Operations



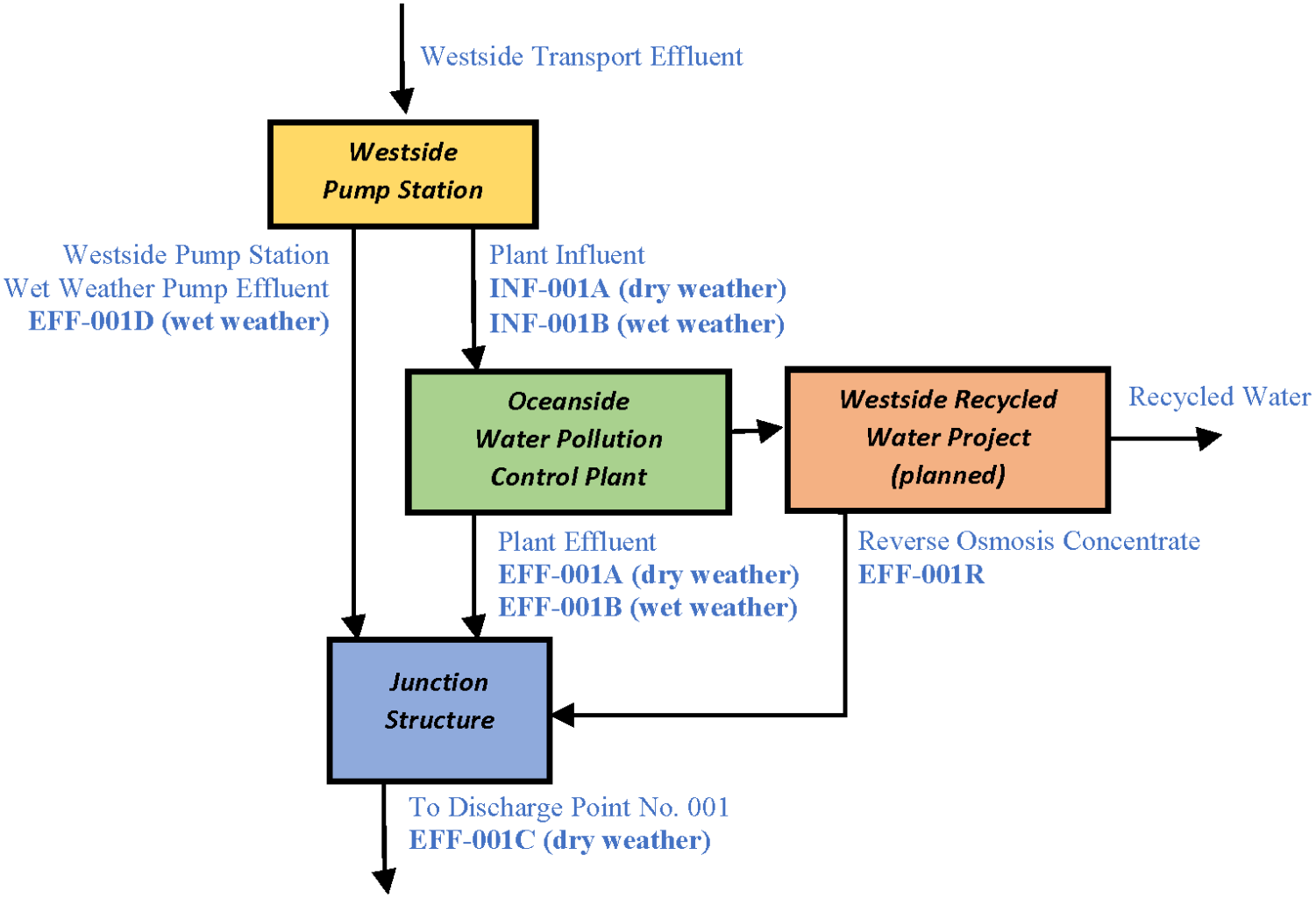
Pump/Lift Stations	
Peak Wet-Weather Flows (mgd)	
Name	
Seacliff #1	0.005
Seacliff #2	0.090
Westside	175.000

CSD Number and Name
CSD-001 Lake Merced
CSD-002 Vicente Street
CSD-003 Lincoln Way
CSD-004 Mile Rock
CSD-005 Seacliff #1 PS
CSD-006 Seacliff
CSD-007 Seacliff #2 PS

Transport/Storage Structures	
Name	Usable Storage (MG)
Richmond Transport	12.0
Westside Transport	49.3
Lake Merced Transport	10.0

Legend	
CSD	Combined Sewer Discharge
MG	million gallons
mgd	million gallons per day
T/S	Transport/Storage Structure
--→	Force Main
→	Gravity Flow Lines
#	Combined Sewer Discharge
PS	Pump Station

Figure C-3. Oceanside Water Pollution Control Plant and Planned Westside Recycled Water Project Monitoring Locations (see Monitoring and Reporting Program [MRP] Table E-1 in Attachment E of this Order for monitoring location descriptions)



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS—PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)

2. The Discharger shall comply with effluent standards or prohibitions established under CWA section 307(a) for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, U.S. EPA, or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, §§ 13267, 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(i); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, §§ 13267, 13383); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, §§ 13267, 13383.)

G. Bypass

1. Definitions

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions—Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. **Prohibition of bypass.** Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

   c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions—Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. **Approval.** The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions—Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. **Notice**

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The notice shall be sent to the Regional Water Board. As of December 21, 2020, a notice shall also be submitted electronically to the initial recipient defined in Standard Provisions—Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(i).)

   b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions—Reporting V.E below (24-hour notice). The notice shall be sent to the Regional Water Board. As of December 21, 2020, a notice shall also be submitted electronically to the initial recipient defined in Standard Provisions—Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. **Effect of an upset.** An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Standard Provisions—Permit Compliance I.H.2 below are met. No determination made

during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)

2. **Conditions necessary for a demonstration of upset.** A discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions—Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions—Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. **Burden of proof.** In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS—PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. §§ 122.41(l)(3), 122.61.)

III. STANDARD PROVISIONS—MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. chapter 1, subchapter N. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the analysis of pollutants or pollutant parameters or required under 40 C.F.R. chapter 1, subchapter N . For the purposes of this paragraph, a method is sufficiently sensitive when:

1. The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter, and either (a) the method ML is at or below the level of the applicable water quality criterion for the measured pollutant or pollutant parameter, or (b) the method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or

2. The method has the lowest ML of the analytical methods approved under 40 C.F.R. part 136 or required under 40 C.F.R. chapter 1, subchapter N, for the measured pollutant or pollutant parameter.

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. chapter 1, subchapter N, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. §§ 122.21(e)(3), 122.41(j)(4), 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS—RECORDS

A. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include the following:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) the analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits, and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS—REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, §§ 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions—Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 C.F.R. § 122.41(k).)

2. For a corporation, all permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)

For a partnership or sole proprietorship, all permit applications shall be signed by a general partner or the proprietor, respectively. (40 C.F.R. § 122.22(a)(2).)

For a municipality, State, federal, or other public agency, all permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions—Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions—Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions—Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions—Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions—Reporting V.B.2 or V.B.3 above shall make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

6. Any person providing the electronic signature for documents described in Standard Provisions—V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions—Reporting V.B, and shall ensure that all relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R § 122.22(e).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order. (40 C.F.R. § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board. As of December 21, 2016, all reports and forms must be submitted electronically to the initial recipient defined in Standard Provisions—Reporting V.J and comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. chapter 1, subchapter N, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR reporting form specified by the Regional Water Board or State Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written report shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

For noncompliance related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (i.e., combined sewer overflow, sanitary sewer overflow, or bypass event), type of overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volume untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the event, and whether the noncompliance was related to wet weather.

As of December 21, 2020, all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted to the Regional Water Board and must be

submitted electronically to the initial recipient defined in Standard Provisions—Reporting V.J. The reports shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. The Regional Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours:

a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 C.F.R. section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (Alternatively, for an existing manufacturing, commercial, mining, or silvicultural discharge as referenced in 40 C.F.R. section 122.42(a), this notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under 40 C.F.R. section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1).) (40 C.F.R. § 122.41(l)(1)(ii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions—Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provisions—Reporting V.E above. For noncompliance related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provisions—

Reporting V.E and the applicable required data in appendix A to 40 C.F.R. part 127. The Regional Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

J. Initial Recipient for Electronic Reporting Data

The owner, operator, or duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 C.F.R. part 127 to the initial recipient defined in 40 C.F.R. section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its website and in the Federal Register, by state and by NPDES data group (see 40 C.F.R. § 127.2(c)). U.S. EPA will update and maintain this list. (40 C.F.R. § 122.41(l)(9).)

VI. STANDARD PROVISIONS—ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this Order under several provisions of the Water Code, including, but not limited to, sections 13268, 13350, 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS—NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));

c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or

d. The level established by the Regional Water Board in accordance with section 40 C.F.R. section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(2)):

a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));

b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or

d. The level established by the Regional Water Board in accordance with 40 C.F.R. section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to CWA sections 301 or 306 if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of this Order. (40 C.F.R. § 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Clean Water Act section 308 and 40 C.F.R. sections 122.41(h), 122.41(j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. This MRP establishes monitoring, reporting, and recordkeeping requirements that implement federal and State laws and regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with this MRP. The Regional Water Board Executive Officer and U.S. EPA may amend this MRP pursuant to 40 C.F.R. sections 122.62, 122.63, and 124.5. If any discrepancies exist between this MRP and the "Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits" (Attachment G), this MRP shall prevail.

B. The Discharger shall conduct all monitoring in accordance with Attachment D section III, as supplemented by Attachment G. Equivalent test methods must be more sensitive than those specified in 40 C.F.R. part 136 and must be specified in this permit.

C. The Discharger shall ensure that results of the Discharge Monitoring Report-Quality Assurance (DMR-QA) Study or most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Board at the following address or as otherwise directed:

State Water Resources Control Board
Quality Assurance Program Officer
Office of Information Management and Analysis
1001 I Street, Sacramento, CA 95814

D. The Discharger shall implement a Quality Assurance-Quality Control Program for any onsite field tests (e.g., turbidity, pH, temperature, dissolved oxygen, conductivity, disinfectant residual) analyzed by a noncertified laboratory. The Discharger shall keep a manual onsite containing the steps followed in this program and must demonstrate sufficient capability to adequately perform these field tests (e.g., qualified and trained employees, properly calibrated and maintained field instruments). The program shall conform to U.S. EPA guidelines or other approved procedures.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Locations

Monitoring Location Type	Monitoring Location Name	Monitoring Location Description [1]
Oceanside Water Pollution Control Plant Influent (dry weather)	INF-001A	During dry weather, any point in the plant headworks where all waste tributary to the plant is present and preceding any phase of treatment at the plant, exclusive of any return flows or process side streams.

Monitoring Location Type	Monitoring Location Name	Monitoring Location Description [1]
Oceanside Water Pollution Control Plant Influent (wet weather)	INF-001B	During wet weather, any point in the plant headworks where all waste tributary to the plant is present and preceding any phase of treatment at the plant, exclusive of any return flows or process side streams.
Oceanside Water Pollution Control Plant Effluent (dry weather)	EFF-001A	During dry weather, any point at the plant following all phases of treatment, prior to contact with Westside Recycled Water Project concentrate and the receiving water at Discharge Point No. 001.
Oceanside Water Pollution Control Plant Effluent (wet weather)	EFF-001B	During wet weather, any point at the plant following all phases of treatment, prior to contact with Westside Transport/Storage Structure effluent, Westside Recycled Water Project concentrate, and the receiving water at Discharge Point No. 001.
Oceanside Water Pollution Control Plant Effluent and Westside Recycled Water Project Concentrate (dry weather)	EFF-001C	During dry weather, any point at which all plant effluent and Westside Recycled Water Project concentrate tributary to Discharge Point No. 001 is present and after all phases of treatment. The Discharger may combine 24-hour composite samples from Monitoring Locations EFF-001A and EFF-001R to create a volumetrically flow-weighted representative sample for Monitoring Location EFF-001C.
Westside Transport/Storage Structure Effluent (wet weather) (identified in the previous order as "decant")	EFF-001D	During wet weather, any point following the Westside Pump Station wet weather pumps, prior to contact with treated plant effluent, Westside Recycled Water Project concentrate, and the receiving water at Discharge Point No. 001.
Westside Recycled Water Project Reverse Osmosis Concentrate	EFF-001R	Any point at the Westside Recycled Water Project following all phases of treatment, prior to contact with plant effluent, Westside Transport/Storage Structure effluent, and the receiving water at Discharge Point No. 001.
Combined Sewer Discharge Effluent	EFF-CSD	A monitoring location representative of combined sewer discharges from the Westside Transport/Storage Structure.
Shoreline Receiving Water	SRF-15	Nearshore receiving water along Baker Beach, in the surf at the terminus of Lobos Creek.
Shoreline Receiving Water	SRF-15 east	Nearshore receiving water along Baker Beach, in the surf east of Monitoring Location SRF-15.
Shoreline Receiving Water	SRF-16	Nearshore receiving water along Baker Beach, in the surf opposite the Sea Cliff No. 2 Pump Station.
Shoreline Receiving Water	SRF-17	Nearshore receiving water along China Beach, in the surf opposite the Sea Cliff No. 1 Pump Station.
Shoreline Receiving Water	SRF-18	Nearshore receiving water along Ocean Beach, in the surf at the foot of Balboa Street.
Shoreline Receiving Water	SRF-19	Nearshore receiving water along Ocean Beach, in the surf at the foot of Lincoln Way, opposite the Lincoln Combined Sewer Discharge Structure.
Shoreline Receiving Water	SRF-20	Nearshore receiving water along Ocean Beach, in the surf at the foot of Pacheco Street.
Shoreline Receiving Water	SRF-21	Nearshore receiving water along Ocean Beach, in the surf at the foot of Vicente Street, opposite the Vicente Combined Sewer Discharge Structure.
Shoreline Receiving Water	SRF-21.1	Nearshore receiving water along Ocean Beach, in the surf at the foot of Sloat Boulevard.

Monitoring Location Type	Monitoring Location Name	Monitoring Location Description [1]
Shoreline Receiving Water	SRF-22	Nearshore receiving water along Ocean Beach, in the surf at Fort Funston, opposite the Lake Merced Combined Sewer Discharge Structure.
Offshore Receiving Water	Station 1	Offshore monitoring program station location. *Longitude -122.57533°, Latitude 37.70333°*
Offshore Receiving Water	Station 2	Offshore monitoring program station location. *Longitude -122.57500°, Latitude 37.71050°*
Offshore Receiving Water	Station 4	Offshore monitoring program station location. *Longitude -122.59500°, Latitude 37.71167°*
Offshore Receiving Water	Station 6	Offshore monitoring program station location. *Longitude -122.53750°, Latitude 37.66667°*
Offshore Receiving Water	Station 25	Offshore monitoring program station location. *Longitude -122.57500°, Latitude 37.70383°*
Offshore Receiving Water	Station 28	Offshore monitoring program station location. *Longitude -122.57467°, Latitude 37.69833°*
Offshore Receiving Water	Station 31	Offshore monitoring program station location. *Longitude -122.56717°, Latitude 37.72467°*
Offshore Receiving Water	Station 32 (formerly R1)	Offshore monitoring program station location. *Longitude -122.64128°, Latitude 37.86799°*
Offshore Receiving Water	Station 33 (formerly R2)	Offshore monitoring program station location. *Longitude -122.60024°, Latitude 37.85171°*
Offshore Receiving Water	Station 34 (formerly R3)	Offshore monitoring program station location. *Longitude -122.64744°, Latitude 37.85129°*
Offshore Receiving Water	Station 35 (formerly R4)	Offshore monitoring program station location. *Longitude -122.67920°, Latitude 37.84832°*
Offshore Receiving Water	Station 36 (formerly R5)	Offshore monitoring program station location. *Longitude -122.62008°, Latitude 37.83773°*
Offshore Receiving Water	Station 37 (formerly R6)	Offshore monitoring program station location. *Longitude -122.59485°, Latitude 37.83656°*
Offshore Receiving Water	Station 38 (formerly R7)	Offshore monitoring program station location. *Longitude -122.65501°, Latitude 37.82802°*
Offshore Receiving Water	Station 39 (formerly R8)	Offshore monitoring program station location. *Longitude -122.69042°, Latitude 37.82200°*
Offshore Receiving Water	Station 40 (formerly R9)	Offshore monitoring program station location. *Longitude -122.62493°, Latitude 37.80880°*
Offshore Receiving Water	Station 43 (formerly R12)	Offshore monitoring program station location. *Longitude -122.61608°, Latitude 37.78552°*
Offshore Receiving Water	Station 45 (formerly R14)	Offshore monitoring program station location. *Longitude -122.64399°, Latitude 37.77483°*
Offshore Receiving Water	Station 47 (formerly R16)	Offshore monitoring program station location. *Longitude -122.61792°, Latitude 37.76106°*
Offshore Receiving Water	Station 48 (formerly R17)	Offshore monitoring program station location. *Longitude -122.64888°, Latitude 37.75941°*
Offshore Receiving Water	Station 50 (formerly R19)	Offshore monitoring program station location. *Longitude -122.66556°, Latitude 37.75000°*

Monitoring Location Type	Monitoring Location Name	Monitoring Location Description [1]
Offshore Receiving Water	Station 51 (formerly R20)	Offshore monitoring program station location. *Longitude -122.59875°, Latitude 37.74622°*
Offshore Receiving Water	Station 52 (formerly R21)	Offshore monitoring program station location. *Longitude -122.51989°, Latitude 37.72863°*
Offshore Receiving Water	Station 53 (formerly R22)	Offshore monitoring program station location. *Longitude -122.64514°, Latitude 37.71787°*
Offshore Receiving Water	Station 54 (formerly R23)	Offshore monitoring program station location. *Longitude -122.54650°, Latitude 37.71651°*
Offshore Receiving Water	Station 55 (formerly R24)	Offshore monitoring program station location. *Longitude -122.57086°, Latitude 37.71569°*
Offshore Receiving Water	Station 56 (formerly R25)	Offshore monitoring program station location. *Longitude -122.60786°, Latitude 37.71146°*
Offshore Receiving Water	Station 57 (formerly R26)	Offshore monitoring program station location. *Longitude -122.51912°, Latitude 37.70940°*
Offshore Receiving Water	Station 58 (formerly R27)	Offshore monitoring program station location. *Longitude -122.58201°, Latitude 37.70430°*
Offshore Receiving Water	Station 59 (formerly R28)	Offshore monitoring program station location. *Longitude -122.53662°, Latitude 37.69324°*
Offshore Receiving Water	Station 60 (formerly R29)	Offshore monitoring program station location. *Longitude -122.60180°, Latitude 37.68914°*
Offshore Receiving Water	Station 61 (formerly R30)	Offshore monitoring program station location. *Longitude -122.55807°, Latitude 37.68204°*
Offshore Receiving Water	Station 62 (formerly R31)	Offshore monitoring program station location. *Longitude -122.62865°, Latitude 37.68227°*
Offshore Receiving Water	Station 63 (formerly R32)	Offshore monitoring program station location. *Longitude -122.56150°, Latitude 37.65879°*
Offshore Receiving Water	Station 64 (formerly R33)	Offshore monitoring program station location. *Longitude -122.53465°, Latitude 37.65406°*
Offshore Receiving Water	Station 65 (formerly R34)	Offshore monitoring program station location. *Longitude -122.54111°, Latitude 37.63414°*
Offshore Receiving Water	Station 66 (formerly R35)	Offshore monitoring program station location. *Longitude -122.61113°, Latitude 37.62840°*
Offshore Receiving Water	Station 67 (formerly R36)	Offshore monitoring program station location. *Longitude -122.56486°, Latitude 37.62633°*
Offshore Receiving Water	Station 68 (formerly R37)	Offshore monitoring program station location. *Longitude -122.61549°, Latitude 37.61694°*
Offshore Receiving Water	Station 69 (formerly R38)	Offshore monitoring program station location. *Longitude -122.59134°, Latitude 37.61449°*
Offshore Receiving Water	Station 70 (formerly R39)	Offshore monitoring program station location. *Longitude -122.53371°, Latitude 37.60893°*
Offshore Receiving Water	Station 71 (formerly R40)	Offshore monitoring program station location. *Longitude -122.55084°, Latitude 37.60465°*
Offshore Receiving Water	Station 72 (formerly R41)	Offshore monitoring program station location. *Longitude -122.65550°, Latitude 37.80367°*
Offshore Receiving Water	Station 80 (formerly R49)	Offshore monitoring program station location. *Longitude -122.51500°, Latitude 37.71500°*

Monitoring Location Type	Monitoring Location Name	Monitoring Location Description [1]
Biosolids	BIO-001	Biosolids (treated sludge)

Footnote:

[1] Latitude and longitude information is approximate.

III. INFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor Oceanside Water Pollution Control Plant influent at Monitoring Location INF-001A during dry weather and Monitoring Location INF-001B during wet weather as follows:

Table E-2. Plant Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency [2]
Flow [1]	MG/MGD	Continuous	Continuous/D
Carbonaceous Biochemical Oxygen Demand (5-day @ 20°C)($CBOD_5$) [3]	mg/L	C-24	1/Week
Total Suspended Solids (TSS)	mg/L	C-24	5/Week

Abbreviations:

MG = million gallons
MGD = million gallons per day
mg/L = milligrams per liter

Sample Types and Frequencies:

Continuous = measured continuously
Continuous/D = measured continuously, and recorded and reported daily
C-24 = 24-hour composite
1/Week = once per week
5/Week = five times per week

Footnotes:

[1] The following information shall be reported in monthly self-monitoring reports:

- Daily average flow (MGD)
- Total monthly flow volume (MG)

[2] The minimum sampling frequency is the total number of influent samples to be collected during the specified sampling period, including samples collected during dry and wet weather at Monitoring Locations INF-001A and INF-001B.

[3] The Discharger may monitor Chemical Oxygen Demand at Monitoring Location INF-001B in lieu of $CBOD_5$ during wet weather.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Oceanside Water Pollution Control Plant

1. **Dry and Wet Weather.** The Discharger shall monitor plant effluent at Monitoring Location EFF-001A during dry weather and at Monitoring Location EFF-001B during wet weather as follows:

Table E-3. Plant Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency [3]
Flow [1]	MG/MGD	Continuous	Continuous/D
$CBOD_5$ [2]	mg/L	C-24	1/Week
TSS	mg/L	C-24	5/Week
pH	standard units	Continuous or Grab	1/Week

Abbreviations:

MG = million gallons
MGD = million gallons per day
mg/L = milligrams per liter

Sample Types and Frequencies:

Continuous = measured continuously
Continuous/D = measured continuously, and recorded and reported daily
C-24 = 24-hour composite
Grab = grab sample
1/Week = once per week
5/Week = five times per week

Footnotes:

[1] The following information shall be reported in monthly self-monitoring reports:

- Daily average flow (MGD)
- Total monthly flow volume (MG)

[2] The Discharger may monitor Chemical Oxygen Demand at Monitoring Location EFF-001B in lieu of $CBOD_5$ during wet weather.

[3] The minimum sampling frequency is the total number of effluent samples to be collected during the specified sampling period, including samples collected during dry and wet weather at Monitoring Locations EFF-001A and EFF-001B.

2. **Dry Weather.** During dry weather, the Discharger shall monitor plant effluent at Monitoring Location EFF-001A as follows:

Table E-4. Dry Weather Plant Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Oil and Grease	mg/L	Grab	1/Quarter
Ammonia, total	mg/L as N	C-24	1/Quarter
Arsenic	µg/L	C-24	1/Quarter
Cadmium	µg/L	C-24	1/Quarter
Copper	µg/L	C-24	1/Quarter
Lead	µg/L	C-24	1/Quarter
Nickel	µg/L	C-24	1/Quarter
Selenium	µg/L	C-24	1/Quarter
Silver	µg/L	C-24	1/Quarter
Zinc	µg/L	C-24	1/Quarter
Remaining Ocean Plan Table 1 Pollutants [1]	µg/L	C-24 [2]	1/Year

Abbreviations:

mg/L = milligrams per liter
mg/L as N = milligrams per liter as nitrogen
µg/L = micrograms per liter

Sample Types and Frequencies:

C-24 = 24-hour composite
Grab = grab sample
1/Quarter = once per quarter
1/Year = once per year

Footnotes:

[1] The Discharger shall monitor for the pollutants listed in Ocean Plan Table 1, except chlorine, tributyltin, radioactivity, acute toxicity, and chronic toxicity. The Discharger may monitor for total chromium in lieu of hexavalent chromium.

[2] For mercury and other parameters with analytical methods that require grab sampling, the Discharger may collect a grab sample instead of a 24-hour composite sample.

3. **Wet Weather.** During wet weather, the Discharger shall monitor plant effluent at Monitoring Location EFF-001B as follows:

Table E-5. Wet Weather Plant Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Duration of Blending [1]	minutes	Calculated	Continuous/D
Volume of Blended Wastewater Discharged [1]	MG	Calculated	Continuous/D
Ocean Plan Table 1 Pollutants [2]	µg/L	C-24 [3]	1/Year

Abbreviations:

MG = million gallons
µg/L = micrograms per liter

Sample Types and Frequencies:

Continuous/D = measured continuously, and recorded and reported daily
C-24 = 24-hour composite
1/Year = once per year

Footnotes:

[1] Blended wastewater is biologically-treated wastewater blended with wastewater diverted around biological treatment units at the Oceanside Water Pollution Control Plant. For each day on which blending occurs, the Discharger shall report the duration of blending and the volume of primary-only-treated wastewater blended.

[2] The Discharger shall monitor for the pollutants listed in Ocean Plan Table 1, except chlorine, tributyltin, radioactivity, acute toxicity, and chronic toxicity. The Discharger may monitor for total chromium in lieu of hexavalent chromium.

[3] For mercury and other parameters with analytical methods that require grab sampling, the Discharger may collect a grab sample instead of a 24-hour composite sample.

B. Combined Sewer System

1. **Westside Transport/Storage Structure Effluent.** During wet weather, the Discharger shall monitor Westside Transport/Storage Structure effluent at Monitoring Location EFF-001D as shown in Table E-6.

Table E-6. Westside Transport/Storage Structure Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow Volume [1]	MG	Continuous	Continuous/D
TSS	mg/L	C-X [3]	3/Year
Ammonia, total	mg/L as N	C-X [3]	3/Year
Arsenic	µg/L	C-X [3]	3/Year

Parameter	Units	Sample Type	Minimum Sampling Frequency
Cadmium	µg/L	C-X [3]	3/Year
Copper	µg/L	C-X [3]	3/Year
Lead	µg/L	C-X [3]	3/Year
Nickel	µg/L	C-X [3]	3/Year
Selenium	µg/L	C-X [3]	3/Year
Silver	µg/L	C-X [3]	3/Year
Zinc	µg/L	C-X [3]	3/Year
Remaining Ocean Plan Table 1 Pollutants [2]	µg/L	C-X [3,4]	1/Year

Abbreviations:

MG = million gallons
mg/L = milligrams per liter
mg/L as N = milligrams per liter as nitrogen
µg/L = micrograms per liter

Sample Types and Frequencies:

Continuous = measured continuously
Continuous/D = measured continuously, and recorded and reported daily
C-X = composite sample comprised of individual grab samples collected at equal intervals of no more than one hour at least until a sufficient sample volume for the required analyses is obtained.
1/Year = once per year
3/Year = three times per year

Footnotes:

[1] The following information shall be reported in monthly self-monitoring reports:
- Total daily flow volume from the Westside Transport/Storage Structure to Discharge Point No. 001
- Total monthly flow volume from the Westside Transport/Storage Structure to Discharge Point No. 001

[2] The Discharger shall monitor for the pollutants listed in Ocean Plan Table 1, except chlorine, tributyltin, radioactivity, acute toxicity, chronic toxicity, and volatile organic compounds. The Discharger may monitor for total chromium in lieu of hexavalent chromium.

[3] If the discharge lasts less than 24 hours, the Discharger shall sample at equal intervals for as long as possible and record the duration. The Discharger shall begin collecting aliquots or grab samples within two hours of commencing discharge from the Westside Transport/Storage Structure directly to Discharge Point No. 001.

[4] For mercury and other parameters with analytical methods that require grab sampling, the Discharger may collect a grab sample instead of a 24-hour composite sample.

2. Combined Sewer Discharges

a. During combined sewer discharge events, the Discharger shall monitor combined sewer discharge effluent at Monitoring Location EFF-CSD as follows:

Table E-7. Combined Sewer Discharge Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
TSS	mg/L	C-X [2]	1/Event
Ammonia, total	mg/L as N	C-X [2]	1/Event
Arsenic	µg/L	C-X [2]	1/Event
Cadmium	µg/L	C-X [2]	1/Event
Copper	µg/L	C-X [2]	1/Event
Lead	µg/L	C-X [2]	1/Event
Nickel	µg/L	C-X [2]	1/Event

Parameter	Units	Sample Type	Minimum Sampling Frequency
Selenium	µg/L	C-X [2]	1/Event
Silver	µg/L	C-X [2]	1/Event
Zinc	µg/L	C-X [2]	1/Event
Remaining Ocean Plan Table 1 Pollutants [1]	µg/L	C-X [2,3]	1/Year

Abbreviations:

mg/L = milligrams per liter
mg/L as N = milligrams per liter as nitrogen
µg/L = micrograms per liter

Sample Types and Frequencies:

C-X = composite sample comprised of individual grab samples collected at equal intervals of no more than one hour at least until a sufficient sample volume for the required analysis is obtained.
Grab = grab sample
1/Event = once per combined sewer discharge event
1/Year = once per year

Footnotes:

[1] The Discharger shall monitor for the pollutants listed in Ocean Plan Table 1, except chlorine, tributyltin, radioactivity, acute toxicity, chronic toxicity, and volatile organic compounds. The Discharger may monitor for total chromium in lieu of hexavalent chromium.

[2] If the discharge lasts less than 24 hours, the Discharger shall sample for as long as possible at equal intervals and record the duration. If the discharge lasts less than one hour, the Discharger shall collect at least one grab sample.

[3] For mercury and other parameters with analytical methods that require grab sampling, the Discharger may collect a grab sample instead of a composite sample.

b. The Discharger shall record and report in each self-monitoring report the following information for each discharge at Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007:

i. Date and time the combined sewer discharge started;

ii. Event duration (in minutes) and volume (in million gallons);

iii. Rainfall intensity and amount (in inches per day and peak hourly rainfall intensity per day) at representative locations where rainfall was measured;

iv. Information supporting discharge volume estimates (if estimated); and

v. Documentation of compliance or noncompliance with each wet weather operational requirement in Provision VI.C.5.c of the Order.

C. Westside Recycled Water Project

When the Westside Recycled Water Project is operating, the Discharger shall monitor reverse osmosis concentrate at Monitoring Location EFF-001R as follows:

Table E-8. Westside Recycled Water Project Concentrate Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MG/MGD	Continuous	Continuous/D

Parameter	Units	Sample Type	Minimum Sampling Frequency
TSS	mg/L	C-24	1/Month
pH	standard units	Continuous or Grab	1/Month
Settleable Solids	mL/L	Grab or C-24	1/Month
Turbidity	NTU	C-24	1/Month
Oil and Grease	mg/L	Grab	1/Quarter
Ocean Plan Table 1 Pollutants [2]	µg/L	C-24 [3]	1/Year

Abbreviations:

MG = million gallons
MGD = million gallons per day
mg/L = milligrams per liter
mL/L = milliliters per liter
µg/L = micrograms per liter
NTU = nephelometric turbidity units

Sample Types and Frequencies:

Continuous = measured continuously
Continuous/D = measured continuously, and recorded and reported daily
C-24 = 24-hour composite
Grab = grab sample
1/Month = once per month
1/Quarter = once per quarter
1/Year = once per year

Footnotes:

[1] The following information shall be reported in monthly self-monitoring reports:

- Daily average flow (MGD)
- Total monthly flow volume (MG)

[2] The Discharger shall monitor for the pollutants listed in Ocean Plan Table 1, except chlorine, tributyltin, radioactivity, acute toxicity, and chronic toxicity. The Discharger may monitor for total chromium in lieu of hexavalent chromium.

[3] For mercury and other parameters with analytical methods that require grab sampling, the Discharger may collect a grab sample instead of a 24-hour composite sample.

D. Discharge Point No. 001

During dry weather, the Discharger shall monitor discharges at Discharge Point No. 001 at Monitoring Location EFF-001C as specified in Table E-9, below. If during the year the discharge at Discharge Point No. 001 is ever entirely reverse osmosis concentrate, the Discharger shall collect at least one sample during that time, if feasible. Otherwise, the Discharger shall collect samples when the Recycled Water Project is operating, if possible.

Table E-9. Dry Weather Discharge Point No. 001 Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Chronic Toxicity [1]	Pass or Fail and Percent Effect	C-24	1/Quarter

Sample Type and Frequency:

C-24 = 24-hour composite
1/Quarter = once per quarter

Footnote:

[1] Chronic toxicity test samples shall be collected coincident with routine composite effluent samples and analyzed in accordance with MRP section V.

V. CHRONIC TOXICITY MONITORING REQUIREMENTS

A. Methodology

1. The Discharger shall conduct static non-renewal chronic toxicity tests with the purple sea urchin (*Strongylocentrotus purpuratus*) or the sand dollar (*Dendraster excentricus*) with the embryo-larval development test method. Bioassays shall be conducted in compliance with the most recently promulgated test methods, currently *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA 600/R-95/136, 1995). If these protocols prove unworkable, the Regional Water Board and U.S. EPA may grant exceptions in writing upon the Discharger's request with justification.

2. The in-stream waste concentration (IWC) shall depend on the amount of recycled water being produced. When the Westside Recycled Water Project produces less than 1.0 MGD of recycled water for distribution, the IWC shall be 0.67 percent effluent. When the Westside Recycled Water Project produces at least 1.0 MGD of recycled water for distribution, the IWC shall be 0.37 percent effluent. Recycled water production for this purpose shall be determined based on the volume of recycled water produced during the 24-hour composite sampling period for the chronic toxicity test.

3. If an effluent toxicity test does not meet all test acceptability criteria in the test methods manual, the Discharger shall resample and retest within 14 days.

4. Dilution and control water, including brine controls, shall be 1-µm-filtered uncontaminated natural seawater, hypersaline brine prepared using uncontaminated natural seawater, or laboratory water prepared and used as specified in the test methods manual. If dilution water and control water are different from test organism culture water, the Discharger shall test a second control using culture water.

5. The Discharger shall conduct concurrent reference toxicant tests at least quarterly. The Discharger shall review and report all reference toxicant test results using the EC_{25} and EC_{50}.

B. Compliance Determination

Samples collected during routine and accelerated monitoring shall be used to evaluate compliance. Compliance with the chronic toxicity effluent limitation shall be evaluated using the TST statistical approach at the discharge IWC. The Discharger shall determine "Pass" or "Fail" and "percent effect" from a toxicity test at the discharge IWC using the TST statistical approach in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1. The TST null hypothesis shall be the following:

$$\text{mean discharge IWC response} \leq 0.75 \times \text{mean control response}$$

The Discharger shall report a test that rejects this null hypothesis as "Pass" and a test that does not reject this null hypothesis as "Fail." The relative "percent effect" at the discharge IWC shall be calculated and reported as:

([mean control response – mean discharge response] / mean control response) x 100%

C. Accelerated Monitoring

If a chronic bioassay test indicates a violation of the chronic toxicity effluent limitation, the Discharger shall retest within five days of receiving test results, or within seven days if the sample is contracted out to a commercial laboratory. Accelerated monitoring shall consist of four toxicity tests conducted at approximately two-week intervals. The Discharger shall return to routine monitoring if all four monitoring test results are "Pass."

If any accelerated monitoring test violates the chronic toxicity effluent limitation, the Discharger shall immediately initiate toxicity reduction evaluation (TRE) procedures in accordance with MRP section V.E. Accelerated monitoring is not required once the Discharger has initiated a TRE; however, the Discharger shall continue to conduct routine effluent monitoring for compliance determination purposes during the TRE.

D. Reporting Requirements

For each chronic toxicity test, whether identified as valid or not, the Discharger shall report the following, at a minimum, in monthly self-monitoring reports:

1. Sample date;

2. Test initiation date;

3. Test species;

4. TST statistical results (i.e., "Pass" or "Fail," and "percent effect" at the IWC);

5. Other biological and statistical endpoint values as appropriate (e.g., number of young, growth rate, NOEC, EC_{25});

6. Summary of water quality measurements for each toxicity test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, and ammonia);

7. Statistical program output results for each toxicity test, including tabular data and graphical plots;

8. Tabular data and graphical plots showing the laboratory's performance for (1) the reference toxicant for the previous 20 tests; and (2) the control mean, control standard deviation, and control coefficient of variation for the previous 12 months; and

9. Status of any ongoing TRE work, including completed and planned investigative activities.

E. Toxicity Reduction Evaluation (TRE)

1. Generic TRE Work Plan. The Discharger shall prepare and submit an initial investigation TRE work plan within 90 days of the effective date of this Order. The Discharger shall prepare the work plan based on *Toxicity Reduction Evaluation Guidance for Municipal*

Wastewater Treatment Plants (EPA/833/B-99/002, 1999), or the most current version. The work plan shall describe the steps the Discharger intends to follow if toxicity is detected. At a minimum, the work plan shall include a description of the following:

a. Investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency;

b. Methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in the operation of the Facility; and

c. Staff responsible for conducting TIEs (e.g., in-house expert, outside contractor).

2. **Specific TRE Work Plan.** If an accelerated monitoring test violates the chronic toxicity effluent limitation, the Discharger shall immediately initiate a TRE and submit a specific TRE work plan within 15 days. The specific work plan shall be the generic work plan revised as appropriate for this toxicity event. The Discharger shall implement the TRE in accordance with the work plan, incorporating any comments received from the Regional Water Board Executive Officer or U.S. EPA. The specific TRE work plan shall include the following:

   a. Actions to investigate, identify, and correct the causes of toxicity;

   b. Actions to mitigate the effects of the discharge and prevent the recurrence of toxicity; and

   c. Schedule for these actions, progress reports, and the final report.

3. **Toxicity Identification Evaluation (TIE).** The Discharger may initiate a TIE as part of a TRE to identify the cause of toxicity. The Discharger shall employ all reasonable efforts using currently available TIE methodologies (*Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I* [EPA 600/6-91/005F, 1992]; *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* [EPA 600/R-92/080, 1993]; *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* [EPA 600/R-92/081, 1993]; and *Marine Toxicity Identification Evaluation [TIE]: Phase I Guidance Document* [EPA 600/R-96-054, 1996]).

F. Species Screening

1. The Discharger shall conduct a chronic toxicity screening test as described below (or as described in applicable State Water Board plan provisions that become effective after adoption of this Order) following any significant change in the nature of the effluent, except a change that reduces pollutant concentrations or a change resulting from operation of the Westside Recycled Water Project. If there is no significant change in the nature of the effluent, the Discharger shall conduct a screening test prior to submitting an application for permit reissuance.

2. Prior to undertaking a screening test, the Discharger shall submit a screening test proposal. The proposal shall address the elements below. If within 30 days the Regional Water Board

Executive Officer and U.S. EPA do not comment on the proposal, the Discharger shall commence the screening test.

3. The screening test shall use the protocols described in *Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA 600/R-95/136, 1995) and test species specified in the table below:

Table E-10. Critical Life Stage Toxicity Tests

Species	Scientific Name	Effect	Test Duration
Giant kelp	*Macrocystis pyrifera*	Percent germination; germ tube length	48 hours
Abalone	*Haliotis rufescens*	Abnormal shell development	48 hours
Oyster Mussel	*Crassostrea gigas* *Mytilus edulis*	Abnormal shell development; percent survival	48 hours
Echinoderms - Urchins Sand dollar	*Strongylocentrotus purpuratus, Strongylocentrotus franciscanus, or Dendraster excentricus*	Percent fertilization or larval development	1 hour (fertilization) or 72 hours (development)
Shrimp	*Holmesimysis costata*	Percent survival; growth	7 days
Topsmelt	*Atherinops affinis*	Percent survival; growth	7 days

4. The Discharger shall conduct screening tests in two stages:

a. Stage 1 shall consist of a minimum of one battery of at least four tests conducted concurrently. Test species shall include at least one plant, one invertebrate, and one fish.

b. Stage 2 shall consist of a minimum of two test batteries initiated in different calendar months using the three most sensitive species determined based on the stage 1 test results.

5. The Discharger shall use appropriate controls and conduct concurrent reference toxicant tests.

6. The Discharger shall conduct screening tests at 75, 20, 0.67, 0.37, and 0.17 percent effluent.

VI. RECEIVING WATER MONITORING REQUIREMENTS

A. Shoreline Monitoring

1. The Discharger shall monitor shoreline receiving waters at Monitoring Locations SRF-15 east, SRF-15, SRF-17, SRF-18, SRF-19, and SRF-21.1 as follows:

Table E-11. Ambient Shoreline Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Enterococcus [1]	MPN/100 mL [2]	Grab	1/Week
Fecal coliform [3]	MPN/100 mL [2]	Grab	1/Week
Total coliform	MPN/100 mL [2]	Grab	1/Week

Abbreviation:

MPN/100 mL = most probable number per 100 milliliters

Sample Type and Frequency:

Grab = grab sample
1/Week = once per week

Footnotes:

[1] The Discharger shall monitor for enterococcus using U.S. EPA-approved methods, such as the IDEXX Enterolert method. When replicate analyses are made, the reported result shall be the geometric mean of the replicate results.

[2] Results may be reported as Colony Forming Units (CFU)/100 mL if the laboratory method used provides results in CFU/100 mL.

[3] The Discharger shall begin monitoring fecal coliform on October 1, 2020.

2. Following any combined sewer discharge at Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-005, CSD-006, or CSD-007, the Discharger shall monitor shoreline receiving waters as indicated in the table below. Monitoring shall be conducted at each specified location for up to seven days or until the single-sample bacteriological standards of Cal. Code of Regs. tit. 17, section 7958(a)(1), are met (i.e., the enterococcus density is less than 104 most probable number (MPN)/100 mL, the fecal coliform density is less than 400 MPN/100 mL, and the total coliform density is less than 10,000 MPN/100 mL).

Table E-12. Post-CSD Event Shoreline Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Enterococcus [1]	MPN/100 mL [2]	Grab	1/Day [3]
Fecal coliform [4]	MPN/100 mL [2]	Grab	1/Day [3]
Total coliform	MPN/100 mL [2]	Grab	1/Day [3]
Standard observations [5]	---	---	1/Day [3]

Abbreviation:

MPN/100 mL = most probable number per 100 milliliters

Sample Type and Frequency:

Grab = grab sample
1/Day = once per day

Footnotes:

[1] The Discharger shall monitor for enterococcus using U.S. EPA-approved methods, such as the IDEXX Enterolert method. When replicate analyses are made, the reported result shall be the geometric mean of the replicate results.

[2] Results may be reported as Colony Forming Units (CFU)/100 mL if the laboratory method used provides results in CFU/100 mL.

[3] Sampling is only required at the monitoring locations indicated below when there is a combined sewer discharge at the discharge points indicated below:

Discharge Point	Monitoring Locations
CSD-001	SRF-22
CSD-002	SRF-20, SRF-21, and SRF-21.1
CSD-003	SRF-18, SRF-19, and SRF-20
CSD-005	SRF-17

CSD-006	SRF-15 east, SRF-15, and SRF-16
CSD-007	SRF-15 east, SRF-15, and SRF-16

[4] The Discharger shall begin monitoring fecal coliform on October 1, 2020.

[5] Standard observations are defined in Attachment G section III.B.3 and shall include any apparent fish kills. The estimated size of the affected area is not required.

B. Offshore Monitoring

The Discharger shall continue the Southwest Ocean Outfall Regional Monitoring Program, monitoring the area outside San Francisco Bay between Rocky Point in Marin County and Point San Pedro in San Mateo County, to identify any environmental effects of the discharge on receiving waters, sediment, or aquatic life.

1. **Sampling Frequency.** The Discharger shall sample annually in the fall when sediments are least disturbed and benthic infauna are most abundant.

2. **Sediment Chemistry Sampling**. The Discharger shall collect benthic samples from the seven historical monitoring locations (Stations 1, 2, 4, 6, 25, 28, and 31) to maintain time series data, and a minimum of 23 out of the 37 other monitoring locations (Stations 32 through 80). Samples shall be collected using a 0.1-square meter Smith-McIntyre grab sampler. The Discharger shall collect two grab samples at each station and composite the top 5 centimeters of sediment from each grab prior to analysis. The Discharger shall analyze the sediment samples for the following:

   - Total volatile solids
   - Total organic carbon
   - Kjeldahl nitrogen
   - Grain size
   - Inorganic toxic pollutants: aluminum, arsenic, cadmium, chromium, chromium (VI), copper, iron, lead, manganese, mercury, nickel, selenium, silver, and zinc. The Discharger may elect to report total chromium in lieu of chromium (VI).
   - DDT, PCBs, and PAHs

3. **Infaunal Sampling.** The Discharger shall analyze one benthic grab sample collected from each of the locations identified in the paragraph above for infaunal organisms. This sample shall be passed through 1.0- and 0.5-millimeter sieves. The Discharger shall relax organisms retained on each sieve and preserve them for later enumeration and taxonomic determination to the lowest taxon.

4. **Bioaccumulation Monitoring.** The Discharger shall conduct bioaccumulation monitoring to assess whether the concentrations of priority pollutants in marine life bioaccumulate to levels harmful to human health or the marine community. Tissue samples to assess bioaccumulation shall be collected at two locations: one at Station 1, 2, 25, or 28, and one at a reference location outside the influence of the discharge. At each location, three composite samples shall be collected of one macroinvertebrate species. Each composite sample shall consist of ten or more organisms of each species, with the preferred species being Dungeness crab (*Metacarcinus magister*). Muscle and hepatopancreas tissues shall be analyzed for inorganic

pollutants (i.e., arsenic, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc), DDT, PCBs, and PAHs.

5. **Reporting.** All offshore monitoring data shall be reported to the Regional Water Board and U.S. EPA in an Annual Report submitted by August 30 of the year following sampling. The report shall include raw data tables and summaries for each monitoring component. In addition to the annual reporting requirements, a comprehensive cumulative summary report shall be submitted with the application for permit reissuance.

VII. PRETREATMENT AND BIOSOLIDS MONITORING REQUIREMENTS

The Discharger shall comply with the following pretreatment monitoring requirements for influent at Monitoring Location INF-001A, effluent at Monitoring Location EFF-001A, and biosolids at Monitoring Location BIO-001. The Discharger shall report summaries of analytical results in pretreatment reports in accordance with Attachment H. If instructed to do so, the Discharger shall report biosolids analytical results with its electronic self-monitoring reports by manual entry, by EDF/CDF, or as an attached file.

Table E-13. Pretreatment and Biosolids Monitoring

Constituents	Influent INF-001A	Effluent EFF-001A [1]	Biosolids BIO-001	Sample Type	
				Influent and Effluent	Biosolids [7a]
VOC [2]	2/Year	2/Year	2/Year	Grab	Grab
BNA [3]	2/Year	2/Year	2/Year	Grab	Grab
Metals and Other Elements [4]	1/Month	1/Month	2/Year	C-24 [7b]	Grab
Hexavalent Chromium [5]	1/Month	1/Month	2/Year	Grab	Grab
Mercury	1/Month	1/Month [6]	2/Year	Grab	Grab
Cyanide	1/Month	1/Month	---	Grab	---
Molybdenum	---	---	2/Year	---	Grab
Organic Nitrogen	---	---	2/Year	---	Grab
Ammonia Nitrogen	---	---	2/Year	---	Grab
Total Solids	---	---	2/Year	---	Grab

Sample Types and Frequencies:

C-24 = 24-hour composite
Grab = grab sample
1/Month = once per month
2/Year = twice per year

Footnotes:

[1] Effluent monitoring conducted in accordance with Table E-4 may be used to satisfy these pretreatment monitoring requirements.

[2] VOC: volatile organic compounds.

[3] BNA: base/neutrals and acid extractable organic compounds.

[4] The metals and other elements are arsenic, cadmium, copper, lead, nickel, selenium, silver, and zinc.

[5] The Discharger may elect to monitor total chromium instead of hexavalent chromium and may elect to collect 24-hour composite samples instead of grab samples for total chromium.

[6] The Discharger shall use ultra-clean sampling (U.S. EPA Method 1669) and ultra-clean analytical methods (U.S. EPA Method 1631) for mercury monitoring, except when concentrations are expected to exceed 10 µg/L, in which case use of ultra-clean sampling and analysis methods is optional.

[7] Sample types:

a. The biosolids sample shall be a composite of the biosolids to be disposed. Biosolids sample collection and monitoring shall comply with the requirements in Attachment H, Appendix H-4. The Discharger shall also comply with the biosolids monitoring requirements in 40 C.F.R. part 503.

b. If an automatic compositor is used, the Discharger shall obtain 24-hour composite samples through flow-proportioned composite sampling. Alternatively, 24-hour composite samples may consist of discrete grab samples combined (volumetrically flow-weighted) prior to analysis or analyzed separately with the results mathematically flow-weighted.

VIII. RECYCLED WATER MONITORING REQUIREMENTS

A. Influent Monitoring

The Discharger shall monitor the monthly volume of influent to the Oceanside Water Pollution Control Plant.

B. Production Monitoring

The Discharger shall monitor the monthly volumes of effluent from the Oceanside Water Pollution Control Plant and Westside Recycled Water Project for each level of treatment.

C. Discharge Monitoring

The Discharger shall monitor the monthly volumes of effluent from the Oceanside Water Pollution Control Plant and Westside Recycled Water Project discharged to each of the following, for each level of treatment:

1. Inland surface waters, specifying volume required to maintain minimum instream flow;

2. Enclosed bays, estuaries and coastal lagoons, and ocean waters;

3. Natural systems, such as wetlands, wildlife habitats, and duck clubs, where augmentation or restoration has occurred, and that are not part of a wastewater treatment plant or water recycling treatment plant;

4. Underground injection wells, such as those classified by U.S. EPA's Underground Injection Control Program, excluding groundwater recharge via subsurface application intended to reduce seawater intrusion into a coastal aquifer with a seawater interface; and

5. Land, where beneficial use is not taking place, including evaporation or percolation ponds, overland flow, or spray irrigation disposal, excluding pasture or fields with harvested crops.

D. Reuse Monitoring

The Discharger shall monitor the following:

1. Monthly volume of recycled water distributed; and

2. Annual volumes of treated wastewater distributed for beneficial use in compliance with California Code of Regulations, title 22, in each of the use categories listed below:

a. Agricultural irrigation: pasture or crop irrigation;

b. Landscape irrigation: irrigation of parks, greenbelts, and playgrounds; school yards; athletic fields; cemeteries; residential landscaping, common areas; commercial landscaping; industrial landscaping; and freeway, highway, and street landscaping;

c. Golf course irrigation: irrigation of golf courses, including water used to maintain aesthetic impoundments within golf courses;

d. Commercial application: commercial facilities, business use (such as laundries and office buildings), car washes, retail nurseries, and appurtenant landscaping that is not separately metered;

e. Industrial application: manufacturing facilities, cooling towers, process water, and appurtenant landscaping that is not separately metered;

f. Geothermal energy production: augmentation of geothermal fields;

g. Other non-potable uses: including but not limited to dust control, flushing sewers, fire protection, fill stations, snow making, and recreational impoundments;

h. Groundwater recharge: the planned use of recycled water for replenishment of a groundwater basin or an aquifer that has been designated as a source of water supply for a public water system. Includes surface or subsurface application, except for seawater intrusion barrier use;

i. Seawater intrusion barrier: groundwater recharge via subsurface application intended to reduce seawater intrusion into a coastal aquifer with a seawater interface;

j. Reservoir water augmentation: the planned placement of recycled water into a raw surface water reservoir used as a source of domestic drinking water supply for a public water system, as defined in Health and Safety Code section 116275, or into a constructed system conveying water to such a reservoir (Wat. Code § 13561);

k. Raw water augmentation: the planned placement of recycled water into a system of pipelines or aqueducts that delivers raw water to a drinking water treatment plant that provides water to a public water system as defined in Health and Safety Code section 116275 (Wat. Code § 13561); and

l. Other potable uses: both indirect and direct potable reuse other than for groundwater recharge, seawater intrusion barrier, reservoir water augmentation, or raw water augmentation.

IX. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (Attachments D, G, and H) related to monitoring, reporting, and recordkeeping.

B. Self-Monitoring Reports (SMRs)

1. **SMR Format.** The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs). The CIWQS website will provide additional information for SMR submittal in the event of a service interruption for electronic submittal.

2. **SMR Due Dates and Contents.** The Discharger shall submit SMRs by the due dates, and with the contents, specified below:

   a. Monthly SMRs. Monthly SMRs shall be due 30 days after the end of each calendar month, covering that calendar month. The monthly SMR shall contain the applicable items described in sections V.B and V.C of both Attachments D and G of this Order.

   Monthly SMRs shall include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the Discharger shall include the results of such monitoring in the calculations and reporting for the SMR.

   b. Annual SMR. Annual SMRs shall be due February 1 each year, covering the previous calendar year. The annual SMR shall contain the items described in Attachment G section V.C.1.f. See also Provision VI.C.2 (Effluent Characterization Study and Report) of the Order for requirements to submit reports with the annual SMR.

   c. Specifications for Submitting SMRs to CIWQS. The Discharger shall submit analytical results and other information using one of the following methods:

Table E-14. CIWQS Reporting

Parameter	Method of Reporting	
	EDF/CDF data upload or manual entry	Attached File
All parameters identified in influent, effluent, and receiving water monitoring tables (except Dissolved Oxygen and Temperature)	Required for all results	
Dissolved Oxygen Temperature	Required for monthly maximum and minimum results only [1]	Discharger may use this method for all results or keep records

Parameter	Method of Reporting	
	EDF/CDF data upload or manual entry	**Attached File**
Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Cyanide, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Zinc, Dioxins &Furans (by U.S. EPA Method 1613), Other Pollutants (by U.S. EPA Methods 601, 602, 608, 610, 614, 624, and 625)	Required for all results [2]	
Volume and Duration of Blended Discharge [3]	Required for all blended effluent discharges	
Analytical Method	Not required (Discharger may select "data unavailable") [1]	
Collection Time Analysis Time	Not required (Discharger may select "0:00") [1]	

Footnotes:

[1] The Discharger shall continue to monitor at the minimum frequency specified in this MRP, keep records of the measurements, and make the records available upon request.

[2] These parameters require EDF/CDF data upload or manual entry regardless of whether monitoring is required by this MRP or other provisions of this Order (except for biosolids, sludge, or ash provisions).

[3] The requirement for volume and duration of blended discharge applies only if this Order authorizes the Discharger to discharge blended effluent.

The Discharger shall arrange all reported data in a tabular format and summarize the data to clearly illustrate whether the Facility is operating in compliance with effluent limitations. The Discharger is not required to duplicate the submittal of data entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format, the Discharger shall electronically submit the data in a tabular format as an attachment.

3. **Monitoring Periods.** Monitoring periods for all required monitoring shall be as set forth below unless otherwise specified:

Table E-15. Monitoring Periods

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Order effective date	All times
1/Day	Order effective date	Every 24-hour period, beginning at midnight and continuing through 11:59 p.m. (or any 24-hour period that reasonably represents a calendar day for purposes of sampling)
1/Week 5/Week	First Sunday following or on Order effective date	Sunday through Saturday

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
1/Month	First day of calendar month following or on Order effective date	First day of calendar month through last day of calendar month
1/Quarter	Closest of January 1, April 1, July 1, or October 1 following or on Order effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
1/Year 3/Year	Closest January 1 following or on Order effective date	January 1 through December 31
2/Year	Closest January 1 or July 1 following or on Order effective date	January 1 through June 30 July 1 through December 31
1/Event	As soon as possible after combined sewer discharge event begins	Duration of the combined sewer discharge event

4. **RL and MDL Reporting.** The Discharger shall report with each sample result the Reporting Level (RL) and Method Detection Limit (MDL) as determined by the procedure in 40 C.F.R. part 136. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+/- a percentage of the reported value), numerical ranges (low to high), or any other means the laboratory considers appropriate.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected", or ND.

   d. The Discharger shall instruct laboratories to establish calibration standards so that the minimum level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Compliance Determination.** Compliance with effluent limitations shall be determined using sample reporting protocols defined above and in the Fact Sheet and Attachments A, D, and G. For purposes of reporting and administrative enforcement by the Regional Water Board, State Water Board, or U.S. EPA, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL.

C. Discharge Monitoring Reports (DMRs)

DMRs are U.S. EPA reporting requirements. The Discharger shall electronically certify and submit DMRs together with SMRs using the Electronic Self-Monitoring Reports module eSMR 2.5 or the latest upgraded version. Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the DMR website at http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring.

D. Annual Recycled Water Reports

The Discharger shall electronically submit annual reports to the State Water Board by April 30 each year covering the previous calendar year using the State Water Board's GeoTracker website (http://geotracker.waterboards.ca.gov) under a site-specific global identification number. For the 2019 calendar year, the Discharger shall submit a report by April 30, 2020, covering January through December 2019. The annual report shall include the elements specified in Attachment E section VIII.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. As described in section II.B of this Order, the Regional Water Board and U.S. EPA incorporate this Fact Sheet as findings supporting the issuance of this Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	2 386009001
CIWQS Place ID	256498
Discharger	City and County of San Francisco
Name of Facility	Oceanside Water Pollution Control Plant, Wastewater Collection System, and Westside Recycled Water Project
Facility Address	3500 Great Highway San Francisco, CA 94132 San Francisco County
Facility Contact, Title and Phone	Dale Miller, Operations Superintendent, Wastewater Enterprise, (415) 242-2225
Authorized Person to Sign and Submit Reports	Greg Norby, Assistant General Manager, Wastewater Enterprise, (415) 554-2465
Mailing Address	San Francisco Public Utilities Commission/Wastewater Enterprise 525 Golden Gate Ave., 13th Floor, San Francisco, CA 94102
Billing Address	Same
Type of Facility	Publicly-Owned Treatment Works (POTW) and Combined Sewer System
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	A
Pretreatment Program	Yes
Reclamation Requirements	State Water Board Order WQ 2016-0068-DDW
Facility Permitted Flow	43 million gallons per day (MGD), maximum dry weather flow
Facility Design Flow	<u>Oceanside Water Pollution Control Plant</u> 43 MGD maximum dry weather design flow (secondary treatment) 65 MGD maximum wet weather design flow (secondary treatment for 43 MGD and primary treatment for an additional 22 MGD) <u>Westside Recycled Water Project</u> 4 MGD maximum design flow (1.6 MGD annual average)
Watershed	San Mateo Coastal Basin
Receiving Water	Pacific Ocean
Receiving Water Type	Ocean waters

A. The City and County of San Francisco (Discharger) owns and operates the Oceanside Water Pollution Control Plant and its wastewater collection system. The Discharger plans to construct, own, and operate the Westside Recycled Water Project during this Order's term. Collectively, the Oceanside Water Pollution Control Plant, wastewater collection system, and Westside

Recycled Water Project are referred to as the Facility. The Facility discharges to the Pacific Ocean, a water of the United States.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Discharger is regulated pursuant to National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037681. It was previously subject to Order No. R2-2009-0062 (previous order). The Discharger filed a Report of Waste Discharge and submitted an application for reissuance of its waste discharge requirements (WDRs) and NPDES permit on April 3, 2014, and the previous order was administratively extended by operation of law. Order No. R2-2010-0054 amended the previous order to update the Regional Standard Provisions (Attachment G); Order No. R2-2011-0009 amended the previous order to update the pretreatment program requirements (Attachment H).

The Discharger is authorized to discharge subject to the WDRs and NPDES permit requirements in this Order at the discharge locations described in Table 2 of this Order. Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. Pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all requirements for continuation of expired permits. (See 40 C.F.R § 122.6[d].)

II. FACILITY DESCRIPTION

A. Wastewater and Biosolids Treatment

1. **Location and Service Area.** The Oceanside Water Pollution Control Plant is located at 3500 Great Highway, San Francisco. The plant provides wastewater treatment for western San Francisco and a small portion of Daly City owned and operated by the North San Mateo County Sanitation District. The service area population is approximately 250,000. The Discharger is constructing a recycled water project at the plant site during this Order's term. The wastewater collection system is located throughout the western side of San Francisco. Attachment B shows maps of the Facility area.

2. **Collection System.** The Discharger's collection system is predominantly a combined sewer system with some limited separate sanitary sewers. The combined sewer system consists of approximately 250 miles of pipe, one major pump station (Westside Pump Station), six minor pump stations (four all-weather pump stations: Westside, Sea Cliff No. 1, Sea Cliff No. 2, and Pine Lake; and two wet weather pump stations: Sea Cliff No. 3 and Zoo Wet Weather Lift Station), and three large transport/storage structures (Westside Transport/Storage Structure, a 49.3-million-gallon box-like structure located beneath the Great Highway; Richmond Tunnel, a 12.0-million-gallon tunnel located to the north; and Lake Merced Tunnel, a 10.0-million-gallon tunnel located to the south). The separate sanitary sewer systems serve isolated areas and are also regulated under State Water Board

Order No. 2006-0003-DWQ as amended by State Water Board Order No. WQ 2013-0058-EXEC.

3. Wastewater Treatment

a. Oceanside Water Pollution Control Plant. During dry weather, the plant provides secondary treatment. The treatment processes include coarse screening at the Westside Pump Station, fine screening and grit removal at the plant headworks, primary sedimentation, activated sludge treatment by a high-purity oxygen process, and secondary clarification. The effluent is not disinfected. The plant has a maximum secondary treatment design capacity of about 43 million gallons per day (MGD). During wet weather, the plant can provide primary treatment for about 22 MGD more, which is combined with the secondary-treated effluent prior to discharge for a total treatment capacity of 65 MGD. Plant effluent flows to Discharge Point No. 001 by gravity.

b. Combined Sewer System. The combined storage capacity of the three transport/storage structures is about 71 million gallons. Collection system piping provides about 2 million gallons of additional storage. The transport/storage structures provide flow equalization and convey combined sewer system flows up to 65 MGD to the plant by way of the Westside Pump Station.

Flows above the plant's 65-MGD treatment capacity receive equivalent-to-primary treatment through solids settling, skimming of floatable solids, and in some cases screening within the combined sewer system. In addition to pumping up to 65 MGD to the plant, the Westside Pump Station can also pump flow from the Westside Transport/Storage Structure to Discharge Point No. 001 during wet weather (identified in the previous order as "decant"). The design capacity of the Westside Pump Station wet weather pumps ranges from 98 to 133 MGD depending on the number and model of pumps operating when there are high water levels in the West Box of the Westside Transport/Storage Structure (typically observed during wet weather operations). Flows that exceed the capacities of the Oceanside Water Pollution Control Plant and combined sewer system may discharge from Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007. Four of these discharge points are directly connected to transport/storage structures (Discharge Point Nos. CSD-001, CSD-002, CSD-003, and CSD-004), and three are associated with pump station sumps (Discharge Point Nos. CSD-005, CSD-006, and CSD-007). After wet weather events, stored combined sewer system flows and accumulated solids remaining in the transport/storage structures are conveyed to the plant for treatment.

4. Sludge and Biosolids Management. The Discharger uses temperature-phased anaerobic digestion, which is capable of producing Class A biosolids. Primary sludge, waste activated sludge, and secondary scum are mixed and co-thickened using gravity belt thickeners prior to being fed to the anaerobic digestion system. The digestion system accepts hauled-in batches of primary and secondary sludge from the Treasure Island Wastewater Treatment Plant. Digested biosolids are dewatered using screw presses and stored in hoppers prior to being loaded into covered trucks for transport. During the wet season, the majority of biosolids are hauled to a landfill for storage and eventual use as interim cover, final cover, or landfill

building material; a small percentage is reused for agricultural land application. During the dry season, biosolids are hauled offsite for agricultural land application.

5. **Water Recycling and Reclamation**. The Discharger is constructing a recycled water project at the Oceanside Water Pollution Control Plant site during this Order's term. Secondary-treated effluent will be treated further with membrane filtration, reverse osmosis, and ultraviolet (UV) light disinfection to produce recycled water. The concentrate from the reverse osmosis process will be commingled with plant effluent prior to discharge at Discharge Point No. 001. Filter backwash water generated at the Westside Recycled Water Project will be directed to the plant headworks for treatment. The project is expected to produce and deliver an annual average flow of 1.6 MGD of recycled water for distribution in the western portion of San Francisco, with peak deliveries of up to 4 MGD during summer. Water recycling operations will not increase the mass of pollutants discharged at Discharge Point No. 001, but will increase the concentration of pollutants discharged. The requirements of this Order account for the discharge from this water recycling project. Reclamation requires waste discharge requirements beyond those specified here, such as those in State Water Board Order No. WQ 2016-0068-DDW (Water Reclamation Requirements for Recycled Water Use).

B. Discharge Points and Receiving Waters

1. **Discharge Point No. 001.** During dry weather, secondary-treated effluent is discharged at Discharge Point No. 001. During wet weather, the discharge at Discharge Point No. 001 comprises primary-treated and secondary-treated effluent from the Oceanside Water Pollution Control Plant and equivalent-to-primary-treated effluent from the Westside Transport/Storage Structure. When the Westside Recycled Water Project becomes operational, reverse osmosis concentrate will also be discharged at Discharge Point No. 001.

   Discharge Point No. 001 is a 4.5-mile-long (3.9 nautical mile-long) deepwater outfall that terminates with a diffuser that begins approximately 3.8 miles (3.3 nautical miles) from shore at a depth of 78 feet below mean lower low water (MLLW). The diffuser has 85 risers spread along a 3,000-foot outfall pipe. Each riser has eight ports. Discharge Point No. 001 discharges to the Pacific Ocean beyond the territorial waters of the State, which end three nautical miles from MLLW at shore.

2. **Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007.** During wet weather, equivalent-to-primary-treated wastewater is discharged to the Pacific Ocean at Discharge Point Nos. CSD-001, CSD-002, CSD-003, and CSD-004 when the Westside Pump Station capacity is exceeded, and at Discharge Point Nos. CSD-005, CSD-006, and CSD-007 when the capacities of the corresponding pump stations (i.e., Sea Cliff No. 1 and Sea Cliff No. 2 Pump Stations) are exceeded, including the capacity of the wet well connected to Discharge Point No. CSD-006. These discharge points are located within the territorial waters of the State.

C. Summary of Previous Requirements and Self-Monitoring Data

1. **Dry Weather.** Dry weather effluent limitations and representative monitoring data from the previous order term are presented below for discharges from the Oceanside Water Pollution Control Plant at Discharge Point No. 001:

Table F-2. Previous Dry Weather Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitations				Monitoring Data (1/2011 – 12/2017)				
		6-Month Median	Monthly Average	Weekly Average	Daily Max.	Median	Highest 6-Month Median	Highest Monthly Average	Highest Weekly Average	Highest Daily Max.
Biochemical Oxygen Demand, 5-day @ 20°C (BOD_5)	mg/L	---	30	45	---	15	---	29	51 [1]	---
Total Suspended Solids (TSS)	mg/L	---	30	45	---	10	---	18	26	---
BOD_5 percent removal	%	---	85 (min.)	---	---	95	---	87 [2]	---	---
TSS percent removal	%	---	85 (min.)	---	---	96	---	92 [2]	---	---
pH	s.u.	Within a range of 6.0 – 9.0				Within a range of 6.0 – 8.3				
Chronic Toxicity	TU_c	---	---	---	150	50	---	---	---	149
Mercury	µg/L	5.9	---	---	24	0.0068	0.0093	---	---	0.071

Abbreviations:

Max. = maximum
min. = minimum
mg/L = milligrams per liter
µg/L = micrograms per liter
s.u. = standard units
TU_c = chronic toxicity units

Footnotes:

[1] The Discharger exceeded the weekly average effluent limitation three times during the previous order term, in October 2013, July 2014, and June 2017. The Discharger attributes these exceedances to the presence of nitrifying bacteria since carbonaceous biochemical oxygen demand ($CBOD_5$) concentrations were within the expected range. This Order allows $CBOD_5$ effluent limitations to be substituted for BOD_5 effluent limitations to address this concern, as described in Fact Sheet section IV.B.2, below.

[2] Lowest monthly average.

2. **Wet Weather.** Wet weather requirements from the previous order term included implementation of the nine minimum controls and the long-term control plan. The combined sewer system was designed to achieve a long-term average of eight combined sewer discharges per year. The following two tables summarize combined sewer discharges over a 20-year period and average combined sewer discharge durations for wet season 2012-2013.

Table F-3. Combined Sewer Discharge Frequency

Year (July 1 – June 30)	Rain (inches)	Number of Combined Sewer Discharges [1]						
		Lake Merced CSD-001	Vicente CSD-002	Lincoln CSD-003	Mile Rock CSD-004	Sea Cliff No. 1 CSD-005	Sea Cliff Sewer CSD-006	Sea Cliff No. 2 CSD-007
1997-1998	41.1	10	13	13	[2]	2	[3]	10

Year (July 1 – June 30)	Rain (inches)	Number of Combined Sewer Discharges [1]						
		Lake Merced CSD-001	Vicente CSD-002	Lincoln CSD-003	Mile Rock CSD-004	Sea Cliff No. 1 CSD-005	Sea Cliff Sewer CSD-006	Sea Cliff No. 2 CSD-007
1998-1999	18.9	6	7	7	[2]	0	[3]	0
1999-2000	23.2	5	6	6	[2]	1	[3]	1
2000-2001	13.8	2	0	0	[2]	2	[3]	2
2001-2002	24.4	6	6	6	[2]	1	[3]	1
2002-2003	22.3	5	6	6	[2]	1	[3]	7
2003-2004	18.8	4	4	4	[2]	2	[3]	8
2004-2005	26.2	7	7	6	[2]	5	[3]	8
2005-2006	31.8	11	9	9	[2]	3	[3]	9
2006-2007	14.8	2	1	1	[2]	0	[3]	2
2007-2008	18.4	4	4	4	[2]	0	[3]	1
2008-2009	18.3	4	4	4	[2]	0	[3]	1
2009-2010	25.8	4	3	3	[2]	6	[3]	7
2010-2011	30.1	5	4	4	[2]	0	0	3
2011-2012	17.0	3	3	2	[2]	2	0	3
2012-2013	19.7	6	6	6	[2]	3	1	3
2013-2014	12.0	3	2	2	[2]	0	1	3
2014-2015	17.7	6	6	6	[2]	3	0	4
2015-2016	18.6	9	8	6	[2]	1	0	4
2016-2017	32.4	13	13	13	[2]	1	0	14
2017-2018	18.0	3	3	3	[2]	0	0	5
Average	**22.1**	**5.6**	**5.5**	**5.3**	[2]	**1.5**	**0.3**	**4.6**

Footnotes:

[1] This table reflects rain and discharge frequencies reported in monthly self-monitoring reports.

[2] The previous order did not require monitoring at Discharge Point No. CSD-004.

[3] The Discharger did not monitor combined sewer discharge frequency at Discharge Point No. CSD-006 until it installed telemetry in 2010.

Table F-4. Combined Sewer Discharge Duration (July 1, 2012, through June 30, 2013)

	Lake Merced CSD-001	Vicente CSD-002	Lincoln CSD-003	Mile Rock CSD-004	Sea Cliff No. 1 CSD-005	Sea Cliff Sewer CSD-006	Sea Cliff No. 2 CSD-007
Days with Rainfall	53	53	53	[1]	53	53	53
Discharge Events	6	6	6 [2]	[1]	3	1	3
Average Duration (hours)	2.39	3.28	3 [2]	[1]	0.08	0.58	0.28
Average Volume/Event (million gallons)	2.75	3.16	[2]	[1]	0.002	0.08	0.01

Footnotes:

[1] The previous order did not require monitoring at Discharge Point No. CSD-004.

[2] Telemetry equipment for Discharge Point No. CSD-003 was not operational in December 2012. Due to similar weir heights and positions within the system, discharges likely occur simultaneously at Discharge Point Nos. CSD-002 and CSD-003. As such, about six discharges likely occurred from Discharge Point No. CSD-003 between July 1, 2012, and June 30, 2013, lasting an average duration of about 3 hours.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

A. Legal Authorities

This Order serves as WDRs pursuant to California Water Code article 4, chapter 4, division 7 (commencing with § 13260) for discharges to waters of the State. This Order is also issued pursuant to federal Clean Water Act (CWA) section 402 and implementing regulations adopted by U.S. EPA, and Water Code chapter 5.5, division 7 (commencing with § 13370). It serves as an NPDES permit for point source discharges from the Facility to surface waters.

B. California Environmental Quality Act

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act, Public Resources Code division 13, chapter 3 (commencing with § 21100). On September 3, 2015, the San Francisco Planning Commission certified the Final Environmental Impact Report for the Westside Recycled Water Project, finding that the Discharger, acting through the San Francisco Planning Department, fulfilled all California Environmental Quality Act procedural requirements.

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The Regional Water Board adopted the *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan), which designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters in the San Francisco Bay Region. Requirements of this Order implement the Basin Plan. The table below lists the beneficial uses the Basin Plan attributes to the Pacific Ocean:

Table F-5. Basin Plan Beneficial Uses

Receiving Water	Beneficial Uses
Pacific Ocean	• Industrial Service Supply (IND) • Commercial and Sport Fishing (COMM) • Shellfish Harvesting (SHELL) • Marine Habitat (MAR) • Fish Migration (MIGR) • Preservation of Rare and Endangered Species (RARE) • Fish Spawning (SPWN) • Wildlife Habitat (WILD) • Water Contact Recreation (REC1) • Noncontact Water Recreation (REC2) • Navigation (NAV)

Basin Plan Table 4-1, Discharge Prohibition 1, prohibits wastewater discharges with particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1. Basin Plan section 4.2 provides for exceptions under certain circumstances:

- An inordinate burden would be placed on the Discharger relative to the beneficial uses protected, and an equivalent level of environmental protection can be achieved by alternate means;
- A discharge is approved as part of a reclamation project;
- Net environmental benefits will be derived as a result of the discharge; or
- A discharge is approved as part of a groundwater cleanup project.

The Basin Plan further states:

> Significant factors to be considered by the Regional Water Board in reviewing requests for exceptions will be the reliability of the discharger's system in preventing inadequately treated wastewater from being discharged to the receiving water and the environmental consequence of such discharges.

During wet weather, this Order grants an exception to Basin Plan Discharge Prohibition 1 for discharges at Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007 for the following reasons:

- Eliminating all wet weather combined sewer discharges or ensuring that these discharges receive a minimum initial dilution of 10:1 would be an inordinate burden disproportionate to the beneficial uses protected. The Discharger continues to invest in infrastructure to improve the combined sewer system (San Francisco Public Utilities Commission Wastewater Enterprise, *Report of Waste Discharge, Supplemental Information, Capital Improvements and Operational Changes*, April 3, 2014). This Order continues to require capture and treatment of all combined wastewater and stormwater. This Order also requires the Discharger to evaluate control alternatives to eliminate, relocate, or reduce the magnitude or frequency of combined sewer discharges.

- An equivalent level of environmental protection is provided because operating a combined sewer system, as opposed to a separate sewer system, removes many pollutants in urban runoff that elsewhere in the Region are discharged through stormwater outfalls with little or no treatment. This additional treatment comes at the cost of occasionally discharging partially-treated combined sewage and stormwater through Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007. The Monitoring and Reporting Program (MRP) (Attachment E) requires the Discharger to monitor combined sewer discharges and receiving waters to verify that an equivalent level of environmental protection is provided.

2. **California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) in 1972 and has amended it several times, including in 1978 and most recently in 2018. The most recent changes became effective February 4, 2019. The Ocean Plan establishes water quality objectives and a program of implementation to protect beneficial uses of the Pacific Ocean within the territorial waters of the State.

   The territorial waters of the State end 3 nautical miles from shore. Discharge Point No. 001 is approximately 3.8 miles (3.3 nautical miles) offshore in federal waters. The Ocean Plan

(Appendix 1, Ocean Waters) states, "If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters." This Order contains discharge prohibitions, effluent limitations, receiving water limitations, and other provisions to ensure that discharges from Discharge Point No. 001 do not affect State waters. This Order's requirements related to Discharge Point No. 001 are based on U.S. EPA's federal authorities pursuant to the Clean Water Act.

a. Beneficial Uses. The table below lists the beneficial uses the Ocean Plan assigns to the Pacific Ocean:

Table F-6. Ocean Plan Beneficial Uses

Receiving Water	Beneficial Uses
Pacific Ocean	• Industrial Water Supply • Water Contact and Non-Contact Recreation, including Aesthetic Enjoyment • Navigation • Commercial and Sport Fishing • Mariculture • Preservation and Enhancement of Designated Areas of Special Biological Significance (ASBS) • Rare and Endangered Species • Marine Habitat • Fish Migration • Fish Spawning • Shellfish Harvesting

b. State Water Board Order No. WQ 79-16. During wet weather, State Water Board Order No. WQ 79-16 sets forth requirements for discharges from Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007. Ocean Plan chapter III.J allows the State Water Board to grant exceptions to Ocean Plan requirements on a case-by-case basis if the public interest is served and the exception does not compromise beneficial uses (exceptions are listed in Ocean Plan Table VII-1). In 1979, the State Water Board granted the Discharger an exception from Ocean Plan requirements and imposed conditions, including but not limited to the following:

- Except for the bacteriological standards, to the greatest extent practical, the Discharger is to design, construct, and operate facilities to conform to the remaining standards set forth in chapter II of the 1978 Ocean Plan. These standards relate to physical characteristics (i.e., floating particulates, discoloration, natural light, and inert solids deposition), chemical characteristics (i.e., dissolved oxygen, pH, dissolved sulfide, toxic and organic chemicals in marine sediments, and nutrients), biological characteristics (i.e., marine communities and taste, odor, and color of marine resources used for human consumption), and radioactivity. Provisions V and VI.C.5 of this Order, and Attachments D and G sections I.C and I.D, require the Discharger to design, construct, and operate its facilities to conform to these standards to the greatest extent practical.

- To the greatest extent practical, the Discharger is to design, construct, and operate facilities to comply with the conditions controlled by the requirements set forth in chapter III, sections A and B, of the 1978 Ocean Plan. These requirements call for waste management systems to be designed and operated in a manner that will maintain indigenous marine life and a healthy and diverse marine community. They also call for waste discharges to be essentially free of floatable and settleable material, substances toxic to marine life due to increases in concentrations in water or sediments, substances that significantly decrease natural light, and materials that result in esthetically undesirable discoloration of the ocean surface. Provisions V and VI.C.5 of this Order and Attachments D and G sections I.C and I.D require the Discharger to design, construct, and operate its facilities to conform to these requirements to the greatest extent practical.

- The Discharger is to design and construct facilities to contain all stormwater runoff beyond that associated with an average of eight combined sewer discharges per year. Section III and Provision VI.C.5.c of this Order implement this condition.

- Beaches affected by combined sewer discharges are to be posted with warning signs beginning when the discharge commences until analysis indicates that water quality meets Ocean Plan bacteriological standards for recreation. Provision VI.C.5.a.viii of this Order implements this condition.

- Shellfish areas harvested for human consumption that may be affected by combined sewer discharges are to be posted with warning signs beginning when the discharge commences until the City and County Health Department indicates that no further posting is required. Provision VI.C.5.a.viii of this Order implements this condition.

- The Discharger is to comply with federal and State source control programs to minimize the entry of toxic substances into the waste collection system from industrial sources. Provisions VI.C.4.b and VI.C.5.a.iii of this Order and Attachment H implement this condition.

- The Discharger is to implement a self-monitoring program in accordance with Regional Water Board specifications. Provision VI.B of this Order and Attachment E implement this condition.

State Water Board Order No. WQ 79-16 explains the rationale for this exception and its conditions. It also states that the Regional Water Board or U.S. EPA may require construction of additional facilities or modification of existing Facility operations if it finds (1) changes in the location, intensity, or importance of affected beneficial uses, or (2) demonstrated unacceptable adverse impacts result from Facility operations as currently constructed.

3. **Combined Sewer Overflow (CSO) Control Policy.** On April 11, 1994, U.S. EPA adopted the *Combined Sewer Overflow (CSO) Control Policy* to establish a national approach for controlling combined sewer discharges and overflows (59 Fed. Reg. 18688-18698, April 19, 1994). The Wet Weather Water Quality Act of 2000 amended the CWA to require that

permits issued after December 21, 2000, for discharges from combined sewer systems conform to the *Combined Sewer Overflow (CSO) Control Policy* (33 U.S.C. § 1342[q][1]). Requirements of this Order implement the *Combined Sewer Overflow (CSO) Control Policy*, including the implementation of the nine minimum controls, a Long-Term Control Plan, and a post-construction monitoring program. (See Fact Sheet § VI.C.5.)

4. **Antidegradation Policy.** Federal regulations at 40 C.F.R. section 131.12 require that state water quality standards include an antidegradation policy consistent with stated requirements. The State Water Board established California's antidegradation policy through State Water Board Resolution No. 68-16, "*Statement of Policy with Respect to Maintaining High Quality of Waters in California*," which meets the federal antidegradation policy requirements. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, the antidegradation policy. Permitted discharges must be consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and Resolution No. 68-16. (See Fact Sheet § IV.D.2.)

5. **Anti-Backsliding Requirements.** CWA sections 402(o) and 303(d)(4) and 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. (See Fact Sheet § IV.D.1.)

6. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code §§ 2050 to 2097) or the federal Endangered Species Act (16 U.S.C. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other provisions to protect beneficial uses, including protecting rare and endangered species. The Discharger is responsible for meeting all Endangered Species Act requirements.

   U.S. EPA's reissuance of this NPDES permit is subject to certain requirements of the federal Endangered Species Act of 1973 and the Magnuson-Stevens Fishery Conservation and Management Act. In October 2017, U.S. EPA requested updated information from the National Marine Fisheries Service and the U.S. Fish and Wildlife Service (collectively, the Services) related to (1) essential fish habitat and managed and associated species, and (2) threatened and endangered species and their designated critical habitats near Discharge Point No. 001. U.S. EPA made a "may affect, not likely to adversely affect" determination for the southern California steelhead, Central California Coho salmon, Central Valley, spring-run chinook salmon, Sacramento River winter-run chinook salmon, humpback whale, leatherback turtle, green sea turtle, loggerhead turtle, white abalone, and olive ridley sea turtle; and a "no effect" determination for the remaining listed species under the Services' jurisdictions (*U.S. EPA Biological Evaluation*, September 2018). U.S. EPA provided a revised biological evaluation to the Services in April 2019. U.S. EPA may decide that changes to this Order are warranted based on the results of the completed consultation, and may modify or reopen it prior to the expiration date as described in Provision VI.C.1 of this Order.

7. **Sludge and Biosolids.** U.S. EPA administers 40 C.F.R. part 503, "Standards for the Use or Disposal of Sewage Sludge," which regulates the final use or disposal of sewage sludge generated during the treatment of domestic sewage in a municipal wastewater treatment facility. This Order does not authorize any act that violates those requirements. The Discharger is responsible for meeting all applicable requirements of 40 C.F.R. part 503.

8. **Ocean Discharge Criteria Evaluation.** CWA section 403(c) and implementing regulations at 40 C.F.R. part 125, subpart M, establish ocean discharge criteria for preventing unreasonable degradation of the marine environment of the territorial seas, contiguous zones, and oceans. The regulations at 40 C.F.R. section 125.122(b) allow a permitting authority to presume that a discharge will not cause unreasonable degradation for specific pollutants or conditions if the discharge complies with state water quality standards. This Order implements State water quality standards for discharges from Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007. This Order also implements State water quality standards for discharges from Discharge Point No. 001, with the modifications described below.

   This Order's requirements for Discharge Point No. 001 are consistent with the Ocean Plan, except with respect to chronic toxicity and TCDD equivalents. In all other respects, therefore, U.S. EPA presumes that the discharge will not cause unreasonable degradation. With respect to chronic toxicity and TCDD equivalents, U.S. EPA is required to consider the site-specific factors listed in 40 C.F.R. section 125.122(a). U.S. EPA prepared an evaluation under CWA section 403(c) for chronic toxicity and TCDD equivalents and concluded that no unreasonable degradation of ocean waters will occur.

9. **Coastal Zone Management Act.** The California Coastal Commission has indicated that it is unnecessary to obtain a consistency certification pursuant to the Coastal Zone Management Act (16 U.S.C. § 1451 et seq.).

D. Impaired Waters on CWA 303(d) List

On April 6, 2018, U.S. EPA approved a revised list of California's impaired waters pursuant to CWA section 303(d), which requires identification of specific waters where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. Where it has not done so already, the Regional Water Board plans to adopt total maximum daily loads (TMDLs) for waters on the 303(d) list. TMDLs establish wasteload allocations for point sources and load allocations for nonpoint sources, and are established to achieve the water quality standards for the impaired waters. This Order does not authorize any discharge to receiving waters on California's list of impaired waters.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R.

section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

1. **Prohibition III.A (Discharge different than described).** This prohibition is based on 40 C.F.R. section 122.21(a) and Water Code section 13260, which require filing an application and Report of Waste Discharge before a discharge can occur. Discharges not described in the application and Report of Waste Discharge, and subsequently in this Order, are prohibited.

2. **Prohibition III.B (Bypass of untreated or partially-treated wastewater).** This prohibition is based on the *Combined Sewer Overflow (CSO) Control Policy* and 40 C.F.R. section 122.41(m) (see Attachment D section I.G). Pursuant to 40 C.F.R. section 122.41(m)(4)(ii), the Regional Water Board and U.S. EPA approve bypass of the biological treatment units (i.e., blending primary-treated effluent with biologically-treated effluent) during wet weather, when treatment plant influent flow exceeds 43 MGD (the hydraulic capacity of the biological treatment units), because such bypass meets the criteria for approval set forth in 40 C.F.R. sections 122.41(m)(4)(i)(A)-(C):

   - When influent flow exceeds 43 MGD, bypass of biological treatment is unavoidable to prevent loss of life, personal injury, or severe property damage. Such bypass prevents the washout of solids and the microbial population from the biological treatment system and thus ensures treatment reliability. Moreover, such bypass prevents backups and flooding in the community that could cause personal injury or severe property damage.

   - There are no feasible alternatives to bypass when influent flow exceeds 43 MGD. Provisions VI.C.5.c and VI.C.5.d require the Discharger to implement all feasible measures to maximize treatment. As long as the Discharger complies with these provisions, it is implementing all feasible alternatives to avoid bypass during wet weather.

   - The Discharger provided notice at least ten days before any wet weather bypass in its *Report of Waste Discharge, Oceanside Water Pollution Control Plant and Westside Wet Weather Facilities* (April 3, 2014) and *Wastewater Enterprise Westside Operations Summary Baseline Report* (March 2014).

3. **Prohibition III.C (Discharge at Discharge Point No. 001 without minimum initial dilution of at least 148:1).** This prohibition is necessary to ensure that the assumptions used to derive the dilution credits established through this Order for Discharge Point No. 001 remain substantially the same so the effluent limitations at Discharge Point No. 001 remain protective of water quality. This Order considered a dilution credit of 148:1, as modeled assuming no currents, based on the Discharger's *Southwest Ocean Outfall Dilution Modeling Report, Final Report* (April 2014) to conduct the reasonable potential analysis described in Fact Sheet section IV.C.4. Moreover, the in-stream waste concentration (IWC) to be used to evaluate compliance with this Order's chronic toxicity effluent limitation is based on this dilution credit. When the Discharger produces 1.0 MGD of recycled water and discharges

reverse osmosis concentrate, the IWC for chronic toxicity testing reflects a dilution credit of 266:1, as modeled assuming currents. Both dilution credits correspond to the same outfall configuration, which this prohibition seeks to maintain.

4. **Prohibition III.D (Discharge from location other than Discharge Point No. 001, except during wet weather).** This prohibition clarifies that any discharges other than those to Discharge Point No. 001 are unauthorized, except those to Discharge Point Nos. CSD-001, CSD-002, CSD-003, CSD-004, CSD-005, CSD-006, and CSD-007 as explicitly authorized during wet weather in accordance with the *Combined Sewer Overflow (CSO) Control Policy*.

5. **Prohibition III.E (Discharge in excess of permitted flow).** This Order prohibits an average dry weather effluent flow greater than 43 MGD based on the plant's secondary treatment design capacity. Exceeding the secondary treatment design capacity could result in lowering the reliability of achieving this Order's treatment requirements.

B. Technology-Based Effluent Limitations

1. **Scope and Authority.** CWA section 301(b) and 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements, at a minimum, and any more stringent effluent limitations necessary to meet water quality standards.

2. **Oceanside Water Pollution Control Plant.** During dry weather, the technology-based requirements for the Oceanside Water Pollution Control Plant are based on the Secondary Treatment Standards at 40 C.F.R. section 133.102, listed in the following table:

Table F-7. Secondary Treatment Requirements

Parameter	Monthly Average	Weekly Average
BOD_5 [1,2]	30 mg/L	45 mg/L
$CBOD_5$ [1,2]	25 mg/L	40 mg/L
TSS [2]	30 mg/L	45 mg/L
pH	6.0 – 9.0 standard units	

Abbreviation:

mg/L = milligrams per liter

Footnotes:

[1] $CBOD_5$ effluent limitations may be substituted for BOD_5 effluent limitations.

[2] The monthly average percent removal, by concentration, is not to be less than 85 percent.

This Order does not include the additional technology-based effluent limitations established in Ocean Plan chapter III.B.1 (i.e., oil and grease, turbidity, settleable solids) because the plant provides secondary treatment.

During wet weather, the *Combined Sewer Overflow (CSO) Control Policy* establishes the minimum technology-based requirements for combined sewer systems as the implementation of the nine minimum controls based on 40 C.F.R. section 125.3. Provision VI.C.5.a of this Order contains these requirements.

3. **Westside Recycled Water Project.** Ocean Plan chapter III.B.1 establishes technology-based effluent limitations for publicly-owned treatment works and industrial discharges for which effluent limitation guidelines have not been established pursuant to CWA sections 301, 302, 304, or 306. This Order requires Westside Recycled Water Project discharges to meet the minimum technology-based effluent limitations established in Ocean Plan Table 2, listed in the following table:

Table F-8. Ocean Plan Table 2 Effluent Limitations

Parameter	Units	Monthly Average	Weekly Average	Instantaneous
Oil and Grease	mg/L	25	40	75
TSS	mg/L	60 [1]	---	---
Settleable Solids	mL/L	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	standard units	within 6.0 to 9.0 range (all times)		

Abbreviations:

mg/L = milligrams per liter
mL/L = milliliters per liter
NTU = nephelometric turbidity units

Footnote:

[1] Ocean Plan Table 2 notes state, "Suspended Solids: Dischargers shall, as a 30-day average, remove 75% of suspended solids from the influent stream before discharging wastewaters to the ocean, except that the effluent limitation to be met shall not be lower than 60 mg/L." Because the monthly average effluent limitation for suspended solids has been established as 60 mg/L, the Discharger is not required to remove 75% of influent suspended solids.

4. **Combined Sewer System.** The Westside Transport/Storage Structure and combined sewer discharge points discharge only during wet weather. As such, the *Combined Sewer Overflow (CSO) Control Policy* establishes the minimum technology-based requirements for combined sewer systems as the implementation of nine minimum controls based on 40 C.F.R. section 125.3. Provision VI.C.5.a of this Order contains these requirements.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

CWA section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than federal technology-based requirements where necessary to achieve applicable water quality standards. According to 40 C.F.R. section 122.44(d)(1)(i), permits must include effluent limitations for all pollutants that are or may be discharged at levels that have a reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective, WQBELs must be established using (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, which may be derived using a proposed state criterion or policy interpreting a state narrative water quality criterion, supplemented with other relevant information (40 C.F.R. § 122.44[d][1][vi]). The process for determining reasonable potential and calculating WQBELs is intended to achieve applicable water quality objectives and criteria, protect the

designated uses of receiving waters as specified in the Basin Plan and Ocean Plan, and ensure no unreasonable degradation under CWA section 403(c) and 40 C.F.R. part 125, subpart M.

During dry weather, this Order imposes numeric effluent limitations at Discharge Point No. 001 for pollutants with reasonable potential to cause or contribute to exceedances of water quality standards.

During wet weather, this Order imposes narrative effluent limitations, not numeric limitations. In accordance with the *Combined Sewer Overflow (CSO) Control Policy*, this Order requires the Discharger to implement and update its Long-Term Control Plan. The *Combined Sewer Overflow (CSO) Control Policy* describes the presumption and demonstration approaches regarding water quality-based requirements and requires that a post-construction water quality monitoring program be in place to verify compliance with applicable water quality standards. This Order requires the combined sewer system to capture 100 percent of combined wastewater and stormwater and provide equivalent-to-primary treatment consisting of floatables and settleable solids removal. Provision VI.C.5.d (Task 3.b) of the Order requires the Discharger to assess the feasibility and necessity of disinfecting combined sewer discharges.

2. Beneficial Uses and Water Quality Objectives

Fact Sheet sections III.C.1 and III.C.2, above, identify the beneficial uses of the Pacific Ocean. Ocean Plan chapter II (including Table 1) lists water quality objectives for the Pacific Ocean.

3. Minimum Initial Dilution

In accordance with Ocean Plan chapter III.C, the minimum initial dilution at Discharge Point No. 001 can be estimated by experimental observation or computer simulation. The Discharger submitted an updated dilution study in April 2014, *Southwest Ocean Outfall (Discharge Point No. 001) Dilution Modeling Report – Final*, which estimated dilution based on NRFIELD and UM3 models and ambient water data measured from April 2012 through October 2013. Based on the more conservative estimate assuming no currents, the minimum initial dilution ratio is 148:1 (148 parts seawater per 1 part wastewater). This represents the minimum 30-day average dilution during the period of maximum stratification, observed from November 2012 through January 2013. The Discharger's dilution study also estimated dilution based on existing current velocity data measured at mid-depth of the water column. Accounting for ocean currents, the more conservative estimate of the minimum 30-day average dilution during the period of maximum stratification is 266:1.

A minimum initial dilution of 148:1 is used in the reasonable potential analysis described in Fact Sheet section III.C.4, below. The IWC to be used in chronic toxicity testing is also based on this minimum initial dilution, except when the Westside Recycled Water Project operates at full capacity to produce 1.0 MGD of recycled water, in which case the IWC is to be based on a minimum initial dilution of 266:1 as described in MRP section V.A.2. This increase in minimum initial dilution accounts for ocean currents, which move parallel to the coast, not

toward State waters (*Assessment of Effects on California State Waters from the Oceanside Southeast Ocean Outfall*, September 26, 2008).

4. Need for Water Quality-Based Effluent Limitations (Reasonable Potential Analysis)

a. Methodology

i. Dry Weather. Ocean Plan Appendix VI sets forth a procedure for reasonable potential analyses applicable to dry weather discharges from Discharge Point No. 001. The procedure assumes a lognormal distribution for the effluent data and compares the 95th percentile concentration at 95 percent confidence for each parameter listed in Ocean Plan Table 1, accounting for dilution, to the applicable water quality objective listed in Ocean Plan Table 1. The analysis results in one of three endpoints for each pollutant based on four triggers:

- Endpoint 1 – There is reasonable potential. WQBELs and monitoring are required.
- Endpoint 2 – There is no reasonable potential. WQBELs are not required, but monitoring may be required.
- Endpoint 3 – The analysis is inconclusive. Any existing WQBELs are retained and monitoring is required.

The four triggers are as follows:

(a) Trigger 1. If any detected value after adjustment for dilution (X) is greater than the applicable water quality objective (Co), then Endpoint 1 applies.

For Table 1 pollutants: $X = (Ce + Dm\ Cs) / (Dm + 1)$

For acute toxicity: $X = Ce / (0.1\ Dm + 1)$

Where: Ce is the effluent concentration

Dm is the minimum initial dilution expressed as parts seawater per part wastewater (148:1)

Cs is the background seawater concentration from Ocean Plan Table 3.

(b) Trigger 2. If there are three or more detected values and the number of non-detected (ND) or detected but not quantified (DNQ) values (c) is less than or equal to 80 percent of the number of data points (n) (i.e., if $c/n \leq 80\%$), a parametric reasonable potential analysis is performed. If the calculated upper confidence bound is greater than Co, then Endpoint 1 is concluded; otherwise Endpoint 2 is concluded.

(c) Trigger 3. If there are less than three detected values or if there are more than three detected values but the percentage of non-detected (ND) or detected but not quantified (DNQ) values is more than 80 percent (i.e., if $c/n > 80\%$), a non-

parametric reasonable potential analysis is performed. Depending on the results, either Endpoint 2 or Endpoint 3 is concluded.

(d) Trigger 4. If any other information about the receiving water or the discharge supports a finding of reasonable potential, then the reasonable potential analysis may be based on best professional judgment. If data or other information is unavailable or insufficient to determine if a WQBEL is required, Endpoint 3 is concluded. Otherwise, either Endpoint 1 or Endpoint 2 is concluded.

ii. Wet Weather. For wet weather discharges from Discharge Point No. 001 and the combined sewer discharge points, the requirements described in Provision VI.C.5.c of the Order serve as narrative WQBELs.

b. Effluent Data. Since the Westside Recycled Water Project is expected to become operational during this permit term, two reasonable potential analyses were performed based on the Ocean Plan methodology: one based on current effluent quality and one based on potential future Westside Recycled Water Project effluent quality. In both cases, the analyses were based on dry weather effluent monitoring data the Discharger collected for Discharge Point No. 001 from January 2011 through December 2017. However, with full operation of the Westside Recycled Water Project, the Discharger anticipates that the discharge could potentially consist entirely of reverse osmosis concentrate approximately 1.4 percent of the time. Under these rare circumstances, the effluent could be as much as four times more concentrated when compared to existing conditions. For purposes of the Westside Recycled Water Project reasonable potential analysis, however, existing effluent data were multiplied by a concentration factor of 1.5, which reflects the foreseeable increase based on a 30-day averaging period. This concentration factor is sufficient to evaluate reasonable potential when the most stringent objectives (those with six-month averaging periods) apply.

c. Reasonable Potential Analysis Results. The following tables present the results of the two reasonable potential analyses performed (i.e., existing conditions and potential future Westside Recycled Water Project conditions). The analyses show reasonable potential for chronic toxicity based on Trigger 4. Chronic toxicity tests are intended to detect toxicity from a wide range of pollutants, and since the Facility has a municipal combined sewer system, there is a reasonable potential that unanticipated pollutants could be discharged into the system. Moreover, effluent monitoring data collected during the previous order term showed chronic toxicity at levels close to the previous order's effluent limit (see Table F-2) and similar toxicity could occur in the future.

Table F-9. Reasonable Potential Analysis No. 1 - Existing Conditions

Table 1 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing (µg/L)	Projected 95th Percentile (µg/L)	Result
Objectives for Protection of Marine Aquatic Life							
Ammonia (as nitrogen)	600	30	0	54,000	360	400	Endpoint 2
Arsenic	8	83	83	<2.0	<3.0	---	Endpoint 2
Cadmium	1	83	76	1.2	0.0082	---	Endpoint 2

Table 1 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing (µg/L)	Projected 95th Percentile (µg/L)	Result
Chlorinated Phenolics	1	7	7	<6.0	<0.040	---	Endpoint 3
Chromium (VI)	2	81	76	8.1	0.055	---	Endpoint 2
Acute Toxicity [1]	Not applicable						
Chronic Toxicity	**1 TUc**	**28**	**0**	**149 TUc**	**1.0 TUc**	**1.1 TUc**	**Endpoint 1**
Copper	3	83	0	26	2.2	2.1	Endpoint 2
Cyanide	1	28	25	8.2	0.055	---	Endpoint 2
Endosulfan (total)	0.009	7	7	<0.0062	<4.2E-5	---	Endpoint 3
Endrin	0.002	7	7	<0.0028	<1.9E-5	---	Endpoint 3
HCH	0.004	7	7	<0.0026	<1.7E-5	---	Endpoint 3
Lead	2	83	26	1.6	0.011	0.0090	Endpoint 2
Mercury	0.04	83	1	0.071	0.00097	0.000070	Endpoint 2
Nickel	5	83	0	27	0.18	0.033	Endpoint 2
Non-chlorinated Phenolics	30	7	6	1.2	0.0081	---	Endpoint 3
Radioactivity [2]	Not applicable						
Selenium	15	83	83	<2.0	<0.013	---	Endpoint 2
Silver	0.7	83	82	0.40	0.16	---	Endpoint 2
Total Chlorine Residual [3]	Not applicable						
Zinc	20	83	0	97	8.6	8.3	Endpoint 2
Objectives for Protection of Human Health – Noncarcinogens							
1,1,1-Trichloroethane	540,000	7	7	<0.24	<0.0016	---	Endpoint 3
2,4-Dinitrophenol	4.0	7	7	<0.90	<0.0060	---	Endpoint 3
2-Methyl-4,6-Dinitrophenol	220	7	7	<1.6	<0.010	---	Endpoint 3
Acrolein	220	7	7	<2.0	<0.013	---	Endpoint 3
Antimony	1,200	82	74	2.8	0.018	---	Endpoint 2
Bis(2-Chloroethoxy)Methane	4.4	7	7	<0.93	<0.0062	---	Endpoint 3
Bis(2-Chloroisopropyl)Ether	1,200	7	7	<0.81	<0.0054	---	Endpoint 3
Chlorobenzene	570	7	7	<0.25	<0.0017	---	Endpoint 3
Chromium (III) [4]	Not applicable						
Dichlorobenzenes	5,100	7	7	<3.0	<0.020	---	Endpoint 3
Diethyl Phthalate	33,000	7	7	<0.86	<0.0058	---	Endpoint 3
Dimethyl Phthalate	820,000	7	7	<0.97	<0.0065	---	Endpoint 3
Di-n-Butyl Phthalate	3,500	7	7	<0.91	<0.0061	---	Endpoint 3
Ethylbenzene	4,100	7	7	<1.0	<0.0067	---	Endpoint 3
Fluoranthene	15	8	8	<0.55	<0.0037	---	Endpoint 3
Hexachlorocyclopentadiene	58	7	7	<0.91	<0.0061	---	Endpoint 3
Nitrobenzene	4.9	7	7	<0.95	<0.0064	---	Endpoint 3
Thallium	2	82	82	<1.0	<0.0067	---	Endpoint 2
Toluene	85,000	7	7	<0.50	<0.0034	---	Endpoint 3
Tributyltin	0.0014	7	7	<0.0026	<1.7E-5	---	Endpoint 3
Objectives for Protection of Human Health – Carcinogens							
1,1,2,2-Tetrachloroethane	2.3	7	7	<0.68	<0.0045	---	Endpoint 3
1,1,2-Trichloroethane	9.4	7	7	<0.14	<0.00094	---	Endpoint 3
1,1-Dichloroethylene	0.9	7	7	<0.089	<0.00060	---	Endpoint 3
1,2-Dichloroethane	28	7	7	<0.15	<0.0010	---	Endpoint 3
1,2-Diphenylhydrazine	0.16	7	7	<0.90	<0.0060	---	Endpoint 3
1,3-Dichloropropylene	8.9	7	7	<0.24	<0.0016	---	Endpoint 3
1,4-Dichlorobenzene	18	7	7	<1.0	<0.0067	---	Endpoint 3

Table 1 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing (µg/L)	Projected 95th Percentile (µg/L)	Result
TCDD Equivalents	3.9E-9	7	7	<2.6E-8	<1.7E-10	---	Endpoint 3
2,4,6-Trichlorophenol	0.29	7	7	<1.0	<0.0067	---	Endpoint 3
2,4-Dinitrotoluene	2.6	7	7	<0.96	<0.0064	---	Endpoint 3
3,3'-Dichlorobenzidine	0.0081	7	7	<5.0	<0.034	---	Endpoint 3
Acrylonitrile	0.10	7	7	<0.80	<0.0054	---	Endpoint 3
Aldrin	2.2E-5	7	7	<0.00075	<5.0E-6	---	Endpoint 3
Benzene	5.9	7	7	<0.20	<0.0013	---	Endpoint 3
Benzidine	6.9E-5	7	7	<5.0	<0.034	---	Endpoint 3
Beryllium	0.033	82	82	<0.50	<0.0034	---	Endpoint 2
Bis(2-Chloroethyl)Ether	0.045	7	7	<0.95	<0.0064	---	Endpoint 3
Bis(2-Ethylhexyl)Phthalate	3.5	7	2	3.3	0.022	---	Endpoint 3
Carbon Tetrachloride	0.90	7	7	<0.19	<0.0013	---	Endpoint 3
Chlordane	2.3E-5	7	7	<0.018	<0.00012	---	Endpoint 3
Chlorodibromomethane	8.6	7	7	<0.13	<0.00089	---	Endpoint 3
Chloroform	130	7	3	3.7	0.025	---	Endpoint 2
DDT (total)	0.00017	7	7	<2.1	<0.014	---	Endpoint 3
Dichlorobromomethane	6.2	7	7	<0.50	<0.0034	---	Endpoint 3
Dichloromethane	450	7	7	<0.50	<0.0034	---	Endpoint 3
Dieldrin	4.0E-5	7	7	<0.0013	<8.9E-6	---	Endpoint 3
Halomethanes	130	7	7	<0.69	<0.0046	---	Endpoint 3
Heptachlor	5E-5	7	7	<0.0013	<9.0E-6	---	Endpoint 3
Heptachlor Epoxide	2E-5	7	7	<0.00056	<3.8E-6	---	Endpoint 3
Hexachlorobenzene	0.00021	7	7	<0.91	<0.0061	---	Endpoint 3
Hexachlorobutadiene	14	7	7	<0.92	<0.0062	---	Endpoint 3
Hexachloroethane	2.5	7	7	<0.94	<0.0063	---	Endpoint 3
Isophorone	730	7	7	<0.93	<0.0062	---	Endpoint 3
N-Nitrosodimethylamine	7.3	7	7	<0.88	<0.0059	---	Endpoint 3
N-Nitrosodi-n-Propylamine	0.38	7	7	<0.97	<0.0065	---	Endpoint 3
N-Nitrosodiphenylamine	2.5	7	7	<0.83	<0.0056	---	Endpoint 3
PAHs (total)	0.0088	6	6	<1.2	<0.0081	---	Endpoint 3
PCBs	1.9E-5	7	7	<0.40	<0.0027	---	Endpoint 3
Tetrachloroethylene	2.0	7	7	<0.14	<0.0010	---	Endpoint 3
Toxaphene	0.00021	7	7	<0.058	<0.00039	---	Endpoint 3
Trichloroethylene	27	7	7	<0.38	<0.0025	---	Endpoint 3
Vinyl Chloride	36	7	7	<0.66	<0.0044	---	Endpoint 3

Abbreviations:

WQO = water quality objective
µg/L = micrograms per liter
TUc = chronic toxicity units

Footnotes:

[1] The previous order did not require acute toxicity monitoring.

[2] The previous order did not require monitoring for radioactivity.

[3] Chlorine is not added for disinfection, and the previous order did not require monitoring for residual chlorine.

[4] The previous order did not require monitoring for chromium (III); however, the maximum detected concentration of total chromium (8.1 µg/L) is less than the water quality objective for chromium (III) of 190,000 µg/L.

Table F-10. Reasonable Potential Analysis No. 2 - Westside Recycled Water Project Conditions

Table 1 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing (µg/L)	Projected 95th Percentile (µg/L)	Result
Objectives for Protection of Marine Aquatic Life							
Ammonia (as nitrogen)	600	9	0	81,000	550	600	Endpoint 2
Arsenic	8	83	83	<3.0	<3.0	---	Endpoint 2
Cadmium	1	83	76	1.8	0.012	---	Endpoint 2
Chlorinated Phenolics	1	7	7	<9.0	<0.060	---	Endpoint 3
Chromium (VI)	2	81	76	12	0.082	---	Endpoint 2
Acute Toxicity [1]	Not applicable						
Chronic Toxicity [2]	**1 TUc**	28	**0**	**220 TUc**	**1.5 TUc**	**1.6 TUc**	**Endpoint 1**
Copper	3	83	0	39	2.2	2.2	Endpoint 2
Cyanide	1	28	25	12	0.082	---	Endpoint 3
Endosulfan (total)	0.009	7	7	<0.0093	<6.2E-5	---	Endpoint 3
Endrin	0.002	7	7	<0.0042	<2.8E-5	---	Endpoint 3
HCH	0.004	7	7	<0.0039	<2.6E-5	---	Endpoint 3
Lead	2	83	26	2.4	0.016	0.012	Endpoint 2
Mercury	0.04	83	1	0.11	0.0012	0.000074	Endpoint 2
Nickel	5	83	0	41	0.27	0.050	Endpoint 2
Non-chlorinated Phenolics	30	7	6	1.8	0.012	---	Endpoint 3
Radioactivity [3]	Not applicable						
Selenium	15	83	83	<3.0	<0.020	---	Endpoint 2
Silver	0.7	83	82	0.60	0.16	---	Endpoint 2
Total Chlorine Residual [4]	Not applicable						
Zinc	20	83	0	150	8.9	8.5	Endpoint 2
Objectives for Protection of Human Health – Noncarcinogens							
1,1,1-Trichloroethane	540,000	7	7	<0.35	<0.0024	---	Endpoint 3
2,4-Dinitrophenol	4.0	7	7	<1.4	<0.0091	---	Endpoint 3
2-Methyl-4,6-Dinitrophenol	220	7	7	<2.3	<0.016	---	Endpoint 3
Acrolein	220	7	7	<3.0	<0.020	---	Endpoint 3
Antimony	1,200	82	74	4.1	0.028	---	Endpoint 2
Bis(2-Chloroethoxy)Methane	4.4	7	7	<1.4	<0.0094	---	Endpoint 3
Bis(2-Chloroisopropyl)Ether	1,200	7	7	<1.2	<0.0082	---	Endpoint 3
Chlorobenzene	570	7	7	<0.37	<0.0025	---	Endpoint 3
Chromium (III) [5]	Not applicable						
Dichlorobenzenes	5,100	7	7	<4.5	<0.030	---	Endpoint 3
Diethyl Phthalate	33,000	7	7	<1.3	<0.087	---	Endpoint 3
Dimethyl Phthalate	820,000	7	7	<1.5	<0.0098	---	Endpoint 3
Di-n-Butyl Phthalate	3,500	7	7	<1.4	<0.0092	---	Endpoint 3
Ethylbenzene	4,100	7	7	<1.5	<0.010	---	Endpoint 3
Fluoranthene	15	8	8	<0.82	<0.0055	---	Endpoint 3
Hexachlorocyclopentadiene	58	7	7	<1.4	<0.0092	---	Endpoint 3
Nitrobenzene	4.9	7	7	<1.4	<0.0096	---	Endpoint 3
Thallium	2	82	82	<1.5	<0.010	---	Endpoint 2
Toluene	85,000	7	7	<0.42	<0.0028	---	Endpoint 3
Tributyltin	0.0014	7	7	<0.0039	<2.6E-5	---	Endpoint 3
Objectives for Protection of Human Health – Carcinogens							
1,1,2,2-Tetrachloroethane	2.3	7	7	<1.0	<0.0068	---	Endpoint 3
1,1,2-Trichloroethane	9.4	7	7	<0.21	<0.0014	---	Endpoint 3
1,1-Dichloroethylene	0.9	7	7	<0.13	<0.00090	---	Endpoint 3
1,2-Dichloroethane	28	7	7	<0.22	<0.0015	---	Endpoint 3

Table 1 Pollutant	Most Stringent WQO (µg/L)	No. of Samples	No. of Non-Detects	Max Effluent Concentration (µg/L)	Max Effluent Concentration After Mixing (µg/L)	Projected 95th Percentile (µg/L)	Result
1,2-Diphenylhydrazine	0.16	7	7	<1.4	<0.0091	---	Endpoint 3
1,3-Dichloropropylene	8.9	7	7	<0.36	<0.0024	---	Endpoint 3
1,4-Dichlorobenzene	18	7	7	<1.5	<0.010	---	Endpoint 3
TCDD Equivalents	3.9E-9	7	7	<0.95E-8	<6.4E-11	---	Endpoint 2
2,4,6-Trichlorophenol	0.29	7	7	<1.5	<0.010	---	Endpoint 3
2,4-Dinitrotoluene	2.6	7	7	<1.4	<0.0097	---	Endpoint 3
3,3'-Dichlorobenzidine	0.0081	7	7	<7.5	<0.050	---	Endpoint 3
Acrylonitrile	0.10	7	7	<1.2	<0.0081	---	Endpoint 3
Aldrin	2.2E-5	7	7	<0.0011	<7.6E-6	---	Endpoint 3
Benzene	5.9	7	7	<0.30	<0.0020	---	Endpoint 3
Benzidine	6.9E-5	7	7	<7.5	<0.050	---	Endpoint 3
Beryllium	0.033	82	82	<0.75	<0.0050	---	Endpoint 2
Bis(2-Chloroethyl)Ether	0.045	7	7	<1.4	<0.0096	---	Endpoint 3
Bis(2-Ethylhexyl)Phthalate	3.5	7	2	5.0	0.034	---	Endpoint 3
Carbon Tetrachloride	0.90	7	7	<0.29	<0.0020	---	Endpoint 3
Chlordane [13]	2.3E-5	7	7	<0.027	<0.00018	---	Endpoint 3
Chlorodibromomethane	8.6	7	7	<0.20	<0.0013	---	Endpoint 3
Chloroform	130	7	3	5.6	0.038	---	Endpoint 2
DDT (total)	0.00017	7	7	<3.12	<0.021	---	Endpoint 3
Dichlorobromomethane	6.2	7	7	<0.26	<0.0018	---	Endpoint 3
Dichloromethane	450	7	7	<0.75	<0.0050	---	Endpoint 3
Dieldrin	0.00004	7	7	<0.0020	<1.3E-5	---	Endpoint 3
Halomethanes	130	7	7	<1.0	<0.0070	---	Endpoint 3
Heptachlor	0.00005	7	7	<0.0013	<1.3E-5	---	Endpoint 3
Heptachlor Epoxide	0.00002	7	7	<0.00084	<5.6E-6	---	Endpoint 3
Hexachlorobenzene	0.00021	7	7	<1.4	<0.0092	---	Endpoint 3
Hexachlorobutadiene	14	7	7	<1.4	<0.0093	---	Endpoint 3
Hexachloroethane	2.5	7	7	<1.4	<0.0095	---	Endpoint 3
Isophorone	730	7	7	<1.4	<0.0094	---	Endpoint 3
N-Nitrosodimethylamine	7.3	7	7	<1.3	<0.0089	---	Endpoint 3
N-Nitrosodi-n-Propylamine	0.38	7	7	<1.5	<0.0098	---	Endpoint 3
N-Nitrosodiphenylamine	2.5	7	7	<1.2	<0.0084	---	Endpoint 3
PAHs (total)	0.0088	6	6	<1.8	<0.012	---	Endpoint 3
PCBs	1.9E-5	7	7	<0.59	<0.0040	---	Endpoint 3
Tetrachloroethylene	2.0	7	7	<0.21	<0.0014	---	Endpoint 3
Toxaphene	0.00021	7	7	<0.087	<0.00058	---	Endpoint 3
Trichloroethylene	27	7	7	<0.57	<0.0038	---	Endpoint 3
Vinyl Chloride	36	7	7	<0.98	<0.0066	---	Endpoint 3

Abbreviations:

WQO = water quality objective
µg/L = micrograms per liter

Footnotes:

[1] The previous order did not require monitoring for acute toxicity.

[2] The projection is particularly uncertain because chronic toxicity may occur as a result of various pollutants within the effluent and their toxic effects may not be linearly related to discharge concentrations.

[3] The previous order did not require monitoring for radioactivity.

[4] The previous order did not require monitoring for total residual chlorine.

[5] The previous order did not require monitoring for chromium (III); however, the maximum projected concentration of total chromium (12 µg/L) is less than the water quality objective for chromium (III) of 190,000 µg/L.

5. WQBELs

a. Dry Weather. For dry weather discharges from Discharge Point No. 001, the Ocean Plan calls for chronic toxicity WQBELs based on "toxic units" derived from multi-concentration toxicity tests. This Order introduces an updated approach. In 2010, U.S. EPA published the Test of Significant Toxicity (TST) statistical approach in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010). The TST statistical approach relies on the same U.S. EPA toxicity test methods. For example, section 9.4.1.2 of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/0136, 1995) states, "the statistical methods recommended in this manual are not the only possible methods of statistical analysis."

To comply with the chronic toxicity WQBEL, effluent must "Pass" a single chronic toxicity test conducted at the IWC as defined in MRP section V.A.2 using the Test of Significant Toxicity (TST) statistical approach (Welch's t-test). The test result must reject the following null hypothesis:

H_0: mean discharge IWC response $\leq 0.75 \times$ mean control response.

In other words, the mean chronic toxicity response for a test sample must be statistically determined to be less than or equal to 75 percent of the response for a control sample. The 75 percent response level reflects a regulatory management decision intended to ensure that differences observed between test sample responses and control sample responses are meaningful. A test result that fails to reject the null hypothesis would not comply with the chronic toxicity WQBEL.

The chronic toxicity WQBEL is expressed as a single-sample maximum. For publicly-owned treatment works, 40 C.F.R. section 122.45(d) requires monthly and weekly effluent limitations unless impracticable. In this case, the single-sample WQBEL is necessary to protect against short-term effects. Limits expressed with monthly or weekly averaging periods could allow chronic toxicity to occur over shorter periods. This approach is comparable to that of the Ocean Plan, which calls for a daily maximum chronic toxicity limit. Single-sample and maximum daily chronic toxicity limits are comparable because chronic toxicity tests can take several days to complete, depending on the test species used. U.S. EPA recommends this approach in *EPA Regions 8, 9 and 10 Toxicity Training Tool* (January 2010).

b. Wet Weather. For wet weather discharges from Discharge Point No. 001 and the combined sewer discharge points, the Long-Term Control Plan required pursuant to the *Combined Sewer Overflow (CSO) Control Policy* and described in Provision VI.C.5.c of the Order serves as narrative WQBELs.

D. Discharge Requirement Considerations

1. Anti-Backsliding. This Order complies with the anti-backsliding provisions of CWA sections 402(o) and 303(d)(4) and 40 C.F.R. section 122.44(l), which generally require

effluent limitations in a reissued permit to be as stringent as those in the previous permit. The requirements of this Order are at least as stringent as those in the previous order, with the exception of mercury. This Order does not contain dry weather mercury effluent limitations because there is no longer reasonable potential to exceed water quality objectives based on mercury effluent data. Removing the mercury WQBELs is consistent with State Water Board Order No. WQ 2001-16. Consistent with State Water Board Order No. WQ 2001-06, reliance on the TST statistical approach to evaluate chronic toxicity for dry weather discharges from the Oceanside Water Pollution Control Plant is not backsliding because this Order's effluent limitation is not comparable to the effluent limitation in the previous order.

2. **Antidegradation.** This Order complies with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. It continues the status quo with respect to the level of discharge authorized in the previous order, which was adopted in accordance with antidegradation policies, and thus serves as the baseline by which to measure whether degradation will occur. This Order does not allow for a flow increase or a reduced level of treatment. The only potentially less stringent effluent limitation is the chronic toxicity WQBEL after Westside Recycled Water Project operations commence. The Westside Recycled Water Project is expected to concentrate, but not increase, existing pollutant loads; therefore, it will not degrade Pacific Ocean water quality.

3. **Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based and water quality-based effluent limitations. This Order's technology-based requirements implement minimum, applicable federal technology-based requirements. This Order also contains more stringent effluent limitations as necessary to meet water quality standards. These limitations are no more stringent than the CWA requires.

   This Order's WQBELs have been derived to implement water quality objectives that protect beneficial uses. The beneficial uses and water quality objectives set forth in the Ocean Plan and Basin Plan have been approved pursuant to federal law and are federal water quality standards. U.S. EPA approved the Ocean Plan on February 14, 2006, and also approved subsequent amendments. Most Basin Plan beneficial uses and water quality objectives were approved under State law and submitted to and approved by U.S. EPA prior to May 30, 2000. Beneficial uses and water quality objectives submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 C.F.R. section 131.21(c)(1). U.S. EPA approved the remaining beneficial uses and water quality objectives implemented by this Order so they are applicable water quality standards pursuant to 40 C.F.R. section 131.21(c)(2).

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

This Order's receiving water limitations are based on Ocean Plan chapters II.C, II.D, and II.E, and State Water Board Order No. WQ 79-16. These limits are necessary to ensure compliance with applicable water quality standards in accordance with the CWA and regulations adopted thereunder.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Attachment D contains standard provisions that apply to all NPDES permits in accordance with 40 C.F.R. section 122.41 and additional conditions applicable to specific categories of permits in accordance with 40 C.F.R. section 122.42. The Discharger must comply with these provisions.

In accordance with 40 C.F.R. section 123.25(a)(12), permits may impose more stringent requirements. Attachment G contains standard provisions that supplement the federal standard provisions in Attachment D.

In addition to federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(a)(2), 122.41(j)(5), and (k)(2), this Order incorporates Water Code section 13387(e) by reference.

B. Monitoring and Reporting Program (MRP) Requirements

CWA section 308 and 40 C.F.R. sections 122.41(h), 122.41(j)-(l), 122.44(i), and 122.48 require that NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (Attachment E) of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and State requirements. For more background regarding these requirements, see Fact Sheet section VII.

C. Special Provisions

1. Reopener Provisions

These provisions are based on 40 C.F.R. sections 122.62 and 122.63 and allow modification of this Order and its effluent limitations as necessary in response to updated water quality objectives, regulations, or other new and relevant information that may become available in the future, and other circumstances as allowed by law. Provision VI.C.1.f is based on *Combined Sewer Overflow (CSO) Control Policy* section IV.B.2.g.

2. Effluent Characterization Study and Report

This Order does not include effluent limitations for Ocean Plan Table 1 pollutants that do not demonstrate reasonable potential, but this provision requires the Discharger to evaluate monitoring data to verify that the reasonable potential analysis conclusions of this Order remain valid. This requirement is authorized pursuant to 40 C.F.R. section 122.41(h) and Water Code section 13267, and is necessary to inform the next permit reissuance and to

ensure that the Discharger takes timely steps in response to any unanticipated change in effluent quality during the term of this Order.

3. Pollutant Minimization Program

This provision is based on *Combined Sewer Overflow (CSO) Control Policy* section II.B.7, Basin Plan section 4.13.2, Ocean Plan chapter III.C.9, State Water Board Order No. WQ 79-16, and Water Code section 13263. The provision requires the Discharger to include copper and zinc as pollutants of concern because concentrations are often elevated in combined sewer discharges.

4. Special Provisions for Publicly-Owned Treatment Works (POTWs)

a. Sludge and Biosolids Management. This provision is based on Basin Plan section 4.17. "Sludge" refers to the solid, semisolid, and liquid residue removed during primary, secondary, and advanced wastewater treatment processes. "Biosolids" refers to sludge that has been treated and may be beneficially reused.

b. Pretreatment Program. This provision is based on 40 C.F.R. part 403. The Discharger implements a pretreatment program due to the nature and volume of its industrial influent. This provision lists the Discharger's responsibilities regarding its pretreatment program and requires compliance with the provisions in Attachment H.

c. Anaerobically-Digestible Material. Standard Operating Procedures are required for dischargers that accept hauled waste food, fats, oil, and grease for injection into anaerobic digesters. The development and implementation of Standard Operating Procedures for management of these materials is intended to allow the California Department of Resources Recycling and Recovery to exempt operations from separate and redundant permitting programs. If the Discharger does not accept fats, oil, and grease for resource recovery purposes, it is not required to develop and implement Standard Operating Procedures.

Some publicly-owned treatment works choose to accept organic material, such as waste food, fats, oils, and grease, into their anaerobic digesters to increase production of methane and other biogases for energy production and to prevent such materials from being discharged into the collection system and potentially causing sanitary sewer overflows. The California Department of Resources Recycling and Recovery has proposed to exclude publicly-owned treatment works from Process Facility/Transfer Station permit requirements when the same activities are regulated under waste discharge requirements or NPDES permits. The proposed exclusion is restricted to anaerobically-digestible materials that have been prescreened, slurried, processed, and conveyed in a closed system for co-digestion with regular sewage sludge. The exclusion assumes that the facility has developed Standard Operating Procedures for proper handling, processing, tracking, and management.

d. Separate Sanitary Sewer System. This provision requires compliance with Attachments D and G and states that these requirements may be satisfied by complying

with State Water Board Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, as amended by State Water Board Order No. WQ 2013-0058-EXEC and any subsequent order updating these requirements. These statewide WDRs require public agencies that own or operate sanitary sewer systems with greater than one mile of sewer lines to enroll for coverage and comply with requirements to develop sanitary sewer management plans and report sanitary sewer overflows, among other provisions and prohibitions. The statewide WDRs contain requirements for operation and maintenance of collection systems, and for reporting and mitigating sanitary sewer overflows, that are more extensive and, therefore, more stringent than the standard provisions in Attachments D and G.

5. Combined Sewer System Controls

a. Nine Minimum Controls. The *Combined Sewer Overflow (CSO) Control Policy* establishes nine minimum controls as the minimum technology-based requirements during wet weather for combined sewer systems based on 40 C.F.R. section 125.3:

- Conduct Proper Operations and Maintenance Program
- Maximize Use of Collection System for Storage
- Review and Modify Pretreatment Program
- Maximize Flow to Treatment Plant
- Prohibit Dry Weather Combined Sewer Overflows
- Control Solid and Floatable Materials in Combined Sewer Discharges
- Develop and Implement Pollution Prevention Program
- Notify Public of Combined Sewer Discharges
- Monitor to Characterize Combined Sewer Discharge Impacts and Efficacy of Controls

These nine minimum controls are the best conventional pollutant control technology (BCT) and the best available technology economically achievable (BAT). Provision VI.C.5.a of this Order requires implementation of these nine minimum controls and is consistent with U.S. EPA's guidance document, *Combined Sewer Overflows, Guidance for Nine Minimum Controls* (EPA 832-B-95-003, May 1995).

Provision VI.C.5.a.viii(a) contains specific signage and reporting requirements to inform the public of the location, occurrence, and possible health impacts of combined sewer discharges. The required signage language includes a telephone number so the public can report dry weather discharges to help ensure that corrective actions are taken and warning language to reduce public exposure to potential health risks. This provision contains requirements to protect the shellfish harvesting beneficial use in the Pacific Ocean (see Fact Sheet sections III.C.1 and III.C.2). This provision is consistent with State Water Board Order No. 79-16, U.S. EPA's *NPDES Compendium of Next Generation Compliance Examples* (September 2016), and 40 C.F.R. section 122.38 (*Public Notification Requirements for Combined Sewer Overflows to the Great Lakes Basin*, considered here as guidance).

For sewer overflows from the combined sewer system, Provision VI.C.5.a.ii(b) requires the Discharger to notify and report sewer overflows from the combined sewer system using the State's CIWQS database. Water Code sections 13267 and 13383, 40 C.F.R. section 122.41(h), and the *Combined Sewer Overflow (CSO) Control Policy* authorize the Regional Water Board and U.S. EPA to require information about releases of untreated or partially-treated wastewater. This information is necessary to evaluate combined sewer system performance, and operations and maintenance practices; to determine whether any diversions of untreated or partially-treated wastewater result in a discharge to surface waters; to satisfy public notification requirements; to identify whether the public could be affected; and to establish whether sewer overflows from the combined sewer system result in a nuisance as defined by Water Code section 13050.

b. Documentation of Nine Minimum Controls. Provision VI.C.5.b is based on section II.B of the *Combined Sewer Overflow (CSO) Control Policy*, which states that Dischargers should submit appropriate documentation demonstrating implementation of the nine minimum controls. Consistent with U.S. EPA's guidance document, *Combined Sewer Overflows, Guidance for Nine Minimum Controls* (EPA 832-B-95-003, May 1995), a community that has made substantial progress in implementing the nine minimum controls is still expected to provide documentation to the permitting authority to demonstrate how its program addresses each minimum control.

c. Long-Term Control Plan (LTCP). The *Combined Sewer Overflow (CSO) Control Policy* requires implementation of a Long-Term Control Plan (LTCP) to satisfy water quality-based requirements during wet weather. *Combined Sewer Overflow (CSO) Control Policy* section IV.B.2.f specifies that permits should contain requirements for maximizing the treatment of wet weather flows, as appropriate. The operational requirements in Provision VI.C.5.c of this Order are unchanged from the previous order, except that this Order requires the instantaneous influent flow rate to the Oceanside Water Pollution Control Plant prior to initiating discharge from the Westside Transport/Storage Structure to Discharge Point No. 001 to be 60 MGD to reflect the treatment capacity of the Oceanside Water Pollution Control Plant and operational considerations. This provision allows the Discharger to request changes to these operational parameters to ensure the Discharger's LTCP continues to minimize combined sewer discharges and maximize pollutant removal during wet weather.
Provision VI.C.5.d (Task 4) of this Order requires the Discharger to re-evaluate each operational requirement and propose additional performance measures within 24 months of this Order's effective date to ensure wet weather operations are optimized based on current information.

d. LTCP Update. The Discharger's report *San Francisco Wastewater Long Term Control Plan Synthesis* (March 30, 2018) summarizes the various documents that comprise the Discharger's historical planning process and LTCP. Provision VI.C.5.d requires the Discharger to update its LTCP with respect to the elements listed in *Combined Sewer Overflow (CSO) Control Policy* section II.C. *Combined Sewer Overflow (CSO) Control Policy* section IV.B describes the major elements that should be included in NPDES permits to implement the policy and ensure protection of water quality. This provision is consistent with U.S. EPA's guidance document *Combined Sewer Overflows, Guidance*

for Long-Term Control Plan (EPA 832-B-95-002, September 1995). This provision also implements State Water Board Order No. WQ 79-16, which sets forth specific conditions to be implemented during wet weather (see Fact Sheet § III.C.2.b).

This provision requires the Discharger to update its LTCP for the following reasons:

- *Combined Sewer Overflow (CSO) Control Policy* section IV.B.2.b specifies that the permit should contain narrative requirements to ensure that selected controls are implemented, operated, and maintained as described in the Discharger's LTCP.

- *Combined Sewer Overflow (CSO) Control Policy* section IV.B.2.d specifies that the permit should contain a requirement to monitor and collect sufficient information to demonstrate compliance with water quality standards and protect designated uses, as well as to determine the effectiveness of combined sewer system controls.

- *Combined Sewer Overflow (CSO) Control Policy* section IV.B.2.e specifies that the permit should contain a requirement to reassess combined sewer discharges to sensitive areas in those cases where elimination or relocation was previously found to be not physically possible and economically achievable.

- *Combined Sewer Overflow (CSO) Control Policy* section IV.B.2.f specifies that the permit should contain requirements for maximizing the treatment of wet weather flows at the treatment plant, as appropriate.

- State Water Board Order No. WQ 79-16 requires the Discharger to design, construct, and operate facilities to the greatest extent practical to conform to the standards set forth in chapter II of the 1978 Ocean Plan, except for the bacteriological standards (see Fact Sheet § III.C.2.b).

- State Water Board Order No. WQ 79-16 requires the Discharger to design, construct, and operate facilities to the greatest extent practical to comply with the conditions controlled by the requirements set forth in chapter III, sections A and B, of the 1978 Ocean Plan (see Fact Sheet § III.C.2.b).

- An updated LTCP is necessary to document that the Discharger's LTCP is based on the most current information to assess whether water quality standards are being met and that wet weather discharges are not causing unreasonable degradation of the marine environment (40 C.F.R. § 125.122).

6. Westside Recycled Water Project Operations Notification

The effluent limitations and specifications in this Order are based on information available during the permit reissuance process. Assumptions regarding how effluent quality could change after commencement of Westside Recycled Water Project operations were based on information the Discharger provided prior to completion of project planning and construction. This provision is necessary to evaluate whether the assumptions made during the permitting process remain valid and to ensure that the permit continues to be protective of water quality standards. Moreover, because some requirements of this Order are contingent

upon Westside Recycled Water Project operations, notification is necessary for the Regional Water Board and U.S. EPA to know when such requirements apply.

7. Flame Retardant Special Study

This special study is necessary to evaluate the potential impacts of flame retardants (i.e., polybrominated diphenyl ethers and chlorinated organophosphate flame retardants) in receiving waters. During U.S. EPA consultation with the National Marine Fisheries Service pursuant to the Endangered Species Act and Magnuson-Stevens Act, the National Marine Fisheries Service expressed concern about the presence of flame retardants in plant effluent and flame retardant mass loadings to the Pacific Ocean because organophosphates have been widely detected in San Francisco Bay water, sediment, and aquatic life tissue, and because polybrominated diphenyl ether (PBDE) and tris(1,3-dichloro-2-propyl)phosphate (TDCP) concentrations in San Francisco Bay water have regularly exceeded predicted no effect concentrations for marine settings (*U.S. EPA Biological Evaluation*, April 2019). This special study is consistent with other NPDES permits that authorize discharge to the Pacific Ocean.

8. Efficacy of Combined Sewer System Controls Special Study

This special study is necessary to characterize the quality of the combined sewer discharges and the efficacy of the combined sewer system controls during wet weather. It is based on the *Combined Sewer Overflow (CSO) Control Policy*, which requires "a post-construction water quality monitoring program adequate to verify compliance with water quality standards and protection of designated uses as well as to ascertain the effectiveness of CSO controls."

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 C.F.R. sections 122.41(h), 122.41(j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The *Combined Sewer Overflow (CSO) Control Policy* requires monitoring to ascertain the effectiveness of controls and to verify compliance with water quality standards and protection of beneficial uses. The Monitoring and Reporting Program (MRP) in Attachment E of this Order establishes monitoring, reporting, and recordkeeping requirements that implement federal and State requirements. Specified monitoring frequencies take into account the quantity and variability of the discharge, past compliance, significance of pollutants, and cost of monitoring. The following provides the rationale for the monitoring and reporting requirements contained in the MRP.

A. Influent Monitoring. Influent flow monitoring is necessary to understand Facility operations and to evaluate compliance with Discharge Prohibition III.D. Influent $CBOD_5$ and TSS monitoring is necessary to evaluate compliance with this Order's 85 percent removal requirement. Influent monitoring is also necessary to identify wet weather days, as defined in Attachment A.

B. Effluent Monitoring. Dry weather monitoring is necessary to evaluate compliance with this Order's effluent limitations and to provide data for future reasonable potential analyses. Wet weather monitoring is necessary to characterize the efficacy of combined sewer system controls and assess receiving water impacts. Effluent flow monitoring is necessary to understand Facility operations and to assess impacts to receiving waters.

C. Toxicity Testing. Dry weather effluent chronic toxicity monitoring is necessary to evaluate compliance with this Order's chronic toxicity effluent limitation and to provide data for future reasonable potential analyses. Routine and accelerated chronic toxicity monitoring frequencies and Toxicity Reduction Evaluation requirements are based on the implementation provisions in Ocean Plan chapter III.C and the standard monitoring procedures guidance in section 7.1 of Ocean Plan Appendix III.

A tiered approach to determine the required effluent concentration in test samples removes impediments for the Discharger to construct and operate the Westside Recycled Water Project. When recycled water production exceeds 1.0 MGD, toxicity test samples are to contain an effluent concentration based on the dilution at Discharge Point No. 001 as modeled using observed ocean currents. This flexibility accounts for potential increases in pollutant concentrations as recycled water is removed from the discharge.

D. Receiving Water Monitoring. Receiving water monitoring is necessary to characterize the effects of the discharges authorized in this Order on the receiving water and species listed under the California Endangered Species Act or federal Endangered Species Act. The requirements are based on the monitoring guidance in Appendix III of the Ocean Plan. The MRP requires the Discharger to continue its Southwest Ocean Outfall Regional Monitoring Program to collect data on chemical and physical sediment quality, benthic infauna community structure, and physical anomalies and bioaccumulation of contaminants in organism tissues.

The MRP requires shoreline monitoring following combined sewer discharge events at beach locations where water contact recreation takes place. This monitoring is necessary to assess the possible effects of combined sewer discharges on the water contact recreation beneficial use and to establish when public notification is required pursuant to Provision VI.C.5.a.viii of this Order. The bacteria indicators, *Enterococcus* and fecal coliform, are consistent with the revised bacteria provisions approved by U.S. EPA on March 22, 2019. An additional bacteria indicator, total coliform, is required for shoreline monitoring following combined sewer discharges because monitoring for total coliform is consistent with the indicators identified by the California Department of Public Health.

The MRP no longer requires the Discharger to collect data on demersal fish and epibenthic invertebrate community structure because trawl sampling does not provide data that are useful in determining discharge effects (*Southwest Ocean Outfall Regional Monitoring Program 1997-2012 Summary Report,* April 2014). The MRP also no longer includes 12 offshore receiving water monitoring locations. Seven discontinued locations (Stations 73, 74, 75, 76, 77, 78, and 79) were part of a special study conducted from 2002 through 2016; the Discharger demonstrated that these locations are not significantly different from other reference monitoring locations (*A Review of Benthic Macrofaunal Assemblage and Sediment Conditions in the Reef-Effect Region of the SWOO-RMP,* August 2018). Sediment and infaunal sampling at the other

five discontinued locations (Stations 41, 42, 44, 46, 49) has historically provided very little information because of their location in a unique, high energy environment with little to no fine sediment or animals (Pang, Jennie, email communication, December 14, 2018).

E. Pretreatment and Biosolids Monitoring. The pretreatment and biosolids monitoring requirements for influent, effluent, and biosolids are necessary to evaluate compliance with the Discharger's U.S. EPA-approved pretreatment program. Biosolids monitoring is also required pursuant to 40 C.F.R. part 503.

F. Other Monitoring Requirements. Pursuant to CWA section 308, U.S. EPA requires dischargers to participate in a Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program. The program annually evaluates the analytical abilities of laboratories that perform or support NPDES permit-required monitoring. The program applies to discharger laboratories and contract laboratories. There are two options to comply: (1) dischargers can obtain and analyze DMR-QA samples, or (2) pursuant to a waiver U.S. EPA issued to the State Water Board, dischargers can submit results from the most recent Water Pollution Performance Evaluation Study. Dischargers must submit results annually to the State Water Board, which then forwards the results to U.S. EPA.

Recycled water monitoring and reporting requirements are required to be incorporated into this Order by State Water Board Order No. WQ 2019-0037-EXEC (Amending Monitoring and Reporting Programs for Waste Discharge Requirements, NPDES Permits, Water Reclamation Requirements, Master Recycling Permits, and General Waste Discharge Requirements) issued on July 24, 2019, pursuant to Water Code sections 13267 and 13383.

VIII. PUBLIC PARTICIPATION

The Regional Water Board and U.S. EPA considered the issuance of WDRs and an NPDES permit for the Facility. As a step this process, U.S. EPA and Regional Water Board staff developed a tentative order and encouraged public participation in the reissuance process.

A. Notification of Interested Parties. The Regional Water Board and U.S. EPA notified the Discharger and interested agencies and persons of their intent to adopt an order reissuing the NPDES permit for the Discharger's discharges and provided an opportunity to submit written comments and recommendations. Notification was provided through the *San Francisco Chronicle* and http://www.epa.gov/region9/water/npdes/pubnotices.html. The public had access to the Regional Water Board agenda and any changes in dates and locations through the Regional Water Board's website at http://www.waterboards.ca.gov/sanfranciscobay and U.S. EPA's website at http://www.epa.gov/region9/water/npdes/pubnotices.html.

B. Written Comments. Interested persons were invited to submit written comments concerning the tentative order as explained through the notification process. Comments to the Regional Water Board and U.S. EPA were to be submitted either in person or by mail to the U.S. EPA NPDES Permits Office (WTR 2-3) at 75 Hawthorne Street, San Francisco, California 94105, to the attention of Becky Mitschele, and to the Regional Water Board office at 1515 Clay Street, Suite 1400, Oakland, California 94612, to the attention of Jessica Watkins.

For full staff response and Regional Water Board and U.S. EPA consideration, the written comments were due by 5:00 p.m. on May 20, 2019.

C. Public Hearing. The Regional Water Board held a public hearing on the tentative order during its regular meeting at the following date and time, and at the following location:

Date:	Wednesday, September 11, 2019
Time:	9:00 a.m.
Location:	Elihu Harris State Office Building 1515 Clay Street, 1st Floor Auditorium Oakland, CA 94612
Contact:	Jessica Watkins, (510) 622-2349, jessica.watkins@waterboards.ca.gov

Interested persons were invited to attend. At the public hearing, the Regional Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony was requested to be in writing.

Dates and venues change. The Regional Water Board web address is http://www.waterboards.ca.gov/sanfranciscobay, where one could access the current agenda for changes in dates and locations.

D. Reconsideration of Waste Discharge Requirements. Any aggrieved person may petition the State Water Board to review the Regional Water Board decision regarding the final WDRs. The State Water Board must receive the petition at the following address within 30 calendar days of the Regional Water Board's action:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

For instructions on how to file a petition for review, see http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml.

E. Federal NPDES Permit Appeals. When U.S. EPA issues a final NPDES permit, it becomes effective on its effective date unless a request for review is filed. If a request for review is filed, only those permit conditions that are uncontested go into effect pending disposition of the request for review. Requests for review must be filed within 33 days following the date the final permit is mailed and must meet the requirements of 40 C.F.R. section 124.19. Requests for review should be addressed to the Environmental Appeals Board and sent through the U.S. Postal Service addressed to the Environmental Appeals Board's mailing address:

U.S. Environmental Protection Agency
Clerk of the Board
Environmental Appeals Board (MC 1103B)
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460-0001

Alternatively, filings delivered by hand or courier, including Federal Express, UPS, and U.S. Postal Express Mail, should be directed to the following address:

Environmental Appeals Board
U.S. Environmental Protection Agency
Colorado Building
1341 G Street, N.W., Suite 600
Washington, D.C. 20460

Persons filing a request for review must have filed written comments on the draft permit. Otherwise, any such request for review may be filed only to the extent that the request pertains to changes from the draft to the final permit decision.

F. Information and Copying. The Report of Waste Discharge, related supporting documents, and comments received are on file and may be inspected at the Regional Water Board office at 1515 Clay Street, Suite 1400, Oakland, California at any time between 8:00 a.m. and 5:00 p.m. (except noon to 1:00 p.m.), Monday through Friday, and at the U.S. EPA Region IX office at 75 Hawthorne Street, San Francisco, California at any time between 9:00 a.m. and 5:00 p.m., Monday through Friday. Copying of documents may be arranged by calling the Regional Water Board at (510) 622-2300 or U.S. EPA at (415) 972-3524.

G. Register of Interested Persons. Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board and U.S. EPA, reference this Facility, and provide a name, address, and phone number.

H. Additional Information. Requests for additional information or questions regarding this Order should be directed to Jessica Watkins at (510) 622-2349 or jessica.watkins@waterboards.ca.gov, or Becky Mitschele at (415) 972-3492 or mitschele.becky@epa.gov.

ATTACHMENT G

REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS (SUPPLEMENT TO ATTACHMENT D)

November 2017

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REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS

APPLICABILITY

This document supplements the requirements of Federal Standard Provisions (Attachment D). For clarity, these provisions are arranged using to the same headings as those used in Attachment D.

I. STANDARD PROVISIONS - PERMIT COMPLIANCE

A. Duty to Comply – Not Supplemented

B. Need to Halt or Reduce Activity Not a Defense – Not Supplemented

C. Duty to Mitigate – Supplement to Attachment D, Provision I.C.

1. **Contingency Plan**. The Discharger shall maintain a Contingency Plan as prudent in accordance with current facility emergency planning. The Contingency Plan shall describe procedures to ensure that existing facilities remain in, or are rapidly returned to, operation in the event of a process failure or emergency incident, such as employee strike, strike by suppliers of chemicals or maintenance services, power outage, vandalism, earthquake, or fire. The Discharger may combine the Contingency Plan and Spill Prevention Plan (see Provision I.C.2, below) into one document. In accordance with Regional Water Board Resolution No. 74-10, discharge in violation of the permit where the Discharger has failed to develop and implement a Contingency Plan as described below may be the basis for considering the discharge a willful and negligent violation of the permit pursuant to California Water Code section 13387. The Contingency Plan shall, at a minimum, provide for the following:

   a. Sufficient personnel for continued facility operation and maintenance during employee strikes or strikes against contractors providing services;

   b. Maintenance of adequate chemicals or other supplies, and spare parts necessary for continued facility operations;

   c. Emergency standby power;

   d. Protection against vandalism;

   e. Expeditious action to repair failures of, or damage to, equipment, including any sewer lines;

   f. Reporting of spills and discharges of untreated or inadequately treated wastes, including measures taken to clean up the effects of such discharges; and

   g. Maintenance, replacement, and surveillance of physical condition of equipment and facilities, including any sewer lines.

2. **Spill Prevention Plan.** The Discharger shall maintain a Spill Prevention Plan to prevent accidental discharges and to minimize the effects of any such discharges. The Spill Prevention Plan shall do the following:

   a. Identify the possible sources of accidental discharge, untreated or partially-treated waste bypass, and polluted drainage;

   b. State when current facilities and procedures became operational and evaluate their effectiveness; and

   c. Predict the effectiveness of any proposed facilities and procedures and provide an implementation schedule with interim and final dates when the proposed facilities and procedures will be constructed, implemented, or operational.

D. Proper Operation and Maintenance – Supplement to Attachment D, Provision I.D

1. **Operation and Maintenance Manual.** The Discharger shall maintain an Operation and Maintenance Manual to provide the plant and regulatory personnel with a source of information describing all equipment, recommended operational strategies, process control monitoring, and maintenance activities. To remain a useful and relevant document, the Operation and Maintenance Manual shall be kept updated to reflect significant changes in treatment facility equipment and operational practices. The Operation and Maintenance Manual shall be maintained in usable condition and be available for reference and use by all relevant personnel and Regional Water Board staff.

2. **Wastewater Facilities Status Report.** The Discharger shall maintain a Wastewater Facilities Status Report and regularly review, revise, or update it, as necessary. This report shall document how the Discharger operates and maintains its wastewater collection, treatment, and disposal facilities to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

3. **Proper Supervision and Operation of Publicly-Owned Treatment Works (POTWs).** POTWs shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Title 23, section 3680, of the California Code of Regulations.

E. Property Rights – Not Supplemented

F. Inspection and Entry – Not Supplemented

G. Bypass – Not Supplemented

H. Upset – Not Supplemented

I. Other – Addition to Attachment D

1. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by California Water Code section 13050.

2. Collection, treatment, storage, and disposal systems shall be operated in a manner that precludes public contact with wastewater. If public contact with wastewater could reasonably occur on public property, warning signs shall be posted.

3. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit shall continue in force and effect until the permit is reissued or the Regional Water Board rescinds the permit.

II. STANDARD PROVISIONS – PERMIT ACTION – Not Supplemented

III. STANDARD PROVISIONS – MONITORING

A. Sampling and Analyses – Supplement to Attachment D, Provisions III.A and III.B

1. Certified Laboratories. Water and waste analyses shall be performed by a laboratory certified for these analyses in accordance with California Water Code section 13176.

2. Minimum Levels. For the 126 priority pollutants, the Discharger should use the analytical methods listed in Table B unless the Monitoring and Reporting Program (MRP, Attachment E) requires a particular method or minimum level (ML). All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

3. Monitoring Frequency. The MRP specifies the minimum sampling and analysis schedule.

a. Sample Collection Timing

i. The Discharger shall collect influent samples on varying days selected at random and shall not include any plant recirculation or other sidestream wastes, unless otherwise stipulated in the MRP. The Executive Officer may approve an alternative influent sampling plan if it is representative of plant influent and complies with all other permit requirements.

ii. The Discharger shall collect effluent samples on days coincident with influent sampling, unless otherwise stipulated by the MRP. If influent sampling is not required, the Discharger shall collect effluent samples on varying days selected at random, unless otherwise stipulated in the MRP. The Executive Officer may approve an alternative effluent sampling plan if it is representative of plant discharge and in compliance with all other permit requirements.

iii. The Discharger shall collect effluent grab samples during periods of daytime maximum peak flows (or peak flows through secondary treatment units for facilities that recycle effluent).

iv. Effluent sampling for conventional pollutants shall occur on at least one day of any multiple-day bioassay the MRP requires. During the course of the bioassay, on at least one day, the Discharger shall collect and retain samples of the discharge. In the event that a bioassay result does not comply with effluent limitations, the Discharger

shall analyze the retained samples for pollutants that could be toxic to aquatic life and for which it has effluent limitations.

(a) The Discharger shall perform bioassays on final effluent samples; when chlorine is used for disinfection, bioassays shall be performed on effluent after chlorination and dechlorination; and

(b) The Discharger shall analyze for total ammonia nitrogen and calculate the amount of un-ionized ammonia whenever test results fail to meet effluent limitations.

b. Conditions Triggering Accelerated Monitoring

i. Average Monthly Effluent Limitation Exceedance. If the results from two consecutive samples of a constituent monitored in a particular month exceed the average monthly effluent limitation for any parameter (or if the required sampling frequency is once per month or less and the monthly sample exceeds the average monthly effluent limitation), the Discharger shall, within 24 hours after the results are received, increase its sampling frequency to daily until the results from the additional sampling show that the parameter complies with the average monthly effluent limitation.

ii. Maximum Daily Effluent Limitation Exceedance. If a sample result exceeds a maximum daily effluent limitation, the Discharger shall, within 24 hours after the result is received, increase its sampling frequency to daily until the results from two samples collected on consecutive days show compliance with the maximum daily effluent limitation.

iii. Acute Toxicity. If final or intermediate results of an acute bioassay indicate a violation or threatened violation (e.g., the percentage of surviving test organisms of any single acute bioassay is less than 70 percent), the Discharger shall initiate a new test as soon as practical or as described in applicable State Water Board plan provisions that become effective after adoption of these Regional Standard Provisions. The Discharger shall investigate the cause of the mortalities and report its findings in the next self-monitoring report.

iv. Chlorine. The Discharger shall calibrate chlorine residual analyzers against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, the Discharger shall collect grab samples at least every 30 minutes until compliance with the limitation is achieved, unless the Discharger monitors chlorine residual continuously. In such cases, the Discharger shall continue to conduct continuous monitoring.

v. Bypass. Except as indicated below, if a Discharger bypasses any portion of its treatment facility, it shall monitor flows and collect samples at affected discharge points and analyze samples for all constituents with effluent limitations on a daily basis for the duration of the bypass. The Discharger need not accelerate chronic toxicity monitoring. The Discharger also need not collect and analyze samples for mercury, dioxin-TEQ, and PCBs after the first day of the bypass. The Discharger may

satisfy the accelerated acute toxicity monitoring requirement by conducting a flow-through test or static renewal test that captures the duration of the bypass (regardless of the method specified in the MRP). If bypassing disinfection units only, the Discharger shall only monitor bacteria indicators daily.

(a) Bypass for Essential Maintenance. If a Discharger bypasses a treatment unit for essential maintenance pursuant to Attachment D section I.G.2, the Executive Officer may reduce the accelerated monitoring requirements above if the Discharger (i) monitors effluent at affected discharge points on the first day of the bypass for all constituents with effluent limitations, except chronic toxicity; and (ii) identifies and implements measures to ensure that the bypass will continue to comply with effluent limitations.

(b) Approved Wet Weather Bypasses. If a Discharger bypasses a treatment unit or permitted outfall during wet weather with Executive Officer approval pursuant to Attachment D section I.G.4, the Discharger shall monitor flows and collect and retain samples for affected discharge points on a daily basis for the duration of the bypass. The Discharger shall analyze daily for TSS using 24-hour composites (or more frequent increments) and for bacteria indicators with effluent limitations using grab samples. If TSS exceeds 45 mg/L in any composite sample, the Discharger shall also analyze daily the retained samples for all other constituents with effluent limitations, except oil and grease, mercury, PCBs, dioxin-TEQ, and acute and chronic toxicity. Additionally, at least once each year, the Discharger shall analyze the retained samples for one approved bypass for all other constituents with effluent limitations, except oil and grease, mercury, PCBs, dioxin-TEQ, and acute and chronic toxicity. This monitoring shall be in addition to the minimum monitoring specified in the MRP.

B. Standard Observations – Addition to Attachment D

1. **Receiving Water Observations.** The following requirements only apply when the MRP requires standard observations of receiving waters. Standard observations shall include the following:

   a. **Floating and Suspended Materials** (e.g., oil, grease, algae, and other macroscopic particulate matter) **—** presence or absence, source, and size of affected area.

   b. **Discoloration and Turbidity —** color, source, and size of affected area.

   c. **Odor —** presence or absence, characterization, source, and distance of travel.

   d. **Beneficial Water Use —** estimated number of water-associated waterfowl or wildlife, fisherpeople, and other recreational activities.

   e. **Hydrographic Condition —** time and height of high and low tides (corrected to nearest National Oceanic and Atmospheric Administration location for the sampling date and time).

f. Weather Conditions — wind direction, air temperature, and total precipitation during five days prior to observation.

2. **Wastewater Effluent Observations.** The following requirements only apply when the MRP requires standard observations of wastewater effluent. Standard observations shall include the following:

   a. Floating and Suspended Material of Wastewater Origin (e.g., oil, grease, algae, and other macroscopic particulate matter) **—** presence or absence.

   b. Odor — presence or absence, characterization, source, distance of travel, and wind direction.

3. **Beach and Shoreline Observations.** The following requirements only apply when the MRP requires standard observations of beaches or shorelines. Standard observations shall include the following:

   a. Material of Wastewater Origin — presence or absence, description of material, estimated size of affected area, and source.

   b. Beneficial Use — estimate of number of people participating in recreational water contact, non-water contact, and fishing activities.

4. **Waste Treatment and/or Disposal Facility Periphery Observations.** The following requirements only apply when the MRP requires standard observations of the periphery of waste treatment or disposal facilities. Standard observations shall include the following:

   a. Odor — presence or absence, characterization, source, and distance of travel.

   b. Weather Conditions — wind direction and estimated velocity.

IV. STANDARD PROVISIONS – RECORDS

A. Records to be Maintained – Supplement to Attachment D, Provision IV.A

The Discharger shall maintain records in a manner and at a location (e.g., the wastewater treatment plant or the Discharger's offices) such that the records are accessible to Regional Water Board staff. The minimum retention period specified in Attachment D, Provision IV, shall be extended during the course of any unresolved litigation regarding permit-related discharges, or when requested by Regional Water Board or U.S. EPA, Region IX, staff.

A copy of the permit shall be maintained at the discharge facility and be available at all times to operating personnel.

B. Records of Monitoring – Supplement to Attachment D, Provision IV.B

Monitoring records shall include the following:

1. **Analytical Information.** Records shall include analytical method detection limits, minimum levels, reporting levels, and related quantification parameters.

2. **Disinfection Process.** For the disinfection process, records shall include the following:

   a. For bacteriological analyses:

      i. Wastewater flow rate at the time of sample collection; and

      ii. Required statistical parameters for cumulative bacterial values (e.g., moving median or geometric mean for the number of samples or sampling period identified in the MRP).

   b. For the chlorination process (when chlorine is used for disinfection), at least daily average values for the following:

      i. Chlorine residual of treated wastewater as it enters the chlorine contact basin (mg/L);

      ii. Chlorine dosage (kg/day); and

      iii. Dechlorination chemical dosage (kg/day).

3. **Wastewater Treatment Process Solids.** For each treatment unit process that involves solids removal from the wastewater stream, records shall include the following:

   a. Total volume or mass of solids removed from each collection unit (e.g., grit, skimmings, undigested biosolids, or combination) for each calendar month or other time period as appropriate, but not to exceed annually; and

   b. Final disposition of such solids (e.g., landfill, other subsequent treatment unit).

4. **Treatment Process Bypasses.** For all treatment process bypasses, including wet weather blending, records shall include the following:

   a. Chronological log of treatment process bypasses;

   b. Identification of treatment processes bypassed;

   c. Beginning and ending dates and times of bypasses;

   d. Bypass durations;

   e. Estimated bypass volumes; and

   f. Description of, or reference to other reports describing, the bypasses, their cause, the corrective actions taken (except for wet weather blending explicitly approved within the permit and in compliance with any related permit conditions), and any additional monitoring conducted.

5. **Treatment Plant Overflows.** The Discharger shall retain a chronological log of overflows at the treatment plant, including the headworks and all units and appurtenances downstream, and records supporting the information provided in accordance with Provision V.E.2, below.

C. Claims of Confidentiality – Not Supplemented

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information – Not Supplemented

B. Signatory and Certification Requirements – Not Supplemented

C. Monitoring Reports – Supplement to Attachment D, Provision V.C

1. Self-Monitoring Reports. For each reporting period established in the MRP, the Discharger shall submit a self-monitoring report to the Regional Water Board in accordance with the requirements listed in the MRP and below:

a. Transmittal Letter. Each self-monitoring report shall be submitted with a transmittal letter that includes the following:

i. Identification of all violations of effluent limitations or other waste discharge requirements found during the reporting period;

ii. Details regarding the violations, such as parameters, magnitude, test results, frequency, and dates;

iii. Causes of the violations;

iv. Corrective actions taken or planned to resolve violations and prevent recurrences, and dates or time schedules for implementation (the Discharger may refer to previously submitted reports that address the corrective actions);

v. Explanation for any data invalidation. Data should not be submitted in a self-monitoring report if it does not meet quality assurance/quality control standards. However, if the Discharger wishes to invalidate a measurement after submitting it in a self-monitoring report, the Discharger shall identify the measurement suspected to be invalid and state the Discharger's intent to submit, within 60 days, a formal request to invalidate the measurement. The formal request shall include the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports invalidation (e.g., laboratory sheet, log entry, test results), and a discussion of the corrective actions taken or planned (with a time schedule for completion) to prevent recurrence of the sampling or measurement problem;

vi. Description of blending, if any. If the Discharger blends, it shall describe the duration of blending events and certify whether the blending complied with all conditions for blending;

vii. Description of other bypasses, if any. If the Discharger bypasses any treatment units (other than blending), it shall describe the duration of the bypasses and effluent quality during those times; and

viii. Signature. The transmittal letter shall be signed in accordance with Attachment D, Provision V.B.

b. Compliance Evaluation Summary. Each self-monitoring report shall include a compliance evaluation summary that addresses each parameter for which the permit specifies effluent limitations, the number of samples taken during the monitoring period, and the number of samples that exceed the effluent limitations.

c. More Frequent Monitoring. If the Discharger monitors any pollutant more frequently than required by the MRP, the Discharger shall include the results of such monitoring in the calculation and reporting of the data submitted in the self-monitoring report.

d. Analysis Results

i. Tabulation. Each self-monitoring report shall include tabulations of all required analyses and observations, including parameters, dates, times, sample stations, types of samples, test results, method detection limits, method minimum levels, and method reporting levels (if applicable), signed by the laboratory director or other responsible official.

ii. Multiple Samples. Unless the MRP specifies otherwise, when determining compliance with effluent limitations (other than instantaneous effluent limitations) and more than one sample result is available, the Discharger shall compute the arithmetic mean. If the data set contains one or more results that are "Detected, but Not Quantified (DNQ) or "Not Detected" (ND), the Discharger shall instead compute the median in accordance with the following procedure:

(a) The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

(b) The median of the data set shall be determined. If the data set has an odd number of data points, the median is the middle value. If the data set has an even number of data points, the median is the average of the two values around the middle, unless one or both of these values is ND or DNQ, in which case the median shall be the lower of the two results (where DNQ is lower than a quantified value and ND is lower than DNQ).

iii. Duplicate Samples. The Discharger shall report the average of duplicate sample analyses when reporting for a single sample result (or the median if one or more of the duplicates is DNQ or ND [see Provision V.C.1.d.ii, above]). For bacteria indicators, the Discharger shall report the geometric mean of the duplicate analyses.

iv. Dioxin-TEQ. The Discharger shall report for each dioxin and furan congener the analytical results of effluent monitoring, including the reporting level, the method detection limit, and the measured concentration. The Discharger shall report all measured values of individual congeners, including data qualifiers. When calculating dioxin-TEQ, the Discharger shall set congener concentrations below the minimum levels (MLs) to zero. The Discharger shall calculate and report dioxin-TEQ using the

following formula, where the MLs, toxicity equivalency factors (TEFs), and bioaccumulation equivalency factors (BEFs) are as provided in Table A:

$$\text{Dioxin-TEQ} = \Sigma\ (C_x \times TEF_x \times BEF_x)$$

where: C_x = measured or estimated concentration of congener *x*
TEF_x = toxicity equivalency factor for congener *x*
BEF_x = bioaccumulation equivalency factor for congener *x*

Table A

Minimum Levels, Toxicity Equivalency Factors,
and Bioaccumulation Equivalency Factors

Dioxin or Furan Congener	Minimum Level (pg/L)	2005 Toxicity Equivalency Factor (TEF)	Bioaccumulation Equivalency Factor (BEF)
2,3,7,8-TCDD	10	1.0	1.0
1,2,3,7,8-PeCDD	50	1.0	0.9
1,2,3,4,7,8-HxCDD	50	0.1	0.3
1,2,3,6,7,8-HxCDD	50	0.1	0.1
1,2,3,7,8,9-HxCDD	50	0.1	0.1
1,2,3,4,6,7,8-HpCDD	50	0.01	0.05
OCDD	100	0.0003	0.01
2,3,7,8-TCDF	10	0.1	0.8
1,2,3,7,8-PeCDF	50	0.03	0.2
2,3,4,7,8-PeCDF	50	0.3	1.6
1,2,3,4,7,8-HxCDF	50	0.1	0.08
1,2,3,6,7,8-HxCDF	50	0.1	0.2
1,2,3,7,8,9-HxCDF	50	0.1	0.6
2,3,4,6,7,8-HxCDF	50	0.1	0.7
1,2,3,4,6,7,8-HpCDF	50	0.01	0.01
1,2,3,4,7,8,9-HpCDF	50	0.01	0.4
OCDF	100	0.0003	0.02

e. Results Not Yet Available. The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a timely manner. Certain analyses may require additional time to complete analytical processes and report results. In these cases, the Discharger shall describe the circumstances in the self-monitoring report and include the data for these parameters and relevant discussions of any violations in the next self-monitoring report due after the results are available.

f. Annual Self-Monitoring Reports. By the date specified in the MRP, the Discharger shall submit an annual self-monitoring report covering the previous calendar year. The report shall contain the following:

i. Comprehensive discussion of treatment plant performance, including documentation of any blending or other bypass events, and compliance with the permit. This discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance,

and any other actions taken or planned that are intended to improve the performance and reliability of wastewater collection, treatment, or disposal practices;

ii. List of approved analyses, including the following:

(a) List of analyses for which the Discharger is certified;

(b) List of analyses performed for the Discharger by a separate certified laboratory (copies of reports signed by the laboratory director of that laboratory need not be submitted but shall be retained onsite); and

(c) List of "waived" analyses, as approved;

iii. Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations; and

iv. Results of facility report reviews. The Discharger shall regularly review, revise, and update, as necessary, the Operation and Maintenance Manual, Contingency Plan, Spill Prevention Plan, and Wastewater Facilities Status Report so these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall describe or summarize its review and evaluation procedures, recommended or planned actions, and estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure that they remain up-to-date.

D. Compliance Schedules – Not supplemented

E. Twenty-Four Hour Reporting – Supplement to Attachment D, Provision V.E

1. Oil or Other Hazardous Material Spills

a. Within 24 hours of becoming aware of a spill of oil or other hazardous material not contained onsite and completely cleaned up, the Discharger shall report as follows:

i. If the spill exceeds reportable quantities for hazardous materials listed in 40 C.F.R. part 302. The Discharger shall call the California Office of Emergency Services (800-852-7550).

ii. If the spill does not exceed reportable quantities for hazardous materials listed in 40 C.F.R., part 302, the Discharger shall call the Regional Water Board (510-622-2369).

b. The Discharger shall submit a written report to the Regional Water Board within five working days following either of the above telephone notifications unless directed otherwise by Regional Water Board staff. A report submitted electronically is acceptable. The written report shall include the following:

i. Date and time of spill, and duration if known;

ii. Location of spill (street address or description of location);

iii. Nature of material spilled;

iv. Quantity of material spilled;

v. Receiving water body affected, if any;

vi. Cause of spill;

vii. Estimated size of affected area;

viii. Observed impacts to receiving waters (e.g., oil sheen, fish kill, water discoloration);

ix. Corrective actions taken to contain, minimize, or clean up the spill;

x. Future corrective actions planned to prevent recurrence, and implementation schedule; and

xi. Persons or agencies notified.

2. Unauthorized Municipal Wastewater Treatment Plant Discharges[1]

a. Two-Hour Notification. For any unauthorized discharge that enters a drainage channel or surface water, the Discharger shall, as soon as possible, but not later than two hours after becoming aware of the discharge, notify the California Office of Emergency Services (800-852-7550) and the local health officer or director of environmental health with jurisdiction over the affected water body. Notification shall include the following:

i. Incident description and cause;

ii. Location of threatened or involved waterways or storm drains;

iii. Date and time that the unauthorized discharge started;

iv. Estimated quantity and duration of the unauthorized discharge (to the extent known), and estimated amount recovered;

v. Level of treatment prior to discharge (e.g., raw wastewater, primary-treated wastewater, or undisinfected secondary-treated wastewater); and

vi. Identity of person reporting the unauthorized discharge.

[1] California Code of Regulations, Title 23, section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially-treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment, or disposal system.

b. Five-Day Written Report. Within five business days following the two-hour notification, the Discharger shall submit a written report that includes, in addition to the information listed in Provision V.E.2.a, above, the following:

i. Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;

ii. Efforts implemented to minimize public exposure to the unauthorized discharge;

iii. Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of receiving water) and extent of sampling if conducted;

iv. Corrective measures taken to minimize the impact of the unauthorized discharge;

v. Measures to be taken to minimize the potential for a similar unauthorized discharge in the future;

vi. Summary of Spill Prevention Plan or Operation and Maintenance Manual modifications to be made, if necessary, to minimize the potential for future unauthorized discharges; and

vii. Quantity and duration of the unauthorized discharge, and the amount recovered.

F. Planned Changes – Not supplemented

G. Anticipated Noncompliance – Not supplemented

H. Other Noncompliance – Not supplemented

I. Other Information – Not supplemented

VI. STANDARD PROVISION – ENFORCEMENT – Not Supplemented

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS – Not Supplemented

VIII. DEFINITIONS – Addition to Attachment D

More definitions can be found in Attachment A of this NPDES Permit.

A. Arithmetic Calculations

1. **Geometric Mean**. The antilog of the log mean or the back-transformed mean of the logarithmically transformed variables, which is equivalent to the multiplication of the antilogarithms. The geometric mean can be calculated with either of the following equations:

Geometric Mean $= Anti\log\left(\frac{1}{N}\sum_{i=1}^{N} Log(C_i)\right)$

or

Geometric Mean $= (C_1 \times C_2 \times \ldots \times C_N)^{1/N}$

Where "N" is the number of data points for the period analyzed and "C" is the concentration for each of the "N" data points.

2. **Mass Emission Rate.** The rate of discharge expressed in mass. The mass emission rate is obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.345}{N}\sum_{i=1}^{N} Q_i C_i$$

$$\text{Mass emission rate (kg/day)} = \frac{3.785}{N}\sum_{i=1}^{N} Q_i C_i$$

In which "N" is the number of samples analyzed in any calendar day and "Q_i" and "C_i" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" grab samples that may be taken in any calendar day. If a composite sample is taken, "C_i" is the concentration measured in the composite sample and "Q_i" is the average flow rate occurring during the period over which the samples are composited. The daily concentration of a constituent measured over any calendar day shall be determined from the flow-weighted average of the same constituent in the combined waste streams as follows:

$$C_d = \text{Average daily concentration} = \frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$$

In which "N" is the number of component waste streams and "Q" and "C" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" waste streams. "Q_t" is the total flow rate of the combined waste streams.

3. **Removal Efficiency.** The ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities (expressed as a percentage). The Discharger shall determine removal efficiencies using monthly averages (by calendar month unless otherwise specified) of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

   Removal Efficiency (%) = 100 × [1-(Effluent Concentration/Influent Concentration)]

B. Blending – the practice of bypassing biological treatment units and recombining the bypass wastewater with biologically-treated wastewater.

C. Composite Sample – a sample composed of individual grab samples collected manually or by an automatic sampling device on the basis of time or flow as specified in the MRP. For flow-based composites, the proportion of each grab sample included in the composite sample shall be within plus or minus five percent (+/-5%) of the representative flow of the waste stream being measured at the time of grab sample collection. Alternatively, equal volume grab samples may

be individually analyzed with the flow-weighted average calculated by averaging flow-weighted ratios of each grab sample analytical result. Grab samples comprising time-based composite samples shall be collected at intervals not greater than those specified in the MRP. The quantity of each grab sample comprising a time-based composite sample shall be a set of flow proportional volumes as specified in the MRP. If a particular time-based or flow-based composite sampling protocol is not specified in the MRP, the Discharger shall determine and implement the most representative protocol.

D. Duplicate Sample – a second sample taken from the same source and at the same time as an initial sample (such samples are typically analyzed identically to measure analytical variability).

E. Grab Sample – an individual sample collected during a short period not exceeding 15 minutes. Grab samples represent only the condition that exists at the time the sample is collected.

F. Overflow – the intentional or unintentional spilling or forcing out of untreated or partially-treated waste from a transport system (e.g., through manholes, at pump stations, or at collection points) upstream of the treatment plant headworks or from any part of a treatment plant.

G. Priority Pollutants – those constituents referred to in 40 C.F.R. part 122 as promulgated in the Federal Register, Vol. 65, No. 97, Thursday, May 18, 2000, also known as the California Toxics Rule.

H. Untreated waste – raw wastewater.

Table B

List of Monitoring Parameters and Analytical Methods

CTR No.	Pollutant/Parameter	Analytical Method[2]	Minimum Levels[3] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
1	Antimony	204.2					10	5	50	0.5	5	0.5		1000
2	Arsenic	206.3				20		2	10	2	2	1		1000
3	Beryllium						20	0.5	2	0.5	1			1000
4	Cadmium	200 or 213					10	0.5	10	0.25	0.5			1000
5a	Chromium (III)	SM 3500												
5b	Chromium (VI)	SM 3500				10	5							1000
	Chromium (total)[4]	SM 3500					50	2	10	0.5	1			1000
6	Copper	200.9					25	5	10	0.5	2			1000
7	Lead	200.9					20	5	5	0.5	2			10,000
8	Mercury	1631 (note)[5]												
9	Nickel	249.2					50	5	20	1	5			1000
10	Selenium	200.8 or SM 3114B or C						5	10	2	5	1		1000
11	Silver	272.2					10	1	10	0.25	2			1000
12	Thallium	279.2					10	2	10	1	5			1000
13	Zinc	200 or 289					20		20	1	10			
14	Cyanide	SM 4500 CN^- C or I				5								
15	Asbestos (only required for dischargers to MUN waters)[6]	0100.2 [7]												
16	2,3,7,8-TCDD and 17 congeners (Dioxin)	1613												
17	Acrolein	603	2.0	5										
18	Acrylonitrile	603	2.0	2										
19	Benzene	602	0.5	2										
33	Ethylbenzene	602	0.5	2										
39	Toluene	602	0.5	2										
20	Bromoform	601	0.5	2										
21	Carbon Tetrachloride	601	0.5	2										
22	Chlorobenzene	601	0.5	2										
23	Chlorodibromomethane	601	0.5	2										
24	Chloroethane	601	0.5	2										
25	2-Chloroethylvinyl Ether	601	1	1										
26	Chloroform	601	0.5	2										

[2] The suggested method is the U.S. EPA Method unless otherwise specified (SM = Standard Methods). The Discharger may use another U.S. EPA-approved or recognized method if that method has a level of quantification below the applicable water quality objective. Where no method is suggested, the Discharger has the discretion to use any standard method.

[3] Minimum levels are from the *State Implementation Policy*. They are the concentration of the lowest calibration standard for that technique based on a survey of contract laboratories. Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., U.S. EPA 200.9); Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; DCP = Direct Current Plasma.

[4] Analysis for total chromium may be substituted for analysis of chromium (III) and chromium (VI) if the concentration measured is below the lowest hexavalent chromium criterion (11 ug/l).

[5] The Discharger shall use ultra-clean sampling (U.S. EPA Method 1669) and ultra-clean analytical methods (U.S. EPA Method 1631) for mercury monitoring. The minimum level for mercury is 2 ng/l (or 0.002 ug/l).

[6] MUN = Municipal and Domestic Supply. This designation, if applicable, is in the Findings of the permit.

[7] Determination of Asbestos Structures over 10 [micrometers] in Length in Drinking Water Using MCE Filters, U.S. EPA 600/R-94-134, June 1994.

CTR No.	Pollutant/Parameter	Analytical Method[2]	Minimum Levels[3] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
75	1,2-Dichlorobenzene	601	0.5	2										
76	1,3-Dichlorobenzene	601	0.5	2										
77	1,4-Dichlorobenzene	601	0.5	2										
27	Dichlorobromomethane	601	0.5	2										
28	1,1-Dichloroethane	601	0.5	1										
29	1,2-Dichloroethane	601	0.5	2										
30	1,1-Dichloroethylene or 1,1-Dichloroethene	601	0.5	2										
31	1,2-Dichloropropane	601	0.5	1										
32	1,3-Dichloropropylene or 1,3-Dichloropropene	601	0.5	2										
34	Methyl Bromide or Bromomethane	601	1.0	2										
35	Methyl Chloride or Chloromethane	601	0.5	2										
36	Methylene Chloride or Dichloromethane	601	0.5	2										
37	1,1,2,2-Tetrachloroethane	601	0.5	1										
38	Tetrachloroethylene	601	0.5	2										
40	1,2-Trans-Dichloroethylene	601	0.5	1										
41	1,1,1-Trichloroethane	601	0.5	2										
42	1,1,2-Trichloroethane	601	0.5	2										
43	Trichloroethene	601	0.5	2										
44	Vinyl Chloride	601	0.5	2										
45	2-Chlorophenol	604	2	5										
46	2,4-Dichlorophenol	604	1	5										
47	2,4-Dimethylphenol	604	1	2										
48	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	604	10	5										
49	2,4-Dinitrophenol	604	5	5										
50	2-Nitrophenol	604		10										
51	4-Nitrophenol	604	5	10										
52	3-Methyl-4-Chlorophenol	604	5	1										
53	Pentachlorophenol	604	1	5										
54	Phenol	604	1	1		50								
55	2,4,6-Trichlorophenol	604	10	10										
56	Acenaphthene	610 HPLC	1	1	0.5									
57	Acenaphthylene	610 HPLC		10	0.2									
58	Anthracene	610 HPLC		10	2									
60	Benzo(a)Anthracene or 1,2 Benzanthracene	610 HPLC	10	5										
61	Benzo(a)Pyrene	610 HPLC		10	2									
62	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene	610 HPLC		10	10									
63	Benzo(ghi)Perylene	610 HPLC		5	0.1									
64	Benzo(k)Fluoranthene	610 HPLC		10	2									
74	Dibenzo(a,h)Anthracene	610 HPLC		10	0.1									
86	Fluoranthene	610 HPLC	10	1	0.05									
87	Fluorene	610 HPLC		10	0.1									
92	Indeno(1,2,3-cd) Pyrene	610 HPLC		10	0.05									
100	Pyrene	610 HPLC		10	0.05									
68	Bis(2-Ethylhexyl)Phthalate	606 or 625	10	5										
70	Butylbenzyl Phthalate	606 or 625	10	10										
79	Diethyl Phthalate	606 or 625	10	2										

CTR No.	Pollutant/Parameter	Analytical Method[2]	Minimum Levels[3] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
80	Dimethyl Phthalate	606 or 625	10	2										
81	Di-n-Butyl Phthalate	606 or 625		10										
84	Di-n-Octyl Phthalate	606 or 625		10										
59	Benzidine	625		5										
65	Bis(2-Chloroethoxy)Methane	625		5										
66	Bis(2-Chloroethyl)Ether	625	10	1										
67	Bis(2-Chloroisopropyl)Ether	625	10	2										
69	4-Bromophenyl Phenyl Ether	625	10	5										
71	2-Chloronaphthalene	625		10										
72	4-Chlorophenyl Phenyl Ether	625		5										
73	Chrysene	625		10	5									
78	3,3'-Dichlorobenzidine	625		5										
82	2,4-Dinitrotoluene	625	10	5										
83	2,6-Dinitrotoluene	625		5										
85	1,2-Diphenylhydrazine (note)[8]	625		1										
88	Hexachlorobenzene	625	5	1										
89	Hexachlorobutadiene	625	5	1										
90	Hexachlorocyclopentadiene	625	5	5										
91	Hexachloroethane	625	5	1										
93	Isophorone	625	10	1										
94	Naphthalene	625	10	1	0.2									
95	Nitrobenzene	625	10	1										
96	N-Nitrosodimethylamine	625	10	5										
97	N-Nitrosodi-n-Propylamine	625	10	5										
98	N-Nitrosodiphenylamine	625	10	1										
99	Phenanthrene	625		5	0.05									
101	1,2,4-Trichlorobenzene	625	1	5										
102	Aldrin	608	0.005											
103	α-BHC	608	0.01											
104	β-BHC	608	0.005											
105	γ-BHC (Lindane)	608	0.02											
106	δ-BHC	608	0.005											
107	Chlordane	608	0.1											
108	4,4'-DDT	608	0.01											
109	4,4'-DDE	608	0.05											
110	4,4'-DDD	608	0.05											
111	Dieldrin	608	0.01											
112	Endosulfan (alpha)	608	0.02											
113	Endosulfan (beta)	608	0.01											
114	Endosulfan Sulfate	608	0.05											
115	Endrin	608	0.01											
116	Endrin Aldehyde	608	0.01											
117	Heptachlor	608	0.01											
118	Heptachlor Epoxide	608	0.01											
119-125	PCBs: Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	608	0.5											
126	Toxaphene	608	0.5											

[8] Measurement for 1,2-Diphenylhydrazine may use azobenzene as a screen: if azobenzene is measured at >1 ug/l, then the Discharger shall analyze for 1,2-Diphenylhydrazine.

ATTACHMENT H – PRETREATMENT REQUIREMENTS

CALIFORNIA REGIONAL WATER QUALITY CONTROL
BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT H
PRETREATMENT PROGRAM PROVISIONS

For

NPDES POTW WASTEWATER DISCHARGE PERMITS

March 2011
(Corrected May 2011)

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Attachment H: Pretreatment Program Provisions

A. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 C.F.R. 403, including any regulatory revisions to Part 403. Where a Part 403 revision is promulgated after the effective date of the Discharger's permit and places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within six months from the issuance date of this permit or six months from the effective date of the Part 403 revisions, whichever comes later.

(If the Discharger cannot complete the required actions within the above six-month period due to the need to process local adoption of sewer use ordinance modifications or other substantial pretreatment program modifications, the Discharger shall notify the Executive Officer in writing at least 60 days prior to the six-month deadline. The written notification shall include a summary of completed required actions, an explanation for why the six month deadline cannot be met, and a proposed timeframe to complete the rest of the required actions as soon as practical but not later than within twelve months of the issuance date of this permit or twelve months of the effective date of the Part 403 revisions, whichever comes later. The Executive Officer will notify the Discharger in writing within 30 days of receiving the request if the extension is not approved.)

The United States Environmental Protection Agency (U.S. EPA), the State and/or other appropriate parties may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the Clean Water Act (Act).

B. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d) and 402(b) of the Act with timely, appropriate and effective enforcement actions. The Discharger shall cause nondomestic users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.

C. The Discharger shall perform the pretreatment functions as required in 40 C.F.R. 403 and amendments or modifications thereto including, but not limited to:

1. Implement the necessary legal authorities to fully implement the pretreatment regulations as provided in 40 C.F.R. 403.8(f)(1);

2. Implement the programmatic functions as provided in 40 C.F.R. 403.8(f)(2);

3. Publish an annual list of nondomestic users in significant noncompliance as provided per 40 C.F.R. 403.8(f)(2)(viii);

4. Provide for the requisite funding and personnel to implement the pretreatment program as provided in 40 C.F.R. 403.8(f)(3); and

5. Enforce the national pretreatment standards for prohibited discharges and categorical standards as provided in 40 C.F.R. 403.5 and 403.6, respectively.

D. The Discharger shall submit annually a report to U.S. EPA Region IX, the State Water Board and the Regional Water Board describing its pretreatment program activities over the previous calendar year. In the event that the Discharger is not in compliance with any conditions or requirements of the Pretreatment Program, the Discharger shall also include the reasons for noncompliance and a plan and schedule for achieving compliance. The report shall contain, but is not limited to, the information specified in Appendix H-1 entitled, "Requirements for Pretreatment Annual Reports." The annual report is due each year on February 28.

E. The Discharger shall submit a pretreatment semiannual report to U.S. EPA Region IX, the State Water Board and the Regional Water Board describing the status of its significant industrial users (SIUs). The report shall contain, but is not limited to, information specified in Appendix H-2 entitled, "Requirements for Pretreatment Semiannual Reports." The semiannual report is due July 31 for the period January through June. The information for the period July through December of each year shall be included in the Annual Report identified in Appendix H-1. The Executive Officer may exempt the Discharger from the semiannual reporting requirements on a case by case basis subject to State Water Board and U.S. EPA's comment and approval.

F. The Discharger shall conduct the monitoring of its treatment plant's influent, effluent, and sludge (biosolids) as described in Appendix H-4 entitled, "Requirements for Influent, Effluent and Sludge (Biosolids) Monitoring." (The term "biosolids," as used in this Attachment, shall have the same meaning as wastewater treatment plant "sludge" and will be used from this point forward.) The Discharger shall evaluate the results of the sampling and analysis during the preparation of the semiannual and annual reports to identify any trends. Signing the certification statement used to transmit the reports shall be deemed to certify the Discharger has completed this data evaluation. A tabulation of the data shall be included in the pretreatment annual report as specified in Appendix H-4. The Executive Officer may require more or less frequent monitoring on a case by case basis.

APPENDIX H-1

REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS

The Pretreatment Annual Report is due each year on February 28 and shall contain activities conducted during the previous calendar year. The purpose of the Annual Report is to:

- Describe the status of the Discharger's pretreatment program; and
- Report on the effectiveness of the program, as determined by comparing the results of the preceding year's program implementation.

The report shall contain, at a minimum, the following information:

A. Cover Sheet

The cover sheet shall include:

1. The name(s) and National Pollutant Discharge Elimination Discharge System (NPDES) permit number(s) of the Discharger(s) that is part of the Pretreatment Program;

2. The name, address and telephone number of a pretreatment contact person;

3. The period covered in the report;

4. A statement of truthfulness; and

5. The dated signature of a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for overall operation of the Publicly Owned Treatment Works (POTW) (40 C.F.R. 403.12(m)).

B. Introduction

This section shall include:

1. Any pertinent background information related to the Discharger and/or the nondomestic user base of the area;

2. List of applicable interagency agreements used to implement the Discharger's pretreatment program (e.g., Memoranda of Understanding (MOU) with satellite sanitary sewer collection systems); and

3. A status summary of the tasks required by a Pretreatment Compliance Inspection (PCI), Pretreatment Compliance Audit (PCA), Cleanup and Abatement Order (CAO), or other pretreatment-related enforcement actions required by the Regional Water Board or the U.S. EPA. A more detailed discussion can be referenced and included in the section entitled, "Program Changes," if needed.

C. Definitions

This section shall include a list of key terms and their definitions that the Discharger uses to describe or characterize elements of its pretreatment program, or the Discharger may provide a reference to its website if the applicable definitions are available on-line.

D. Discussion of Upset, Interference and Pass Through

This section shall include a discussion of Upset, Interference or Pass Through incidents, if any, at the Discharger's treatment plant(s) that the Discharger knows of or suspects were caused by nondomestic user discharges. Each incident shall be described, at a minimum, consisting of the following information:

1. A description of what occurred;
2. A description of what was done to identify the source;
3. The name and address of the nondomestic user responsible;
4. The reason(s) why the incident occurred;
5. A description of the corrective actions taken; and
6. An examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing requirements may be necessary to prevent other Upset, Interference or Pass Through incidents.

E. Influent, Effluent and Biosolids Monitoring Results

The Discharger shall evaluate the influent, effluent and biosolids monitoring results as specified in Appendix H-4 in preparation of this report. The Discharger shall retain the analytical laboratory reports with the Quality Assurance and Quality Control (QA/QC) data validation and make these reports available upon request.

This section shall include:

1. Description of the sampling procedures and an analysis of the results (see Appendix H-4 for specific requirements);
2. Tabular summary of the compounds detected (compounds measured above the detection limit for the analytical method used) for the monitoring data generated during the reporting year as specified in Appendix H-4;
3. Discussion of the investigation findings into any contributing sources of the compounds that exceed NPDES limits; and
4. Graphical representation of the influent and effluent metal monitoring data for the past five years with a discussion of any trends.

F. Inspection, Sampling and Enforcement Programs

This section shall include at a minimum the following information:

1. Inspections: Summary of the inspection program (e.g., criteria for determining the frequency of inspections and inspection procedures);

2. Sampling Events: Summary of the sampling program (e.g., criteria for determining the frequency of sampling and chain of custody procedures); and

3. Enforcement: Summary of Enforcement Response Plan (ERP) implementation including dates for adoption, last revision and submission to the Regional Water Board.

G. Updated List of Regulated SIUs

This section shall contain a list of all of the federal categories that apply to SIUs regulated by the Discharger. The specific categories shall be listed including the applicable 40 C.F.R. subpart and section, and pretreatment standards (both maximum and average limits). Local limits developed by the Discharger shall be presented in a table including the applicability of the local limits to SIUs. If local limits do not apply uniformly to SIUs, specify the applicability in the tables listing the categorical industrial users (CIUs) and non-categorical SIUs. Tables developed in Sections 7A and 7B can be used to present or reference this information.

1. CIUs - Include a table that alphabetically lists the CIUs regulated by the Discharger as of the end of the reporting period. This list shall include:

   a. Name;

   b. Address;

   c. Applicable federal category(ies);

   d. Reference to the location where the applicable Federal Categorical Standards are presented in the report;

   e. Identify all deletions and additions keyed to the list submitted in the previous annual report. All deletions shall be briefly explained (e.g., closure, name change, ownership change, reclassification, declassification); and

   f. Information, calculations and data used to determine the limits for those CIUs for which a combined waste stream formula is applied.

2. Non-categorical SIUs - Include a table that alphabetically lists the SIUs not subject to any federal categorical standards that were regulated by the Discharger as of the end of the reporting period. This list shall include:

   a. Name;

b. Address;

c. A brief description of the type of business;

d. Identify all deletions and additions keyed to the list submitted in the previous annual report. All deletions shall be briefly explained (e.g., closure, name change, ownership change, reclassification, declassification); and

e. Indicate the applicable discharge limits (e.g., different from local limits) to which the SIUs are subject and reference to the location where the applicable limits (e.g., local discharge limits) are presented in the report.

H. SIU (categorical and non-categorical) Compliance Activities

The information required in this section may be combined in the table developed in Section 7 above.

1. **Inspection and Sampling Summary:** This section shall contain a summary of all the SIU inspections and sampling activities conducted by the Discharger and sampling activities conducted by the SIU over the reporting year to gather information and data regarding SIU compliance. The summary shall include:

   a. The number of inspections and sampling events conducted for each SIU by the Discharger;

   b. The number of sampling events conducted by the SIU. Identify SIUs that are operating under an approved Total Toxic Organic Management Plan;

   c. The quarters in which the above activities were conducted; and

   d. The compliance status of each SIU, delineated by quarter, and characterized using all applicable descriptions as given below:

      (1) Consistent compliance;

      (2) Inconsistent compliance;

      (3) Significant noncompliance;

      (4) On a compliance schedule to achieve compliance (include the date final compliance is required);

      (5) Not in compliance and not on a compliance schedule; and

      (6) Compliance status unknown, and why not.

2. **Enforcement Summary:** This section shall contain a summary of SIU compliance and enforcement activities during the reporting year. The summary may be included in the summary

table developed in section 8A and shall include the names and addresses of all SIUs affected by the actions identified below. For each notice specified in enforcement action "i" through "iv," indicate whether it was for an infraction of a federal or local standard/limit or requirement.

a. Warning letters or notices of violations regarding SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

b. Administrative Orders regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

c. Civil actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

d. Criminal actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

e. Assessment of monetary penalties. Identify the amount of penalty in each case and reason for assessing the penalty;

f. Order to restrict/suspend discharge to the Discharger; and

g. Order to disconnect the discharge from entering the Discharger.

3. July-December Semiannual Data: For SIU violations/noncompliance during the semiannual reporting period from July 1 through December 31, provide the following information:

a. Name and facility address of the SIU;

b. Indicate if the SIU is subject to Federal Categorical Standards; if so, specify the category including the subpart that applies;

c. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard;

d. Indicate the compliance status of the SIU for the two quarters of the reporting period; and

e. For violations/noncompliance identified in the reporting period, provide:

(1) The date(s) of violation(s);

(2) The parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters; and

(3) A brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

I. Baseline Monitoring Report Update

This section shall provide a list of CIUs added to the pretreatment program since the last annual report. This list of new CIUs shall summarize the status of the respective Baseline Monitoring Reports (BMR). The BMR must contain the information specified in 40 C.F.R. 403.12(b). For each new CIU, the summary shall indicate when the BMR was due; when the CIU was notified by the Discharger of this requirement; when the CIU submitted the report; and/or when the report is due.

J. Pretreatment Program Changes

This section shall contain a description of any significant changes in the Pretreatment Program during the past year including, but not limited to:

1. Legal authority;
2. Local limits;
3. Monitoring/ inspection program and frequency;
4. Enforcement protocol;
5. Program's administrative structure;
6. Staffing level;
7. Resource requirements;
8. Funding mechanism;
9. If the manager of the Discharger's pretreatment program changed, a revised organizational chart shall be included; and
10. If any element(s) of the program is in the process of being modified, this intention shall also be indicated.

K. Pretreatment Program Budget

This section shall present the budget spent on the Pretreatment Program. The budget, either by the calendar or fiscal year, shall show the total expenses required to implement the pretreatment program. A brief discussion of the source(s) of funding shall be provided. In addition, the Discharger shall make available upon request specific details on its pretreatment program expense amounts such as for personnel, equipment, and chemical analyses.

L. Public Participation Summary

This section shall include a copy of the public notice as required in 40 C.F.R. 403.8(f)(2)(viii). If a notice was not published, the reason shall be stated.

M. Biosolids Storage and Disposal Practice

This section shall describe how treated biosolids are stored and ultimately disposed. If a biosolids storage area is used, it shall be described in detail including its location, containment features and biosolids handling procedures.

N. Other Pollutant Reduction Activities

This section shall include a brief description of any programs the Discharger implements to reduce pollutants from nondomestic users that are not classified as SIUs. If the Discharger submits any of this program information in an Annual Pollution Prevention Report, reference to this other report shall satisfy this reporting requirement.

O. Other Subjects

Other information related to the Pretreatment Program that does not fit into any of the above categories should be included in this section.

P. Permit Compliance System (PCS) Data Entry Form

The annual report shall include the PCS Data Entry Form. This form shall summarize the enforcement actions taken against SIUs in the past year. This form shall include the following information:

1. Discharger's name,
2. NPDES Permit number,
3. Period covered by the report,
4. Number of SIUs in significant noncompliance (SNC) that are on a pretreatment compliance schedule,
5. Number of notices of violation and administrative Orders issued against SIUs,
6. Number of civil and criminal judicial actions against SIUs,
7. Number of SIUs that have been published as a result of being in SNC, and
8. Number of SIUs from which penalties have been collected.

APPENDIX H-2

REQUIREMENTS FOR JANUARY-JUNE PRETREATMENT SEMIANNUAL REPORT

The pretreatment semiannual report is due on July 31 for pretreatment program activities conducted from January through June unless an exception has been granted by the Regional Water Board's Executive Officer (e.g., pretreatment programs without any SIUs may qualify for an exception to the pretreatment semiannual report). Pretreatment activities conducted from July through December of each year shall be included in the Pretreatment Annual Report as specified in Appendix H-1. The pretreatment semiannual report shall contain, at a minimum the following information:

A. Influent, Effluent and Biosolids Monitoring

The influent, effluent and biosolids monitoring results shall be evaluated in preparation of this report. The Discharger shall retain analytical laboratory reports with the QA/QC data validation and make these reports available upon request. The Discharger shall also make available upon request a description of its influent, effluent and biosolids sampling procedures. Violations of any parameter that exceed NPDES limits shall be identified and reported. The contributing source(s) of the parameters that exceed NPDES limits shall be investigated and discussed.

B. Significant Industrial User Compliance Status

This section shall contain a list of all SIUs that were not in consistent compliance with all pretreatment standards/limits or requirements for the reporting period. For the reported SIUs, the compliance status for the previous semiannual reporting period shall be included. Once the SIU has determined to be out of compliance, the SIU shall be included in subsequent reports until consistent compliance has been achieved. A brief description detailing the actions that the SIU undertook to come back into compliance shall be provided.

For each SIU on the list, the following information shall be provided:

1. Name and facility address of the SIU;

2. Indicate if the SIU is subject to Federal Categorical Standards; if so, specify the category including the subpart that applies;

3. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard;

4. Indicate the compliance status of the SIU for the two quarters of the reporting period; and

5. For violations/noncompliance identified in the reporting period, provide:

    a. The date(s) of violation(s);

    b. The parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters; and

c. A brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

C. Discharger's Compliance with Pretreatment Program Requirements

This section shall contain a discussion of the Discharger's compliance status with the Pretreatment Program Requirements as indicated in the latest Pretreatment Compliance Audit (PCA) Report or Pretreatment Compliance Inspection (PCI) Report. It shall contain a summary of the following information:

1. Date of latest PCA or PCI report;

2. Date of the Discharger's response;

3. List of unresolved issues; and

4. Plan(s) and schedule for resolving the remaining issues.

APPENDIX H-3

SIGNATURE REQUIREMENTS FOR PRETREATMENT ANNUAL AND SEMIANNUAL REPORTS

The pretreatment annual and semiannual reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Discharger [POTW - 40 C.F.R. 403.12(m)]. Signed copies of the reports shall be submitted to the State Water Board and the Regional Water Board through the electronic self-monitoring report (eSMR) module of the California Integrated Water Quality System (CIWQS). Signed copies of the reports shall also be submitted electronically to U.S. EPA at R9Pretreatment@epa.gov or as instructed otherwise.

APPENDIX H-4

REQUIREMENTS FOR INFLUENT, EFFLUENT AND BIOSOLIDS MONITORING

The Discharger shall conduct sampling of its treatment plant's influent, effluent and biosolids at the frequency shown in **the pretreatment requirements table** of the Monitoring and Reporting Program (MRP, Attachment E). When sampling periods coincide, one set of test results, reported separately, may be used for those parameters that are required to be monitored by both the influent and effluent monitoring requirements of the MRP and the Pretreatment Program. The Pretreatment Program monitoring reports as required in Appendices H-1 and H-2 shall be transmitted to the Pretreatment Program Coordinator.

A. Reduction of Monitoring Frequency

The minimum frequency of Pretreatment Program influent, effluent, and biosolids monitoring shall be dependent on the number of SIUs identified in the Discharger's Pretreatment Program as indicated in Table H-1.

Table H-1: Minimum Frequency of Pretreatment Program Monitoring	
Number of SIUs	Minimum Frequency
< 5	Once every five years
> 5 and < 50	Once every year
> 50	Twice per year

If the Discharger's required monitoring frequency is greater than the minimum specified in Table H-1, the Discharger may request a reduced monitoring frequency for that constituent(s) as part of its application for permit reissuance if it meets the following criteria:

The monitoring data for the constituent(s) consistently show non-detect (ND) levels for the effluent monitoring and very low (i.e., near ND) levels for influent and biosolids monitoring for a minimum of eight previous years' worth of data.

The Discharger's request shall include tabular summaries of the data and a description of the trends in the industrial, commercial, and residential customers in the Discharger's service area that demonstrate control over the sources of the constituent(s). The Regional Water Board may grant a reduced monitoring frequency in the reissued permit after considering the information provided by the Discharger and any other relevant information.

B. Influent and Effluent Monitoring

The Discharger shall monitor for the parameters using the required sampling and test methods listed in **the pretreatment table** of the MRP. Any test method substitutions must have received prior written Executive Officer approval. Influent and effluent sampling locations shall be the same as those sites specified in the MRP.

The influent and effluent samples should be taken at staggered times to account for treatment plant detention time. Appropriately staggered sampling is considered consistent with the requirement for collection of effluent samples coincident with influent samples in Section III.A.3.a(2) of Attachment D. All samples must be representative of daily operations. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 C.F.R. 136 and amendments thereto. For effluent monitoring, the reporting limits for the individual parameters shall be at or below the minimum levels (MLs) as stated in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) [also known as the State Implementation Policy (SIP)]; any revisions to the MLs shall be adhered to. If a parameter does not have a stated ML, then the Discharger shall conduct the analysis using the lowest commercially available and reasonably achievable detection levels.

The following report elements should be used to submit the influent and effluent monitoring results. A similarly structured format may be used but will be subject to Regional Water Board approval. The monitoring reports shall be submitted with the Pretreatment Annual Report identified in Appendix H-1.

1. Sampling Procedures, Sample Dechlorination, Sample Compositing, and Data Validation (applicable quality assurance/quality control) shall be performed in accordance with the techniques prescribed in 40 C.F.R. 136 and amendments thereto. The Discharger shall make available upon request its sampling procedures including methods of dechlorination, compositing, and data validation.

2. A tabulation of the test results for the detected parameters shall be provided.

3. Discussion of Results – The report shall include a complete discussion of the test results for the detected parameters. If any pollutants are detected in sufficient concentration to upset, interfere or pass through plant operations, the type of pollutant(s) and potential source(s) shall be noted, along with a plan of action to control, eliminate, and/or monitor the pollutant(s). Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

C. Biosolids Monitoring

Biosolids should be sampled in a manner that will be representative of the biosolids generated from the influent and effluent monitoring events except as noted in (3. below. The same parameters required for influent and effluent analysis shall be included in the biosolids analysis. The biosolids analyzed shall be a composite sample of the biosolids for final disposal consisting of:

1. Biosolids lagoons – 20 grab samples collected at representative equidistant intervals (grid pattern) and composited as a single grab, or

2. Dried stockpile – 20 grab samples collected at various representative locations and depths and composited as a single grab, or

3. Dewatered biosolids - daily composite of 4 representative grab samples each day for 5 days taken at equal intervals during the daily operating shift taken from a) the dewatering units or b) each truckload, and shall be combined into a single 5- day composite.

The U.S. EPA manual, POTW Sludge Sampling and Analysis Guidance Document, August 1989, containing detailed sampling protocols specific to biosolids is recommended as a guidance for sampling procedures. The U.S. EPA manual Analytical Methods of the National Sewage Sludge Survey, September 1990, containing detailed analytical protocols specific to biosolids, is recommended as a guidance for analytical methods.

In determining if the biosolids are a hazardous waste, the Discharger shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3, "Characteristics of Hazardous Waste," of Title 22, California Code of Regulations, sections 66261.10 to 66261.24 and all amendments thereto.

The following report elements should be used to submit the biosolids monitoring results. A similarly structured form may be used but will be subject to Regional Water Board approval. The results shall be submitted with the Pretreatment Annual Report identified in Appendix H-1.

- Sampling Procedures and Data Validation (applicable quality assurance/quality control) shall be performed in accordance with the techniques prescribed in 40 C.F.R. 136 and amendments thereto. The Discharger shall make available upon request its biosolids sampling procedures and data validation methods.

- Test Results – Tabulate the test results for the detected parameters and include the percent solids.

- Discussion of Results – Include a complete discussion of test results for the detected parameters. If the detected pollutant(s) is reasonably deemed to have an adverse effect on biosolids disposal, a plan of action to control, eliminate, and/or monitor the pollutant(s) and the known or potential source(s) shall be included. Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

The Discharger shall also provide a summary table presenting any influent, effluent or biosolids monitoring data for non-priority pollutants that the Discharger believes may be causing or contributing to interference, pass through or adversely impacting biosolids quality.

EXHIBIT 6

CALIFORNIA Water Boards

EDMUND G. BROWN JR. GOVERNOR

MATTHEW RODRIQUEZ SECRETARY FOR ENVIRONMENTAL PROTECTION

San Francisco Bay Regional Water Quality Control Board

ORDER No. R2-2013-0029
NPDES No. CA0037664

The following discharger is subject to waste discharge requirements (WDRs) set forth in this Order.

Table 1. Discharger Information

Discharger	City and County of San Francisco
Facility Name	Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities, and Wastewater Collection System
Facility Address	San Francisco Public Utilities Commission / Wastewater Enterprise 750 Phelps Street San Francisco, CA 94124
CIWQS Place Number	256499

Table 2. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
Treatment Plant Discharge Points				
001 (Pier 80 Outfall)	Secondary-treated effluent (dry weather); Primary-treated and secondary-treated effluent (wet weathter)	37.749444	-122.372778	Lower San Francisco Bay
002 (Quint Street Outfall)	Secondary-treated effluent (wet weathter)	37.747222	-122.386944	Islais Creek
003 and 004 (Pier 33 Outfall)	Primary-treated effluent (wet weathter)	37.806944	-122.403056	Central San Francisco Bay
005 and 006 (Pier 35 Outfall)	Primary-treated effluent (wet weathter)	37.810000	-122.405556	Central San Francisco Bay
Combined Sewer Discharge Points				
009 (Baker Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.808056	-122.446667	Marina Beach North Shore Drainage Basin
010 (Pierce Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.806944	-122.440000	Marina Beach North Shore Drainage Basin
011 (Laguna Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.811667	-122.43189	Yacht Harbor #2 North Shore Drainage Basin

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
013 (Beach Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.808333	-122.406667	Pier 39 North Shore Drainage Basin
015 (Sansome Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.806667	-122.403056	Pier 31 North Shore Drainage Basin
017 (Jackson Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.798333	-122.39472	Pier 3 North Shore Drainage Basin
018 (Howard Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.793056	-122.390000	Pier 14 Central Drainage Basin
019 (Brannan Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.785278	-122.373333	Pier 32 Central Drainage Basin
022 (Third Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.777222	-122.389444	Mission Creek Central Drainage Basin
023 (Fourth Street North Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.775556	-122.391389	Mission Creek Central Drainage Basin
024 (Fifth Street North Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.773889	-122.393889	Mission Creek Central Drainage Basin
025 (Sixth Street North Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.771944	-122.396111	Mission Creek Central Drainage Basin
026 (Division Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.770278	-122.397500	Mission Creek Central Drainage Basin
027 (Sixth Street South Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.771389	-122.395000	Mission Creek Central Drainage Basin
028 (Fourth Street South Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.775000	-122.391111	Mission Creek Central Drainage Basin
029 (Mariposa Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37764722	-122.385278	Central Basin Central Drainage Basin
030 (20th Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.761111	-122.380000	Central Basin Central Drainage Basin
030A (22nd Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.757778	-122.380278	Central Basin Central Drainage Basin
031 (Third Street North	Equivalent-to-primary-treated effluent (wet weathter)	37.747778	-122.386111	Islais Creek Central Drainage Basin

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
031A (Islais Creek North Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.747778	-122.387500	Islais Creek Central Drainage Basin
032 (Marin Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.748611	-122.390833	Islais Creek Central Drainage Basin
033 (Selby Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.747778	-122.390833	Islais Creek Central Drainage Basin
035 Third Street South Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.747222	-122.386111	Islais Creek Central Drainage Basin
037 (Evans Avenue Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.735833	-122.373889	India Basin Southeast Drainage Basin
038 (Hudson Avenue Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.733333	-122.373839	India Basin Southeast Drainage Basin
040 (Griffith Street South Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.723056	-122.382222	Yosemite Creek Southeast Drainage Basin
041 (Yosemite Avenue Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.723889	-122.385556	Yosemite Creek Southeast Drainage Basin
042 (Fitch Street Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.722222	-122.381944	South Basin Southeast Drainage Basin
043 (Sunnydale Avenue Outfall)	Equivalent-to-primary-treated effluent (wet weathter)	37.747222	-122.386944	Candlestick Cove Southeast Drainage Basin

Table 3. Administrative Information

This Order was adopted on:	August 14, 2013
This Order shall become effective on:	October 1, 2013
This Order shall expire on:	September 30, 2018
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with California Code of Regulations, title 23, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	March 30, 2018
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, San Francisco Bay Region, have classified this discharge as follows:	Major

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on the date indicated above.

_____

Bruce H. Wolfe**,** Executive Officer

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I. FACILITY INFORMATION

Information describing the Southeast Water Pollution Control Plant (Southeast Plant), North Point Wet Weather Facility (North Point Facility), Bayside Wet Weather Facilities, and Wastewater Collection System (collectively, the Facility) is summarized in Table 1 and in Fact Sheet (Attachment F) sections I and II.

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board), finds:

A. Legal Authorities. This Order serves as WDRs pursuant to California Water Code article 4, chapter 4, division 7 (commencing with § 13260). This Order is also issued pursuant to federal Clean Water Act (CWA) section 402 and implementing regulations adopted by U.S. EPA, and Water Code chapter 5.5, division 7 (commencing with § 13370). It shall serve as an NPDES permit for point source discharges from the Facility to surface waters.

B. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information the Discharger submitted as part of its application, information obtained through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F) contains background information and rationale for the requirements in this Order and is hereby incorporated into and constitutes findings for this Order. Attachments A through E, G, and H are also incorporated into this Order.

C. Provisions and Requirements Implementing State Law. No provisions and requirements in this Order are included to implement State law only.

D. Notification of Interested Parties. The Regional Water Board notified the Discharger and interested agencies and persons of its intent to prescribe these WDRs and provided an opportunity to submit written comments and recommendations. The Fact Sheet provides details regarding the notification.

E. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. The Fact Sheet provides details regarding the public hearing.

THEREFORE, IT IS HEREBY ORDERED that Order No. R2-2008-0007 (previous order) is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions of Water Code division 7 (commencing with § 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Regional Water Board from taking enforcement action for past violations of the previous order.

III. DISCHARGE PROHIBITIONS

A. Discharge of treated wastewater at a location or in a manner different from that described in this Order is prohibited.

B. Discharge at Discharge Point No. 001 is prohibited when treated wastewater does not receive a dilution of at least 231:1, as modeled. Compliance shall be achieved by proper operation and maintenance of the discharge outfall to ensure that it (or its replacement, in whole or part) is in good working order and is consistent with or can achieve better mixing than that described in Fact Sheet section IV.C.4.a. The Discharger shall address measures taken to ensure this in its application for permit reissuance.

C. The bypass of untreated or partially-treated wastewater to waters of the United States is prohibited, except during wet weather (as defined in Attachment A) and as provided for in the conditions stated in Attachment D section I.G.

D. Except during wet weather, discharges from Discharge Point Nos. 002 through 043 are prohibited.

E. Average dry weather effluent flow in excess of 85.4 MGD is prohibited at Discharge Point No. 001. Average dry weather effluent flow shall be determined from three consecutive dry weather months each year, with compliance measured at Monitoring Location EFF-001A as described in the Monitoring and Reporting Program (MRP).

F. Any sanitary or combined sewer discharge of untreated or partially-treated wastewater to waters of the United States not expressely authorized by this Order is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations—Dry Weather

1. During dry weather, the Discharger shall comply with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001A as described in the MRP.

Table 4. Effluent Limitations—Dry Weather

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand, 5-day @ 20°C (BOD_5)	mg/L	30	45	---	---	---
Total Suspended Solids (TSS)	mg/L	30	45	---	---	---
Oil and Grease	mg/L	10	---	20	---	---
pH [1]	s.u.	---	---	---	6.0	9.0
Total Residual Chlorine	mg/L	---	---	---	---	0.0 [2]
Copper, Total Recoverable	µg/L	53	---	76	---	---
Cyanide, Total	µg/L	20	---	43	---	---
Dioxin-TEQ	µg/L	1.4×10^{-8}	---	2.8×10^{-8}	---	---
1,2-Diphenylhydrazine	µg/L	5.4	---	11	---	---

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Ammonia, as N	mg/L	190	---	290	---	---

Unit Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter
s.u. = standard units
% = percent

Footnotes:

[1] If the Discharger monitors pH continuously, pursuant to 40 C.F.R. section 401.17 the Discharger shall be in compliance with this pH limitation provided that both of the following conditions are satisfied: (i) the total time during which the pH is outside the required range shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) no individual excursion from the required pH range shall exceed 60 minutes.

[2] Effluent residual chlorine concentrations shall be monitored continuously or, at a minimum, every hour. The Discharger shall report for each day the maximum residual chlorine concentration observed following dechlorination using all values measured during that day. However, if monitoring continuously, for the purpose of mandatory minimum penalties required by Water Code section 13385(i), compliance shall be based only on discrete readings from the continuous monitoring every hour on the hour. The Discharger shall retain continuous monitoring readings for at least three years. The Regional Water Board reserves the right to use all continuous monitoring data for discretionary enforcement.

The Discharger may elect to use a continuous on-line monitoring system for measuring or determining that residual dechlorinating agent is present. This monitoring system may be used to prove that anomalous residual chlorine exceedances measured by on-line chlorine analyzers are false positives and are not violations of this total residual chlorine limit because it is chemically improbable to have chlorine present in the presence of sodium bisulfite.

2. **Percent Removal.** During dry weather, the average monthly percent removal of biochemical oxygen demand (BOD_5) and total suspended solids (TSS) at Discharge Point No. 001 shall not be less than 85 percent (i.e., in each calendar month, the arithmetic mean of BOD_5 and TSS, by concentration, for effluent samples collected at Monitoring Location EFF-001A as described in the MRP shall not exceed 15 percent of the arithmetic mean of the BOD_5 and TSS, by concentration, for influent samples collected at Monitoring Location INF-001 as described in the MRP at approximately the same times during the same period).

3. **Bacteria.** Dry weather discharges at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001A as described in the MRP, shall meet the following limitations:

   a. **Enterococcus.** The geometric mean enterococcus bacteria concentration of all samples in a calendar month shall not exceed 35 most probable number per 100 milliliters (MPN/100 mL).

   b. **Fecal Coliform.** The median fecal coliform density of all samples in any calendar month shall not exceed 500 MPN/100 mL, and no more than 10 percent of the samples in any calendar month shall contain a fecal coliform density equal to or greater than 1,100 MPN/100 mL.

4. **Whole Effluent Acute Toxicity.** During dry weather, discharges at Discharge Point No. 001 shall comply with the following limitations, with compliance measured at Monitoring Location EFF-001A as described in the MRP:

a. An 11-sample median value of not less than 90 percent survival; and

b. An 11-sample 90th percentile value of not less than 70 percent survival.

These acute toxicity limitations are defined as follows:

- **11-sample median.** A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit if five or more of the past ten or fewer bioassay tests also show less than 90 percent survival.

- **11-sample 90th percentile.** A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.

Bioassays shall be performed using the most up-to-date U.S. EPA protocols and species as specified in the MRP. If these protocols prove unworkable, the Executive Officer and the Environmental Laboratory Accreditation Program may grant exceptions in writing upon the Discharger's request with justification.

If the Discharger can demonstrate that toxicity exceeding the levels cited above is caused by ammonia and that the ammonia in the discharge complies with the ammonia effluent limits in Section IV.A.1 of this Order, then such toxicity does not constitute a violation of this effluent limitation.

5. **Whole Effluent Chronic Toxicity.** During dry weather, discharges at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001A as described in the MRP, shall not contain chronic toxicity at a level that would cause or contribute to toxicity in the receiving water. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, or any other relevant measure of the health of an organism population or community. Compliance with this limit shall be determined by analysis of indicator organisms and toxicity tests as described in the MRP.

B. Effluent Limitations—Wet Weather

During wet weather, the Discharger shall comply with the following effluent limitations at Discharge Point Nos. 001 through 006, with compliance measured at Monitoring Locations EFF-001B, EFF-002, and EFF-003 as described in the MRP. Provision VI.C.5 of this Order imposes additional technology-based and water quality-based wet weather requirements.

Table 5. Effluent Limitations—Wet Weather

		Effluent Limitations	
Parameter	**Units**	**Monthly Geometric Mean**	**Instantaneous Maximum**
Total Residual Chlorine	mg/L	---	0.0 [1]
Enterococcus	MPN/100 mL	35 [2]	---

Unit Abbreviation:

mg/L = milligrams per liter

Footnote:

[1] Effluent residual chlorine concentrations shall be monitored continuously or, at a minimum, every hour. The Discharger shall report for each day the maximum residual chlorine concentration observed following dechlorination using all values measured during that day. However, if monitoring continuously, for the purpose of mandatory minimum penalties required by Water Code section 13385(i),

compliance shall be based only on discrete readings from the continuous monitoring every hour on the hour. The Discharger shall retain continuous monitoring readings for at least three years. The Regional Water Board reserves the right to use all continuous monitoring data for discretionary enforcement.

The Discharger may elect to use a continuous on-line monitoring system for measuring or determining that residual dechlorinating agent is present. This monitoring system may be used to prove that anomalous residual chlorine exceedances measured by on-line chlorine analyzers are false positives and are not violations of this total residual chlorine limit because it is chemically improbable to have chlorine present in the presence of sodium bisulfite.

[2] Data from both wet and dry weather shall be included when calculating the geometric mean for compliance with this monthly wet weather limitation. For days with discharge but no sampling, the enterococcus densities shall be assumed to be the same as the densities of the most recent discharge samples. For days with no discharge, enterococcus densities shall be assumed to be 1 MPN/100 mL for calculational purposes.

V. RECEIVING WATER LIMITATIONS

A. The discharge shall not cause the following conditions to exist in receiving waters at any place outside the near-field mixing zone (i.e., where mixing is not controlled by effluent discharge momentum and buoyancy):

1. Floating, suspended, or deposited macroscopic particulate matter or foams;

2. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;

3. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

4. Visible, floating, suspended, or deposited oil or other products of petroleum origin; or

5. Toxic or other deleterious substances in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

B. The discharge shall not cause the following limits to be exceeded in receiving waters at any place within one foot of the water surface outside the near-field mixing zone (i.e., where mixing is not controlled by effluent discharge momentum and buoyancy):

1. Dissolved Oxygen — 5.0 mg/L, minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.

2. Dissolved Sulfide — Natural background levels

3. pH — The pH shall not be depressed below 6.5 or raised above 8.5. The discharge shall not cause changes greater than 0.5 pH units in normal ambient pH levels.

4. Nutrients — Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

C. The discharge shall not cause a violation of any water quality standard for receiving waters adopted by the Regional Water Board or State Water Board as required by the CWA and regulations adopted thereunder (including the *Combined Sewer Overflow (CSO) Control Policy*) outside near-field mixing zones (i.e., where mixing is not controlled by effluent discharge momentum and buoyancy). If more stringent water quality standards are promulgated or approved pursuant to CWA section 303, or amendments thereto, the Regional Water Board may revise or modify this Order in accordance with the more stringent standards.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all "Standard Provisions" in Attachment D.

2. The Discharger shall comply with all applicable provisions of the "Regional Standard Provisions, and Monitoring and Reporting Requirements for NPDES Wastewater Discharge Permits" (Attachment G). Attachment G provisions I.J (Storm Water) and III.A.3.c (Storm Water Monitoring) do not apply.

B. Monitoring and Reporting

The Discharger shall comply with the MRP (Attachment E), and future revisions thereto, and applicable sampling and reporting requirements in Attachments D and G.

C. Special Provisions

1. Reopener Provisions

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances as allowed by law:

a. If present or future investigations demonstrate that the discharges governed by this Order have or will have a reasonable potential to cause or contribute to, or will cease to have, adverse impacts on water quality or beneficial uses of the receiving waters.

b. If new or revised water quality objectives or total maximum daily loads (TMDLs) come into effect for San Francisco Bay and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order may be modified as necessary to reflect the updated water quality objectives and wasteload allocations in the TMDLs. Adoption of the effluent limitations in this Order is not intended to restrict in any way future modifications based on legally-adopted water quality objectives or TMDLs, or as otherwise permitted under federal regulations governing NPDES permit modifications.

c. If translator, dilution, or other water quality studies provide a basis for determining that a permit condition should be modified.

d. If State Water Board precedential decisions, new policies, new laws, or new regulations are adopted.

e. If an administrative or judicial decision on a separate NPDES permit or waste discharge requirements addresses requirements similar to this discharge.

f. Or as otherwise authorized by law.

The Discharger may request a permit modification based on any of the circumstances above. With any such request, the Discharger shall include antidegradation and anti-backsliding analyses.

With the consent of the Discharger, the Executive Officer may make minor modifications to this Order for the purposes set forth in 40 C.F.R. section 122.63.

2. Effluent Characterization Study and Report

a. Study Elements. The Discharger shall continue to characterize and evaluate the dry weather discharge from the following discharge point to verify that the "no" or "cannot determine" reasonable potential analysis conclusions of this Order remain valid and to inform the next permit reissuance. The Discharger shall collect representative samples at the monitoring stations set forth below, as defined in the MRP, at no less than the frequency specified below:

Discharge Point	Monitoring Station	Minimum Frequency
001	EFF-001A	Once per calendar year

The samples shall be analyzed for the priority pollutants listed in Attachment G, Table C, except for those priority pollutants with effluent limitations where the MRP already requires more frequent monitoring. Compliance with this requirement shall be achieved in accordance with the specifications of Attachment G, sections III.A.1 and III.A.2.

The Discharger shall evaluate on an annual basis if concentrations of any of these priority pollutants significantly increase over past performance. The Discharger shall investigate the cause of any such increase. The investigation may include, but need not be limited to, an increase in monitoring frequency, monitoring of internal process streams, and monitoring of influent sources. The Discharger shall establish remedial measures addressing any increase resulting in reasonable potential to cause or contribute to an exceedance of applicable water quality objectives during dry weather. This requirement may be satisfied through identification of the constituent as a "pollutant of concern" in the Discharger's Pollutant Minimization Program, described in Provision VI.C.3.

b. Reporting Requirements

i. Routine Reporting. The Discharger shall, within 30 days of receipt of analytical results, report the following in the transmittal letter for the appropriate self-monitoring report:

(a) Indication that a sample for this characterization study was collected; and

(b) Identity of priority pollutants detected at or above applicable water quality criteria (see Fact Sheet Table F-9 for the criteria), and the detected concentrations of those pollutants.

ii. Annual Reporting. The Discharger shall summarize the annual data evaluation and source investigation in the annual self-monitoring report.

iii. Final Report. The Discharger shall submit a final report that presents all these data with the application for permit reissuance.

3. Pollutant Minimization Program

a. The Discharger shall continue to improve its existing Pollutant Minimization Program to promote minimization of pollutant loadings to the treatment plant and therefore to the receiving waters.

b. The Discharger shall submit an annual report no later than February 28 each year. Each annual report shall include at least the following information:

i. Brief description of treatment plant. The description shall include the service area and treatment plant processes.

ii. Discussion of current pollutants of concern. Periodically, the Discharger shall analyze its circumstances to determine which pollutants are currently a problem and which pollutants may be potential future problems. This discussion shall include the reasons for choosing the pollutants.

iii. Identification of sources for pollutants of concern. This discussion shall include how the Discharger intends to estimate and identify pollutant sources. The Discharger shall include sources or potential sources not directly within the ability or authority of the Discharger to control, such as pollutants in the potable water supply and air deposition.

iv. Identification of tasks to reduce the sources of pollutants of concern. This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement the tasks by itself or participate in group, regional, or national tasks that address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national tasks that address its pollutants of concern whenever it is efficient and appropriate to do so. An implementation timeline shall be included for each task.

v. Outreach to employees. The Discharger shall inform employees about the pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants of concern into the Facility. The Discharger may provide a forum for employees to provide input.

vi. Continuation of Public Outreach Program. The Discharger shall prepare a pollution prevention public outreach program for its service area. Outreach may

include participation in existing community events, such as county fairs; initiating new community events, such as displays and contests during Pollution Prevention Week; conducting school outreach programs; conducting plant tours; and providing public information in newspaper articles or advertisements, radio or television stories or spots, newsletters, utility bill inserts, or web sites. Information shall be specific to target audiences. The Discharger shall coordinate with other agencies as appropriate.

vii. **Discussion of criteria used to measure Pollutant Minimization Program and task effectiveness.** The Discharger shall establish criteria to evaluate the effectiveness of its Pollutant Minimization Program. This discussion shall idenify the specific criteria used to measure the effectiveness of each task in Provisions VI.C.3.b.iii, iv, v, and vi.

viii. **Documentation of efforts and progress.** This discussion shall detail all of the Discharger's Pollutant Minimization Program activities during the reporting year.

ix. **Evaluation of Pollutant Minimization Program and task effectiveness.** This Discharger shall use the criteria established in Provision VI.C.3.b.vii to evaluate the program and task effectiveness.

x. **Identification of specific tasks and timelines for future efforts.** Based on the evaluation, the Discharger shall explain how it intends to continue or change its tasks to more effectively reduce the amount of pollutants flowing to the Facility, and subsequently in its effluent.

c. The Discharger shall develop and conduct a Pollutant Minimization Program as further described below when there is evidence that a priority pollutant is present in the effluent above an effluent limitation (e.g., sample results reported as detected but not quantified [DNQ] when the effluent limitation is less than the method detection limit [MDL], sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, or results of benthic or aquatic organism tissue sampling) and either:

i. A sample result is reported as DNQ and the effluent limitation is less than the Reporting Level (RL); or

ii. A sample result is reported as not detected (ND) and the effluent limitation is less than the MDL using definitions in Attachment A and reporting protocols described in the MRP.

d. If triggered by the reasons set forth in Provision VI.C.3.c, above, the Discharger's Pollutant Minimization Program shall include, but not be limited to, the following actions and submittals:

i. Annual review and semi-annual monitoring of potential sources of the reportable priority pollutants, which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures when source monitoring is unlikely to produce useful analytical data;

ii. Quarterly monitoring for the reportable priority pollutants in the influent to the Facility. The Executive Officer may approve alternative measures when influent monitoring is unlikely to produce useful analytical data;

iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutants in the effluent at or below the effluent limitation;

iv. Implementation of appropriate cost-effective control measures for the reportable priority pollutants, consistent with the control strategy; and

v. Inclusion of the following specific items within the annual report required by Provision VI.C.3.b above:

(a) All Pollutant Minimization Program monitoring results for the previous year;
(b) List of potential sources of the reportable priority pollutants;
(c) Summary of all actions undertaken pursuant to the control strategy; and
(d) Description of actions to be taken in the following year.

4. Special Provisions for Municipal Facilities

a. Pretreatment Program. The Discharger shall implement and enforce its approved pretreatment program in accordance with federal pretreatment regulations (40 C.F.R. part 403); pretreatment standards promulgated under CWA sections 307(b), 307(c), and 307(d); pretreatment requirements specified under 40 C.F.R. section 122.44(j); and the requirements in Attachment H, "Pretreatment Requirements." The Discharger's responsibilities include, but are not limited to, the following:

i. Enforcement of the National Pretreatment Standards of 40 C.F.R. sections 403.5 and 403.6;

ii. Implementation of its pretreatment program in accordance with legal authorities, policies, procedures, and financial provisions described in the National Pretreatment Program (40 C.F.R. part 403).

iii. Submission of reports to the State Water Board and the Regional Water Board as described in Attachment H.

iv. Evaluation of the need to revise local limits under 40 C.F.R. section 403.5(c)(1) and, within 180 days following the effective date of this Order, submission of a report describing the changes, with a plan and schedule for implementation. To ensure no significant increase in copper discharges, and thus compliance with antidegradation requirements, the Discharger shall not consider eliminating or relaxing local limits for copper.

b. Sludge and Biosolids Management

i. All sludge and biosolids shall be disposed of, managed, or used in a municipal solid waste landfill; through land application; as a Class A compost; through a waste-to-

energy facility or another recognized and approved technology; in a sludge-only landfill; or in a sewage sludge incinerator in accordance with 40 C.F.R. part 503.

ii. Sludge and biosolids treatment, storage, and disposal, or use, shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.

iii. The sludge and biosolids treatment and storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect site boundaries from erosion and rising sea levels, and to prevent any conditions that would cause drainage from the materials in the storage site. Adequate protection is defined as protection from at least a 100-year storm and the highest possible tidal stage that may occur.

iv. Sludge or biosolids disposed in a municipal solid waste landfill shall meet the requirements of 40 C.F.R. part 258. In the annual self-monitoring report, the Discharger shall provide the amount of sludge or biosolids disposed and indicate the landfill to which it was sent.

v. This Order does not authorize permanent onsite sludge or biosolids storage or disposal. A Report of Waste Discharge shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity.

c. Collection System Management. The Discharger shall properly operate and maintain its entire collection system (see Provision VI.C.5 and Attachment D, section I.D). The Discharger shall report any noncompliance (see Attachment D, sections V.E.1 and V.E.2) and mitigate any discharge from its collection system that violates this Order (see Attachment D, section I.C).

i. Separate Sanitary Sewer System. The *General Waste Discharge Requirements for Wastewater Collection Agencies* (General Collection System WDRs), State Water Board Order 2006-0003 DWQ as amended by State Water Board Order WQ 2008-0002-EXEC, has requirements for operation and maintenance of separate sanitary sewer collection systems and for reporting and mitigating sanitary sewer overflows from the separate sanitary sewer portion of the Discharger's collection system. While the Discharger must comply with both the General Collection System WDRs and this Order, the General Collection System WDRs more clearly and specifically stipulate requirements for operation and maintenance and for reporting and mitigating sanitary sewer overflows. Implementation of the General Collection System WDRs for proper operation and maintenance and mitigation of sanitary sewer overflows will satisfy the corresponding federal NPDES requirements specified in Attachment D (as supplemented by Attachment G). Following the notification and reporting requirements in the General Collection System WDRs will satisfy NPDES the corresponding reporting requirements specified in Attachment D (as supplemented by Attachment G) for sanitary sewer overflows from the separate sanitary sewer portion of the collection system.

ii. Combined Sewer System. For purposes of this Order, a combined sewer system "excursion" is a release or diversion of untreated or partially-treated wastewater from

the combined sewer system that exits the system temporarily and then re-enters it. Excursions are caused by blockages or flow conditions within the publicly-owned portion of the combined sewer system and can occur in public rights of way or on private property. Excursions do not include releases from privately-owned sewer laterals or authorized combined sewer discharges from Discharge Point Nos. 009 through 043.

(a) Excursion Database. By January 1, 2014, the Discharger shall develop and maintain a database containing information about each excursion that occurs within the Southeast Plant's service area. The Discharger may limit these data to excursions occurring within the City and County of San Francisco. The Discharger may, at its option, include information concerning releases from private sewer laterals. The database shall contain the following information for each excursion:

(1) Location, including latitude and longitude, street address (if available), zip code, cross street, and asset number;

(2) Destination (if known), including whether the excursion was fully captured and returned to the combined sewer system and whether any portion of it entered a drainage channel or surface water;

(3) Estimated volume, in gallons, including volume that reached a surface water or drainage channel and volume recovered (all spills to drainage channels or surface waters are subject to MRP section IX.B, which modifies Attachment G section V.E.2);

(4) Date and time excursion was reported to the San Francisco Public Utilities Commission;

(5) Operator arrival date and time;

(6) End date and time of excursion, if known;

(7) Source (e.g., manhole, catch basin, vent trap);

(8) Cause (e.g., mainline blockage, roots, broken pipe);

(9) Corrective actions taken, including steps taken or planned to reduce, eliminate, and prevent reoccurrence;

(10) Parameters for which samples were analyzed and results (if applicable);

(11) Whether the County Health Officer was notified and health warnings were posted (if known);

(12) Whether a beach was affected and, if so, which one (if applicable);

(13) California Emergency Management Agency (CalEMA) control number, and date and time CalEMA was called (if applicable);

(14) Date and time County Health Officer was notified (if applicable).

If the Discharger chooses to include information regarding releases from private sewer laterals, it should also record responsible party contact information, if known.

(b) Routine Reporting. The Discharger shall report any excursion greater than 1,000 gallons, regardless of whether it enters a drainage channel or surface water, to the Regional Water Board and the San Francisco Department of Public Health not later than two hours after becoming aware of the discharge. The Discharger shall make this report as soon as (1) it has knowledge of the excursion, (2) reporting is possible, and (3) a report can be provided without impeding cleanup or other emergency measures. The Discharger shall report excursions by calling the Regional Water Board's spill hotline (currently 510-622-2369) and following standard procedures developed by the San Francisco Public Utilities Commission and the San Francisco Department of Public Health. (Spill to drainage channels or surface waters are subject to MRP section IX.B, which modifies Attachment G section V.E.2.)

(c) Annual Report. The Discharger shall submit a report no later than August 15 each year that compiles and summarizes information from the excursion database for the preceding 12 months ending June 30. Within the report, the Discharger shall review collection system performance, evaluate excursion trends in terms of time and location, summarize actions taken within the preceding year to minimize excursions, and identify specific tasks for the coming year to further minimize excursions.

(d) Record Keeping. The Discharger shall maintain documentation supporting the database records for at least three years following each excursion. The Executive Officer may extend this period if necessary. Documentation shall include, but need not be limited to, work orders and other maintenance records associated with responses and investigations. The Discharger shall make all excursion records available for review upon Regional Water Board staff request.

If the Discharger collects water quality samples for analysis, it shall maintain the following information:

- Date, exact place, and time of sampling or measurement;
- Individual who performed sampling or measurement;
- Date of analysis;
- Individual who performed analysis;
- Analytical technique or method used; and
- Analysis results.

5. Combined Sewer Sytem Controls

The Discharger shall maximize flows to the Southeast Plant and pollutant removal during wet weather in accordance with the Nine Minimum Controls and the Discharger's Long-Term Control Plan.

a. Combined Sewer Operations and Maintenance Plan. The Discharger shall revise and update its *Combined Sewer Operations and Maintenance Plan* as necessary to ensure compliance with the Nine Minimum Controls and the Long-Term Control Plan requirements of the *Combined Sewer Overflow Control Policy*. The Discharger shall submit the updated plan by August 15, 2015, and following any subsequent revision.

b. Nine Minimum Controls. The Discharger shall continue implementing the following controls:

i. Conduct Proper Operations and Maintenance Programs. The Discharger shall implement its *Combined Sewer Operations and Maintenance Plan*, which shall include the elements described below. The Discharger shall operate and maintain the system according to the plan and in accordance with Provision VI.C.4.c.ii of this Order. The Discharger shall maintain records to document plan implementation.

(a) Designate Manager for Combined Sewer Discharges and Overflows. The Discharger shall designate a person to be responsible for the wastewater collection system and serve as the contact person regarding the operation of the combined sewer system. The Discharger shall notify the Regional Water Board within 90 days of the designation of a new contact person.

(b) Inspect and Maintain Combined Sewer System. The Discharger shall properly operate and maintain the collection system and the combined sewer discharge outfalls to reduce the magnitude, frequency, and duration of combined sewer discharges. The Discharger shall perform the following:

- Regularly clean sewers and catch basins, and repair or replace, as necessary, sewers and related equipment;
- Disconnect any illegal connections;
- Inspect and maintain discharge structures, regulators, pumping stations, and tide gates to ensure that they are in good working condition and adjusted to minimize combined sewer discharges, prevent combined sewer overflows, and prevent tidal inflow;
- Inspect each combined sewer discharge outfall at least once per year. The inspection shall include, but not be limited to, entering the regulator structure, if accessible; determining the extent of any structural defect or debris and grit buildup; and removing any debris that may constrict flow, cause blockage, or result in a dry weather combined sewer overflow. For outfalls that are inaccessible, the Discharger may perform a visual check of the discharge pipe to determine whether combined sewer overflows have occurred or could potentially occur during dry weather; and

- Record all inspection results in a maintenance log.

(c) Provide Trained Staff. The Discharger shall provide adequate staff to carry out the operation, maintenance, repair, and testing required to ensure compliance with the terms and conditions of this Order. The Discharger shall provide appropriate training for each staff member.

(d) Allocate Funds for Operation and Maintenance. The Discharger shall allocate adequate funds for operation and maintenance activities.

ii. Maximize Use of Collection System for Storage. The Discharger shall continue to maximize the use of the collection system (i.e., collection system piping, not only the storage/transports) for in-line storage to reduce the magnitude, frequency, and duration of combined sewer discharges.

iii. Review and Modify Pretreatment Program. The Discharger shall continue to implement controls to minimize the impact of non-domestic discharges to its collection system. At three-year intervals, the Discharger shall re-evaluate whether additional modifications to its pretreatment program are feasible or practical. The Discharger shall maintain records to document this evaluation and implementation of controls.

iv. Maximize Flow to Southeast Plant and North Point Facility. The Discharger shall operate the Southeast Plant at maximum treatable flow during wet weather. The Discharger shall ensure that the *Combined Sewer Operation and Maintenance Plan* is implemented to maximize the volume of wastewater treated at the Southeast Plant and the North Point Facility and discharged via deep water outfalls, consistent with the hydraulic capacities of the storage, transport, treatment, and disposal facilities. The Discharger shall report rainfall with the self-monitoring reports the MRP requires.

v. Prohibit Dry Weather Combined Sewer Overflows. Dry weather combined sewer overflows from Discharge Point Nos. 002 through 043 are prohibited. The Discharger shall respond to dry weather combined sewer overflows in accordance with MRP section IX.B, which modifies Attachment G section V.E.2. During any dry weather combined sewer overflow, the Discharger shall inspect the overflow point each day until the overflow stops. The Discharger shall document in the inspection log each combined sewer overflow event, its duration, its cause, and the corrective measures taken.

vi. Control Solid and Floatable Materials in Combined Sewer Discharges. The Discharger shall continue to implement measures to control solid and floatable materials in combined sewer discharges, including the following:

(a) Ensuring that overflow structures are baffled or using other means to reduce the volume of floatable materials in combined sewer discharges, and

(b) Removing solid or floatable materials captured in the storage/transports prior to discharge.

vii. Develop and Implement Pollution Prevention Program. The Discharger shall continue to implement a Pollution Prevention Program focused on reducing the impact of combined sewer discharges and overflows on receiving waters. It shall develop and implement this program in accordance with Provision VI.C.3.

The Discharger shall also continue to implement a street sweeping program and clean catch basins at a frequency sufficient to prevent large accumulations of pollutants and debris.

viii. Notify Public of Combined Sewer Discharges. The Discharger shall continue to implement a public notification plan to inform citizens of when and where combined sewer discharges occur. The plan shall include the following:

(a) A mechanism to alert persons using receiving waters affected by combined sewer discharges for recreation; and

(b) A system to determine the nature and duration of conditions resulting from combined sewer discharges potentially harmful to receiving water users.

Warning signs shall be posted at beach locations where water contact recreation occurs whenever a combined sewer discharge occurs that could affect recreational users at that location. Warning signs shall be posted on the same day as the combined sewer discharge event unless the combined sewer discharge occurs after 4:00 p.m., in which case, signs shall be posted by 8:00 a.m. the next day. The Discharger shall maintain records documenting public notification.

ix. Monitor to Characterize Wet Weather Discharge Impacts and Efficacy of Controls. The Discharger shall continue monitoring wet weather discharges to characterize their impacts and the efficacy of wet weather discharge controls. The monitoring shall build upon the efforts and results the Discharger described in *Special Study: Overflow Impacts and Efficacy of Combined Sewer Overflow Controls for the San Francisco Bayside System, Southeast Water Pollution Control Plant, North Point Wet Weather Facility and Bayside Wet Weather Facilities* (June 29, 2012).

(a) Monitoring Requirements. Compliance with the following monitoring requirements shall be achieved in accordance with the specifications of Attachment D, section III, and Attachment G, sections III.A.1 and III.A.2. Samples shall be composites comprised of individual grab samples collected at equal intervals of no more than one hour for the duration of each discharge event, but not exceeding 24 hours. If an event does not last at least 24-hours, the Discharger shall sample for as long as possible and report the duration.

(1) Southeast Plant and North Point Facility Discharges. When Southeast Plant or North Point Facility discharges occur during wet weather, the Discharger shall collect effluent samples representing Discharge Point Nos. 001 through 006 at Monitoring Locations EFF-001B, EFF-002, and

EFF-003, as defined in the MRP. In addition to the monitoring required in MRP Table E-4, the Discharger shall monitor for the priority pollutants listed in Attachment G, Table C, at least once per year.

(2) Combined Sewer Discharges. The Discharger shall collect effluent samples representing Discharge Point Nos. 009 through 043 at Monitoring Locations CSD-010 through CSD-043, as defined in the MRP. The Discharger shall collect samples at a monitoring location whenever a combined sewer discharge event of at least one hour in duration occurs at that location (and may also collect samples representing shorter events). In addition to the monitoring required in MRP Table E-5, the Discharger shall monitor each sample for the following:

- total suspended solids
- settleable matter
- pH
- metals (arsenic, cadmium, copper, lead, nickel, selenium, silver, and zinc)
- cyanide
- ammonia (total)

The Discharger shall also monitor a combined sewer discharge at Monitoring Location CSD-41 for the remaining priority pollutants listed in Attachment G, Table C, at least once per year.

(3) Shoreline Monitoring. The Discharger shall collect shoreline receiving water grab samples at Monitoring Locations S-202.4, S-202.5, S-210, S-211, S-300.1, S-301.1, and S-301.2, as defined in the MRP. In addition to the monitoring required in MRP Table E-6, the Discharger shall monitor enterococcus and fecal coliform at a frequency sufficient to characterize ambient conditions (e.g., weekly).

(b) Reporting Requirements

(1) Routine Reporting. The Discharger shall, within 60 days of receipt of analytical results, indicate in the transmittal letter for the appropriate self-monitoring report that a sample for this study was collected.

(2) Final Report. The Discharger shall report its findings by September 30, 2017. The report shall include the following:

- All wet weather discharge monitoring data collected, including acute toxicity data (the Discharger shall include data that do not necessarily conform to the test procedures in 40 C.F.R. part 136 and explain these circumstances to provide context for data interpretation);

- All shoreline monitoring data collected and any discharge-related beach closures;

- Updated water contact recreational use surveys, focusing particularly on recreational use following combined sewer discharge events;

- Evaluation of combined sewer discharge control efficacy (e.g., using TSS as a proxy for pollutant removal efficiency); and

- Evaluation of combined sewer discharge impacts (e.g., comparing average and maximum discharge and receiving water monitoring data with water quality objectives, translated as appropriate using available metals translators and water effects ratios).

c. Long-Term Control Plan. The Discharger shall comply with the following provisions, consistent with implementation of its Long-Term Control Plan.

i. The Discharger shall optimize sytem operations to minimize combined sewer discharges and maximize pollutant removal during wet weather.

ii. The Discharger shall capture for treatment, or storage and subsequent treatment, 100 percent of the combined sewage flow collected in the combined sewage system during precipitation events. Captured combined sewage shall be directed to either the Southeast Plant, the North Point Facility, or the storage/transports. All combined sewage captured shall receive a minimum of the following treatment:

(a) Secondary treatment,
(b) Primary treatment, or
(c) Equivalent-to-primary treatment (in storage/transports).

iii. The Discharger shall operate the wet weather facilities as set forth below. If the Discharger can demonstrate (e.g., through modeling conducted as part of its Sewer System Improvement Program) that changes to these operating parameters will result in additional storage or treatment, it may implement such changes. Written acknowledgement that the Executive Officer concurs with the Discharger's demonstration must be obtained prior to implementation.

(a) North Shore Drainage Basin. Activation and operation of the North Point Facility shall depend on rainfall, forecasts, and storage conditions in the North Shore Drainage Basin and the Central Drainage Basin.

- The North Point Facility shall be activated when the level of combined sewage and stormwater in the North Shore Storage/Transport Box is at 200 inches.

- The North Point Facility shall be activated to treat 135 to 145 MGD of combined in-flow within 60 minutes of any combined sewer discharge through Discharge Point Nos. 013 to 017.

- The North Point Facility shall remain operational as long as necessary to minimize the likelihood of storage/transport combined sewer discharges in the Central or Southeast Drainage Basins.

(b) Central Drainage Basin. Activation and operation of the Channel Pump Station shall depend on rainfall, forecasts, and storage conditions in the Central Drainage Basin and the Southeast Drainage Basin.

- The Channel Pump Station shall pump 80 MGD to the Southeast Plant or Southeast Plant influent shall be at 250 MGD (from the Channel and Flynn Pump Stations and the Southeast Plant Lift Station) before there is any storage/transport combined sewer discharge to Mission Creek (Discharge Point Nos. 022 to 027).

- Flow from the Channel Pump Station to the Southeast Plant may be reduced to prevent a combined sewer discharge from the Southeast Drainage Basin storage/transport structures if the flows between the Central Drainage Basin structures and the Southeast Drainage Basin structures (Griffith Pump Station and/or Flynn Pump Station) become unbalanced, e.g., Griffith and/or Flynn storage levels continue to rise while the Southeast Plant is at maximum flow.

- The Mariposa Pump Station shall be operated at design capacity prior to any combined sewer discharge through Discharge Point No. 029.

- The 20th St. Pump Station shall be operated at design capacity prior to any combined sewer discharge through Discharge Point 030 or 030A.

(c) Southeast Drainage Basin. Southeast Plant operation shall depend on rainfall, forecasts, and storage conditions in the Central Drainage Basin and the Southeast Drainage Basin. The Southeast Plant shall have an influent flow of 240 to 250 MGD prior to any combined sewer discharge into Islais Creek from Discharge Point Nos. 031 through 035.

- The Griffith Pump Station shall be operated at design capacity prior to any combined sewer discharge through Discharge Point Nos. 040 through 042. Flows from the Griffith Pump Station to the Southeast Plant may be reduced to maximize storage in the Southeast Drainage Basin if flows between the Central Drainage Basin and the Southeast Drainage Basin become unbalanced (e.g., if unused storage capacity exists in the Southeast Drainage Basin while the Southeast Plant is at maximum flow).

- The Sunnydale Pump Station shall be operated at design capacity prior to any combined sewer discharge through Discharge Point No. 043. Flows from the Sunnydale Pump Station to the Griffith Pump Station may be reduced to maximize storage in the Southeast Drainage Basin if flows between the Central Drainage Basin and the Southeast Drainage Basin become unbalanced (e.g., if unused storage capacity exists in the Southeast Drainage Basin while the Southeast Plant is at maximum flow).

iv. The Discharger shall comply with the following after rains subside:

(a) Treatment at the Southeast Plant and North Point Facility shall continue until North Shore, Central, and Southeast Drainage Basin storage/transports are essentially empty of stormwater flows.

(b) If the National Weather Service predicts a 30 percent or greater chance of rain within the next 24 hours, the following provisions shall apply:

- Pumping shall occur until the wastewater level in the Channel Pump Station Box is between 100 to 150 inches,
- Pumping shall occur until the wastewater level in the North Shore Box is at 100 inches, and
- Pumping shall occur until the Islais Creek storage is essentially empty.

(c) If the National Weather Service predicts a less than 30 percent chance of rain within the next 24 hours, the following provisions shall apply:

- Pumping shall occur until the wastewater level in the Channel Pump Station Box is below 150 inches,
- Pumping shall occur until the wastewater level in the North Shore Box is below 150 inches, and
- Pumping shall occur until the Islais Creek storage is essentially empty.

v. By March 30, 2018, the Discharger shall synthesize and update its Long-Term Control Plan into one document that reflects current circumstances. The synthesis and update shall include the following elements.

(a) The Long-Term Control Plan shall continue to reflect the historical long-term average annual design goals for combined sewer discharges:

- Four combined sewer discharge events along the North Shore (Discharge Point Nos. 009 through 017);
- Ten combined sewer discharge events within the Central Basin (Discharge Point Nos. 018 through 036); and
- One combined sewer discharge event along the Southeast Sector (Discharge Point Nos. 037 through 043).

(b) The Discharger shall set forth operational requirements similar to those listed in Provisions VI.C.5.c.iii and VI.C.5.c.iv, above, to optimize system operations so as to maximize pollutant removal during wet weather and minimize combined sewer discharges.

(c) The Discharger shall set forth additional measures, to the extent technically and economically feasible, to maximize pollutant removal and minimize combined sewer discharges (e.g., implementing and promoting green infrastructure and low impact development that enhances stormwater detention and percolation).

(d) The Discharger shall develop and propose a metric to evaluate the performance of its wet weather disinfection systems for Discharge Point Nos. 001 through 006.

(e) The Discharger shall propose a plan for post-construction compliance monitoring of all wet weather discharges consistent with the *Combined Sewer Overflow Control Policy*.

vi. The Discharger shall submit a report implementing *Combined Sewer Overflow Control Policy* section II.C.3, "Consideration of Sensitive Areas." At a minimum, the Discharger shall explore how it could eliminate or relocate combined sewer discharges that discharge to sensitive areas. The Discharger shall base its assessment on any new or improved techniques (including but not limited to green infrastructure and low impact development) that can reduce, eliminate, or relocate combined sewer discharges from sensitive areas. The Discharger shall submit the report with its application for permit reissuance.

d. If the Executive Officer determines that the Discharger has caused a violation of any water quality standard for receiving waters, the Discharger shall evaluate its Long-Term Control Plan and its Combined Sewer Operations and Maintenance Plan, and submit a report identifying additional measures, considering its financial capabilities, to address the violation. The report shall include information on the technical and economic feasibility of the additional measures. The Discharger shall submit this report within 180 days after the Executive Officer provides notification of the violation, and the Discharger shall begin implementing the additional measures described in the report, as may be modified by the Executive Officer, within 60 days after report submittal.

6. Other Special Provisions

a. Copper Action Plan. The Discharger shall implement pretreatment, source control, and pollution prevention for copper in accordance with the following tasks and time schedule.

Table 6. Copper Action Plan

Task	Compliance Date
1. Review Potential Copper Sources The Discharger shall submit an inventory of potential copper sources to the treatment plant.	*Completed June 2009*
2. Implement Copper Control Program The Discharger shall submit a plan for and begin implementation of a program to reduce copper sources identified in Task 1. The plan shall consists, at a minimum, of the following elements: a. Provide education and outreach to the public (e.g., focus on proper pool and spa maintenance and plumbers' roles in reducing corrosion); b. If corrosion is determined to be a significant copper source, work cooperatively with local water purveyors to reduce and control water	*Completed February 2011*

Task	Compliance Date
corrosivity, as appropriate, and ensure that local plumbing contractors implement best management practices to reduce corrosion in pipes; and c. Educate plumbers, designers, and maintenance contractors for pools and spas to encourage best management practices that minimize copper discharges.	
3. Implement Additional Measures If the Regional Water Board notifies the Discharger that the three-year rolling mean copper concentration in Central or Lower San Francisco Bay exceeds 2.2 µg/L, then within 90 days of the notification, the Discharger shall evaluate the effluent copper concentration trend and, if it is increasing, develop and begin implementation of additional measures to control copper discharges. The Discharger shall report on the progress and effectiveness of actions taken, and provide a schedule for actions to be taken in the next 12 months.	With annual pollution prevention report due February 28 following 90 days after notification
4. Undertake Studies to Reduce Copper Pollutant Impact Uncertainties. The Discharger shall submit an updated study plan and schedule to conduct or cause to be conducted technical studies to investigate possible copper sediment toxicity and to investigate sub-lethal effects on salmonids. Specifically, the Discharger shall include the manner in which the above will be accomplished and describe the studies to be performed with an implementation schedule. To satisfy this requirement, the Discharger may collaborate and conduct these studies as a group.	*Completed January 2011*
5. Report Status of Copper Control Program. The Discharger shall submit an annual report documenting copper control program implementation and addressing the effectiveness of the actions taken, including any additional copper controls required by Task 3 above, and provide a schedule for actions to be taken in the next 12 months. Additionally, the Discharger shall report the findings and results of the studies completed, planned, or in progress under Task 4. Regarding Task 4 studies, dischargers may collaborate and provide this information in a single report to satisfy this requirement for an entire group.	With annual pollution prevention report due February 28 each year

b. Cyanide Action Plan. The Discharger shall implement monitoring and surveillance, pretreatment, source control and pollution prevention for cyanide in accordance with the following tasks and time schedule.

Table 7. Cyanide Action Plan

Task	Compliance Date
1. Review Potential Cyanide Sources The Discharger shall submit an inventory of potential cyanide sources to the treatment plant. If no cyanide sources are identified, Tasks 2 and 3 are not required, unless the Discharger receives a request to discharge detectable levels of cyanide to the sewer. If so, the Discharger shall notify the Executive Officer and implement Tasks 2 and 3.	*Completed June 2008*
2. Implement Cyanide Control Program The Discharger shall submit a plan and begin implementation of a program to minimize cyanide discharges to its treatment plant consisting, at a minimum, of the following elements: a. Inspect each potential source to assess the need to include that source in the control program. b. Inspect contributing sources included in the control program annually.	*Completed February 2011*

Task	Compliance Date
Inspection elements may be based on U.S. EPA guidance, such as Industrial User Inspection and Sampling Manual for POTWs (EPA 831-B-94-01). c. Develop and distribute educational materials to sources and potential sources regarding the need to prevent cyanide discharges. d. Prepare an emergency monitoring and response plan to be implemented if a significant cyanide discharge occurs. For purposes of this Order, a "significant cyanide discharge" is occurring if cyanide is found in the Southeast Plant's influent above 21 µg/L.	
3. Implement Additional Cyanide Control Measures If the Regional Water Board notifies the Discharger that ambient monitoring shows cyanide concentrations are 1.0 µg/L or higher in the main body of San Francisco Bay, then within 90 days of the notification, the Discharger shall commence actions to identify and abate cyanide sources responsible for the elevated ambient concentrations, and shall report on the progress and effectiveness of actions taken, and provide a schedule for actions to be taken in the next 12 months.	With next annual pollution prevention report due February 28 (at least 90 days following notification)
4. Report Status of Cyanide Control Program The Discharger shall submit an annual report documenting cyanide control program implementation and addressing the effectiveness of actions taken, including any additional cyanide controls required by Task 3, above, and provide a schedule for actions to be taken in the next 12 months.	With annual pollution prevention report due February 28 each year

c. Standard Operating Procedures for Resource Recovery. If the Discharger receives hauled-in anaerobically-digestible material for injection into an anaerobic digester, the Discharger shall notify the Regional Water Board and develop and implement Standard Operating Procedures for this activity. The Standard Operating Procedures shall be developed by February 1, 2014, or prior to initiation of hauling. The Standard Operating Procedures shall address material handling, including unloading, screening or other processing prior to anaerobic digestion, and transportation; spill prevention; spill response; avoidance of the introduction of materials that could cause interference, pass through, or upset of the treatment processes; avoidance of prohibited material; vector control; odor control; operation and maintenance; and the disposition of any solid waste segregated from introduction to the digester. The Discharger shall provide training to its staff on the Standard Operating Procedures and shall maintain records for a minimum of three years for each load received, describing the hauler, waste type, and quantity received. In addition, the Discharger shall maintain records for a minimum of three years for the disposition location and quantity of cumulative pre-digestion segregated solid waste hauled offsite.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)
Also called the average, the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative
Taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic
Known to cause cancer in living organisms.

Coefficient of Variation
Measure of data variability calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Combined Sewer Discharge
Authorized discharge during a wet weather day from an approved combined sewer discharge point. Refer to Table 2 of the Order for a list of approved combined sewer discharge points.

Combined Sewer Discharge Event
Wet weather event that results in an authorized discharge from one or more approved combined sewer discharge points. A discrete combined sewer discharge event is separated by at least six hours from any other combined sewer discharge event. Refer to Table 2 of the Order for a list of approved combined sewer discharge points.

Combined Sewer System Excursion
Release or diversion of untreated or partially treated wastewater from the combined sewer system that exits the system temporarily and then re-enters it. Excursions do not include releases from privately owned sewer laterals, or authorized combined sewer discharges.

Daily Discharge
Either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit) for a constituent with limitations expressed in units of mass; or (2) the

unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period is considered the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)
Sample result less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
Amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined by conducting a mixing zone study or modeling the discharge and receiving water.

Dry Weather
Any weather not defined as wet weather (determined on a day-by-day basis).

Effluent Concentration Allowance (ECA)
Value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the CV for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (*Technical Support Document For Water Quality-based Toxics Control*, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bay
Indentation along the coast that encloses an area of oceanic water within a distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration
Concentration that results from the confirmed detection of the substance below the ML value by the analytical method.

Estuaries
Waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars are considered estuaries. Estuarine waters are considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater.

Estuarine waters include, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters
All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation
Highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
Lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)
Highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median
Middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between n/2 and n/2+1).

Method Detection Limit (MDL)
Minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in in 40 C.F.R. part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)
Concentration at which the entire analytical system gives a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone
Limited volume of receiving water allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)
Sample results less than the laboratory's MDL.

Persistent Pollutants
Substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program
Program of waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the Pollutant Minimization Program is to reduce all potential sources of a priority pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. Cost effectiveness may be considered when establishing the requirements of a Pollutant Minimization Program. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), is considered to fulfill Pollutant Minimization Program requirements.

Pollution Prevention
Any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Board or Regional Water Board.

Reporting Level (RL)
ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from SIP Appendix 4 in accordance with SIP section 2.4.2 or established in accordance with SIP section 2.4.3. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Source of Drinking Water
Any water designated as having a municipal or domestic supply (MUN) beneficial use.

Standard Deviation (σ)
Measure of variability calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

Toxicity Reduction Evaluation (TRE)
Study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to

the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. A TIE is a set of procedures to identify the specific chemicals responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.

Wet Weather
Weather in which any one of the following conditions exists as a result of rain (determined on a day-by-day basis):

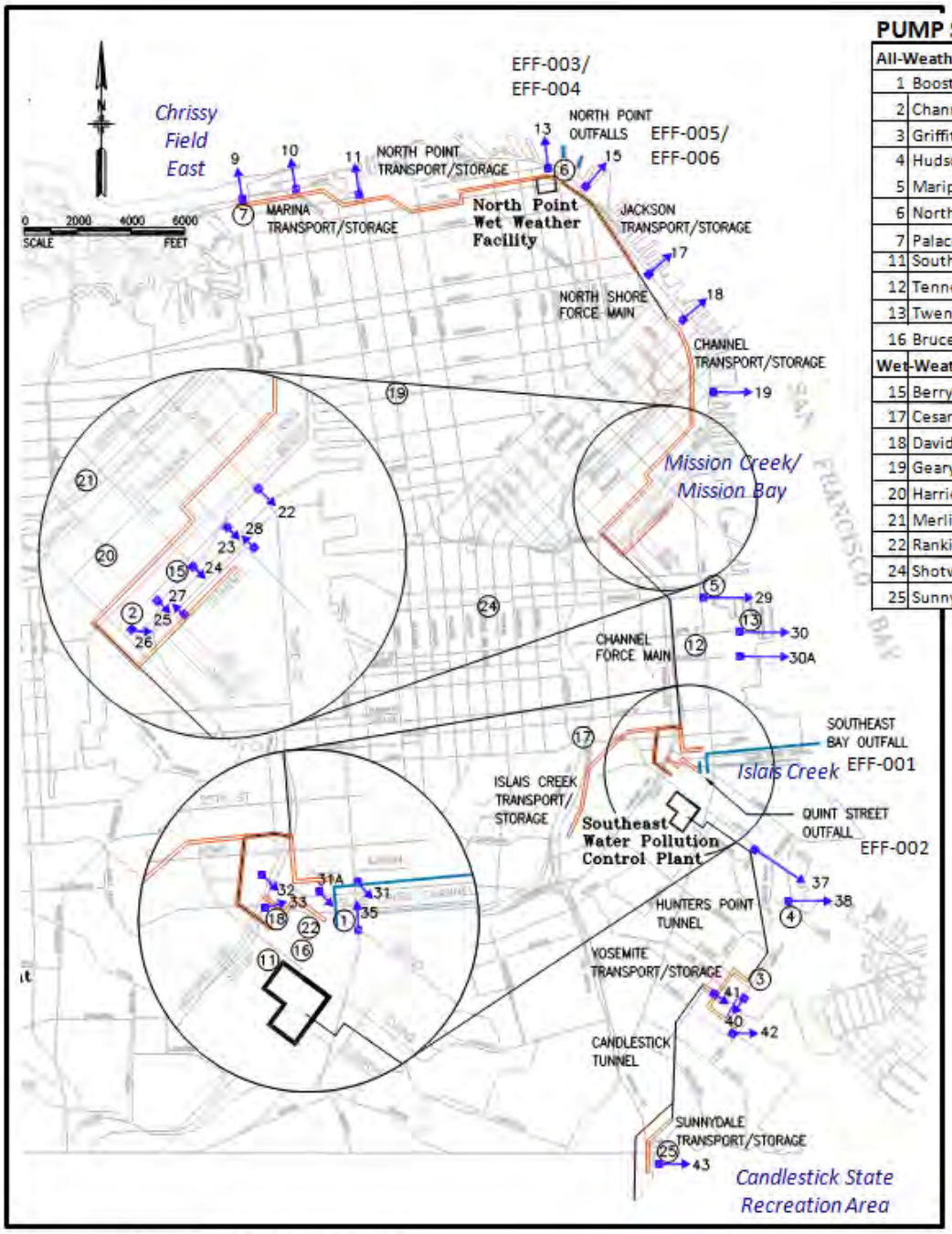
1. Instantaneous influent flow to the Southeast Plant (at Monitoring Location INF-001 as defined in the Monitoring and Reporting Program) exceeds 110 MGD and discharge occurs at Discharge Point No. 002;

2. Average influent biochemical oxygen demand (BOD_5) or total suspended solids (TSS) concentration at the Southeast Plant is less than 100 mg/L; or

3. North Shore storage/transport wastewater elevation exceeds 100 inches.

ATTACHMENT B – FACILITY MAP

The Facility subject to this Order is shown in the light green (eastern) area of the map and includes the Southeast Water Pollution Control Plant, the North Point Wet Weather Facility, and the Bayside Wet Weather Facilities. The remaining collection system subject to this Order is not shown. The Oceanside Water Pollution Control Plant, Westside Wet Weather Facilities, and Treasure Island Wastewater Treatment Plant are shown only for reference.



PUMP STATIONS

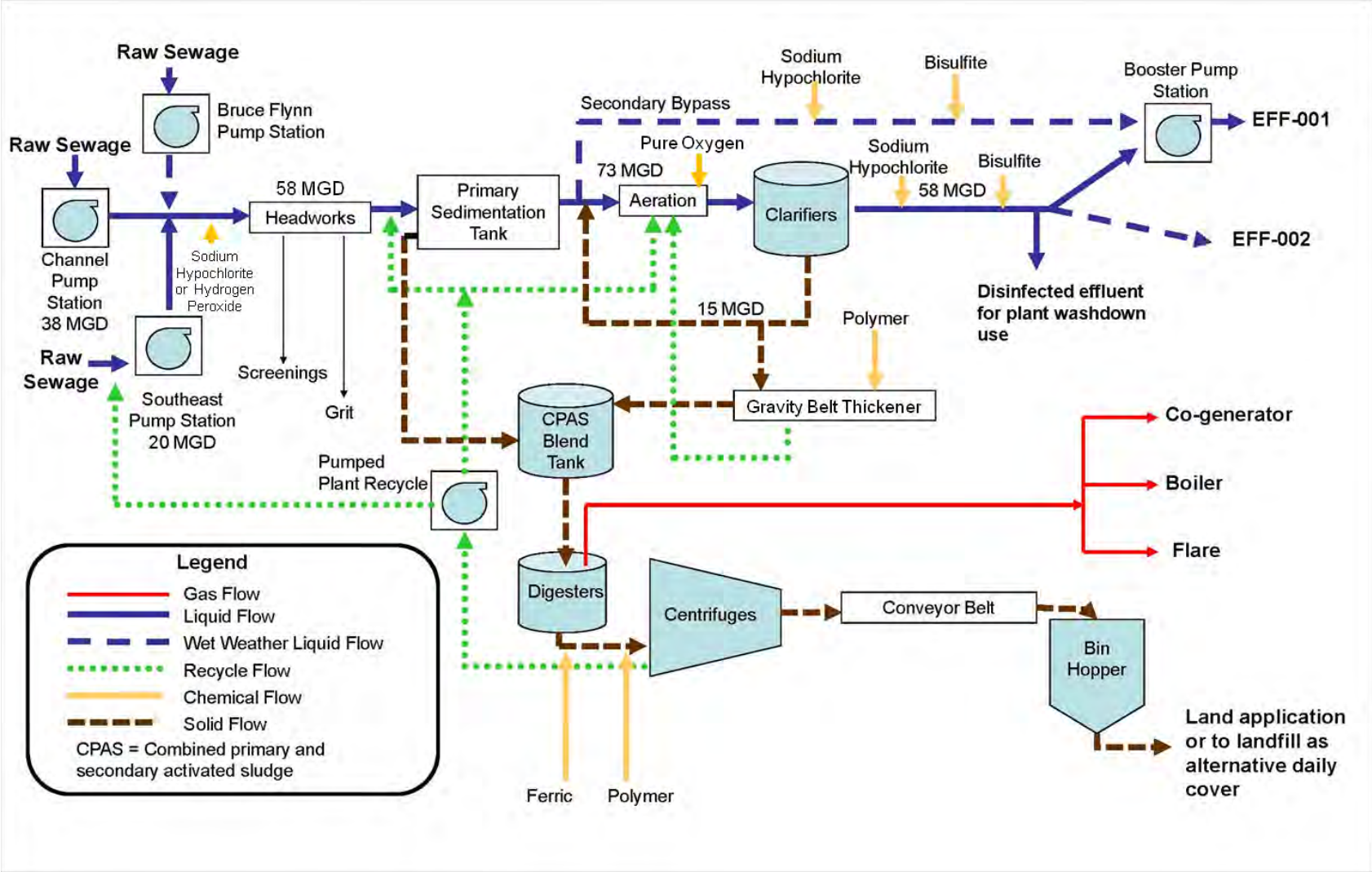
All-Weather Facilities	
1	Booster PS
2	Channel PS
3	Griffith PS
4	Hudson Avenue LS
5	Mariposa PS
6	North Shore PS
7	Palace of Fine Arts PS
11	Southeast LS
12	Tennessee PS
13	Twentieth Street LS
16	Bruce Flynn PS
Wet-Weather Facilities	
15	Berry PS
17	Cesar Chavez PS
18	Davidson Wet-Weather PS
19	Geary Underpass LS
20	Harriet Lucerne (WW) PS
21	Merlin/Morris PS
22	Rankin Wet-Weather PS
24	Shotwell PS
25	Sunnydale PS

PS = Pump Station
LS = Lift Station

COMBINED SEWER DISCHARGE POINTS

North Shore Area		Central Basin		Central Basin (cont'd)		Southeast Sector	
009	Baker Street	018	Howard Street	029	Mariposa Street	037	Evans Avenue
010	Pierce Street	019	Brannan Street	030	20th Street	38	Hudson Avenue
011	Laguna Street	022	Third Street	030a	22nd Street	040	Griffith Street South
013	Beach Street	023	Fourth Street North	031	Third Street North	041	Yosemite Avenue
015	Sansome Street	024	Fifth Street North	031A	Islais Creek North	042	Fitch Street
017	Jackson Street	025	Sixth Street North	032	Marin Street	043	Sunnydale Avenue
		026	Division Street	033	Selby Street		
		027	Sixth Street South	035	Third Street South		
		028	Fourth Street South				

ATTACHMENT C – PROCESS FLOW DIAGRAM



ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under CWA section 307(a) for toxic pollutants and with standards for sewage sludge use or disposal established under CWA section 405(d) within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, U.S. EPA, or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass

1. Definitions

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of

equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. Approval. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions—Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

c. The Discharger submitted notice of the upset as required in Standard Provisions—Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions—Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS—PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under 40 C.F.R. part 136 or, in the case of sludge use or disposal, approved under 40 C.F.R. part 136 unless otherwise specified in 40 C.F.R. part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS—RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years

from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include the following:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) the analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits, and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS—REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions—Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)

2. For a corporation, all permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and

regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)

For a partnership or sole proprietorship, all permit applications shall be signed by a general partner or the proprietor, respectively. (40 C.F.R. § 122.22(a)(2).)

For a municipality, state, federal, or other public agency, all permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions—Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions—Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions—Reporting V.B.2 or V.B.3 above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly

responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order. (40 C.F.R. § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):

a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 C.F.R. section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (Alternatively, for an existing manufacturing, commercial, mining, or silvicultural discharge as referenced in 40 C.F.R. section 122.42(a), this notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under 40 C.F.R. section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1).) (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions—Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision—Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the

Regional Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this Order under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS—NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));

c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(2)):

a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));

b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to CWA sections 301 or 306 if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of this Order. (40 C.F.R. § 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and State regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with this MRP. The Executive Officer may amend this MRP pursuant to 40 C.F.R. sections 122.62, 122.63, and 124.5. If any discrepancies exist between this MRP and the "Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits" (Attachment G), this MRP shall prevail.

B. The Discharger shall conduct all monitoring in accordance with Attachment D, section III, as supplemented by Attachment G. Equivalent test methods must be more sensitive than those specified in 40 C.F.R. section 136 and must be specified in this permit.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Locations

Type of Sampling Location	Monitoring Location Name	Monitoring Location Description [1]
Influent	INF-001	Any point at the Southeast Plant upstream of the primary sedimentation basins at which all waste tributary to the treatment system is present, and preceding any phase of treatment. *Latitude 37.744611 Longitude -122.392111*
Influent	INF-002	Any point at the North Point Facility upstream of the primary sedimentation basins at which all waste tributary to the treatment system is present, and preceding any phase of treatment. *Latitude 37.806333 Longitude -122.409389*
Effluent	EFF-001A	During dry weather, any point at the Southeast Plant between the point at which all wastes have gone through complete secondary treatment, including disinfection, and Discharge Point No. 001 (deep water outfall). *Latitude 37.743611 Longitude -122.390000*
Effluent	EFF-001B	During wet weather, any point at the Southeast Plant at which adequate disinfection is assured and Discharge Point No. 001 (deep water outfall) (may be the same as Monitoring Location EFF-001A). *Latitude 37.743611 Longitude -122.390000*
Effluent	EFF-002	During wet weather, any point at the Southeast Plant between the point at which all wastes have gone through complete secondary treatment, including disinfection, and Discharge Point No. 002 (Islais Creek outfall). *Latitude 37.746944 Longitude -122.388056*

Type of Sampling Location	Monitoring Location Name	Monitoring Location Description [1]
Effluent	EFF-003	During wet weather, any point at the North Point Facility between Discharge Point Nos. 003 and 004 (Pier 33 outfalls) and 005 and 006 (Pier 35 outfalls) and the point at which all waste tributary to those outfalls is present and adequate disinfection is assured. *Latitude 37.806667 Longitude -122.407500*
Combined Sewer Discharge	CSD-010	During wet weather, any point between Discharge Point No. 010 (Pierce Street outfall) and the point at which all waste tributary to the outfall is present. *Latitude 37.806944 Longitude -122.440000*
Combined Sewer Discharge	CSD-025	During wet weather, any point between Discharge Point No. 025 (Sixth Street North outfall) and the point at which all waste tributary to the outfall is present. *Latitude 37.071944 Longitude -122.396111*
Combined Sewer Discharge	CSD-029	During wet weather, any point between Discharge Point No. 029 (Mariposa Street outfall) and the point at which all waste tributary to the outfall is present. *Latitude 37.764722 Longitude -122.385278*
Combined Sewer Discharge	CSD-031A	During wet weather, any point between Discharge Point No. 031A (North Islais North outfall) and the point at which all waste tributary to the outfall is present. *Latitude 37.747778 Longitude -122.387500*
Combined Sewer Discharge	CSD-041	During wet weather, any point between Discharge Point Nos. 041 or 042 (Yosemite Avenue or Fitch Street outfalls) and the point at which all waste tributary to the outfalls is present. *Latitude 37.723889 Longitude -122.381389* or *Latitude 37.722222 Longitude -122.381389*
Combined Sewer Discharge	CSD-043	During wet weather, any point between Discharge Point No. 043 (Sunnydale Avenue outfall) and the point at which all waste tributary to the outfall is present. *Latitude 37.747222 Longitude -122.386944*
Shoreline	S-202.5	Crissy Field West *Latitude 37.811667 Longitude -122.490000*
Shoreline	S-202.4	Crissy Field (east of Lagoon) *Latitude 37.810278 Longitude -122.452778*
Shoreline	S-210.1	Aquatic Park (Hyde St. Pier) *Latitude 37.8150DW00 Longitude -122.425833*
Shoreline	S-211	Aquatic Park Beach East End *Latitude 37.814722 Longitude -122.424167*
Shoreline	S-300.1	Candlestick Point SRA (Sunnydale Cove Beach) *Latitude 37.715833 Longitude -122.394167*
Shoreline	S-301.1	Candlestick Point SRA (Windsurfer Circle) *Latitude 37.715278 Longitude -122.366607*
Shoreline	S-301.2	Candlestick Point SRA (Jack Rabbit Beach) *Latitude 37.718611 Longitude -122.366667*
Biosolids	BIO-001	Biosolids (treated sludge)

Footnote:

[1] Latitude and longitude information is approximate for administrative purposes.

III. INFLUENT MONITORING REQUIREMENTS

The Discharger shall monitor Southeast Plant influent at Monitoring Location INF-001 as follows. Only flow monitoring is required during wet weather.

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MGD	Continuous	Continuous/D [3]
Biochemical Oxygen Demand (5-day @ 20°C)(BOD_5)	mg/L	C-24	1/Week [3]
Total Suspended Solids (TSS)	mg/L	C-24	5/Week [3]
Cyanide, Total [2]	µg/L	Grab	1/Month [3]

Unit Abbreviations:

MGD = million gallons per day
MG = million gallons
mg/L = milligrams per liter
µg/L = micrograms per liter

Sample Type:

Continuous = measured continuously
C-24 = 24-hour composite sample
Grab = Grab sample

Sampling Frequency:

Continuous/D = measured continuously, and recorded and reported daily
1/Week = once per week
5/Week = five times per week
1/Month = once per month

Footnotes:

[1] Flow shall be monitored continuously and the following information shall be reported in monthly self-monitoring reports:
- Daily average flow (MGD)
- Monthly average flow (MGD)
- Total monthly flow volume (MG)
- Maximum and minimum daily average flow rates (MGD)

[2] Influent cyanide monitoring may be used to satisfy the pretreatment monitoring requirements in Table E-7.

[3] BOD_5, TSS, and total cyanide monitoring is required only during dry weather.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Dry Weather

During dry weather, the Discharger shall monitor Southeast Plant effluent at Monitoring Location EFF-001A as follows:

Table E-3. Effluent Monitoring — Dry Weather

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MGD	Continuous	Continuous/D
BOD_5	mg/L	C-24	1/Week [2]
TSS	mg/L	C-24	5/Week
Chemical Oxygen Demand (COD)	mg/L	C-24	5/Week [2]
Oil and Grease [3]	mg/L	Grab	1/Month

Parameter	Units	Sample Type	Minimum Sampling Frequency
pH [4]	standard units	Continuous or Grab	Continuous or 5/Week
Enterococcus [9]	MPN/100 mL	Grab	4/Year [8]
Fecal Coliform [9]	MPN/100 mL	Grab	1/Week
Total Residual Chlorine [5]	mg/L	Continuous or Grab	Continuous/H or 1/Hour
Acute Toxicity [6]	% Survival	Flow through	1/Month
Chronic Toxicity [7]	TUc	C-24	2/Year
Ammonia, Total	mg/L as N	Grab or C-24	1/Month
Copper, Total Recoverable	µg/L	C-24	1/Month
Cyanide, Total	µg/L	Grab	1/Month
Dioxin-TEQ	µg/L	Grab	2/Year
1,2-Diphenylhydrazine	µg/L	Grab	1/Month

Unit Abbreviations:

MGD = million gallons per day
mg/L = milligrams per liter
mg/L as N = milligrams per liter as nitrogen
MPN/100 mL = most probable number per 100 milliliters
TUc = chronic toxicity units, equal to 100/NOEL, where NOEL = IC_{25}, EC_{25}, or NOEC
µg/L = micrograms per liter

Sample Type:

Continuous = measured continuously
C-24 = 24-hour composite sample
Grab = grab sample

Sampling Frequency:

Continuous/H = measured continuously, and recorded and reported hourly
Continuous/D = measured continuously, and recorded and reported daily
1/Hour = once per hour
1/Week = once per week
3/Week = three times per week
5/Week = five times per week
1/Month = once per month
5/Month = five times per month
2/Year = twice per year
4/Year = four times per year

Footnotes:

[1] Flow shall be monitored continuously and the following information shall be reported in monthly self-monitoring reports:
- Daily average flow (MGD)
- Monthly average flow (MGD)
- Total monthly flow volume (MG)
- Maximum and minimum daily average flow rates (MGD)

[2] If the COD concentration exceeds 75 mg/L on two consecutive days, the Discharger shall increase the BOD_5 sampling frequency to daily until it demonstreates that the BOD_5 concentration is below 30 mg/L.

[3] Each oil and grease sampling and analysis event shall be conducted in accordance with U.S. EPA Method 1664.

[4] If pH is monitored continuously, the minimum and maximum pH values for each day shall be reported in self-monitoring reports.

[5] Effluent residual chlorine concentrations shall be monitored continuously or, at a minimum, every hour. The Discharger shall report for each day the maximum residual chlorine concentration observed following dechlorination. However, if monitoring continuously, the Discharger shall report for each day the maximum residual chlorine concentration based only on discrete readings from the continuous monitoring taken every hour on the hour. The Discharger shall retain continuous monitoring readings for at least three years. The Regional Water Board reserves the right to use all other continuous monitoring data for discretionary enforcement.

[6] Acute bioassay tests shall be performed in accordance with MRP section V.A.

[7] Critical life stage toxicity tests shall be performed in accordance with MRP section V.B.

[8] The four samples shall be collected in different calendar months during the higher recreational water contact season (June through October). If the enterococcus effluent limitation is exceeded, the Discharger shall conduct 5/Month accelerated sampling for at least three consecutive months. If full compliance is demonstrated after the three months, the Discharger may return to the 4/Year sampling.

[9] Results may be reported as Colony Forming Units/100 milliliters (CFU/100 mL) if the laboratory method used provides results in CFU/100 mL.

B. Wet Weather

1. **Southeast Plant and North Point Facility Outfalls.** During wet weather, when wet weather facilities are operating, the Discharger shall monitor Southeast Plant effluent at Monitoring Locations EFF-001B and EFF-002, and North Point Facility effluent at Monitoring Location EFF-003, as follows:

Table E-4. Effluent Monitoring — Wet Weather

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MGD	Continuous	Continuous/D
TSS	mg/L	C-X	1/Month
COD	mg/L	C-X	1/Month
Oil and Grease	mg/L	Grab	1/Month
pH	standard units	Continuous or Grab	Continuous or 1/Month
Enterococcus [5]	MPN/100 mL [2]	Grab	1/Day [4]
Fecal Coliform	MPN/100 mL [2]	Grab	1/Day [4]
Total Residual Chlorine	mg/L	Continuous or Grab	Continuous/H or 1/Hour
Acute Toxicity [3]	% Survival	Grab	1/Month
Copper, Total Recoverable	µg/L	C-X	1/Month
Cyanide, Total	µg/L	C-X	1/Month
Ammonia, Total	mg/L as N	Grab	1/Month

Unit Abbreviations:

MGD = million gallons per day
mg/L = milligrams per liter
mg/L as N = milligrams per liter as nitrogen
µg/L = micrograms per liter
MPN/100 mL = most probable number per 100 milliliters

Sample Type:

Continuous = measured continuously
C-X = composite sample comprised of individual grab samples collected at equal intervals of no more than one hour for the duration of the discharge event but not exceeding 24 hours. If an event does not last at least 24-hours, the Discharger shall sample for as long as possible and note the duration in its self-monitoring report.
Grab = grab sample

Sampling Frequency:

Continuous/H = measured continuously, and recorded and reported hourly
Continuous/D = measured continuously, and recorded and reported daily
1/Hour = once per hour
1/Month = once per month
1/Day = once per wet weather day

Footnotes:

[1] Flow shall be monitored continuously and the following information shall be reported in monthly self-monitoring reports:
- Daily average flow (MGD)
- Monthly average flow (MGD)
- Total monthly flow volume (MG)
- Maximum and minimum daily average flow rates (MGD)

[2] Results may be reported as colony forming units (CFU)/100 mL if the laboratory method used provides results in CFU/100 mL.

[3] Acute bioassay tests shall be performed only at Monitoring Location EFF-001B and EFF-003 in accordance with MRP section V.A.

[4] Wet weather effluent samples shall be collected within 4 hours after discharges start (when discharges start between 4:00 a.m. and 2:00 p.m.). If the wet weather facility begins operation after 2:00 p.m., samples shall be collected first thing the next morning during business hours (by 9:00 a.m.), provided that the discharge is still occurring.

[5] Data from both wet and dry weather shall be included when calculating the geometric mean for compliance with this monthly wet weather limitation. For days with discharge but no sampling, the enterococcus densities shall be assumed to be the same as the densities of the most recent discharge samples. For days with no discharge, enterococcus densities shall be assumed to be 1 MPN/100 mL for calculational purposes.

2. **Combined Sewer Discharge Outfalls.** During wet weather, when combined sewer discharges are occurring, the Discharger shall monitor combined sewer discharges at Monitoring Locations CSD-010 through CSD-043 as follows:

Table E-5. Combined Sewer Discharge Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Event Duration	minutes	---	1/Event
Flow Volume [1]	MG	Continuous	1/Event

Unit Abbreviations:

MG = million gallons

Sample Type:

Continuous = measured continuously

Sampling Frequency:

1/Event = once per combined sewer discharge event

Footnote:

[1] Flow volume may be estimated using models.

The Discharger shall also record and report in its self-monitoring reports the following information for each combined sewer discharge event at Monitoring Locations CSD-010 through CSD-043:

a. Date and time that combined sewer discharge started;

b. Rainfall intensity and amount (aggregated hourly data); and

c. Information supporting discharge volume estimate (if estimated).

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Discharger shall monitor whole effluent acute and chronic toxicity as follows.

A. Whole Effluent Acute Toxicity

1. During dry weather, acute toxicity at Discharge Point No. 001 (Monitoring Location EFF-001A) shall be evaluated by measuring survival of test organisms exposed to 96-hour continuous flow-through bioassays. The Discharger may stop a bioassay if wet weather occurs during a 96-hour test. If so, the Discharger shall initiate another test as soon as possible (i.e., as soon as approximately 96 hours of dry weather is forecasted). The Discharger may choose to continue a test during wet weather unless the instantaneous influent flow to the Southeast Plant (at Monitoring Location INF-001 as defined in the MRP) exceeds 110 MGD and discharge occurs at Discharge Point No. 002.

During wet weather, acute toxicity at Discharge Point Nos. 001 and 003 through 006 (Monitoring Locations EFF-001B and EFF-003) shall be evaluated by measuring survival of test organisms exposed to 96-hour static bioassays.

2. Test organisms shall be rainbow trout (*Oncorhynchus mykiss*) or fathead minnow (*Pimphales promelas*). The Executive Officer may specify a more sensitive organism or, if testing a particular organism proves unworkable, the most sensitive organism available.

3. All bioassays shall be performed according to the most up-to-date protocols in 40 C.F.R. part 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,* 5th Edition (EPA-821-R-02-012).

4. If the Discharger demonstrates that specific identifiable substances in the discharge are rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limit may be determined after test samples are adjusted to remove the influence of those substances. Written acknowledgement that the Executive Officer concurs with the Discharger's demonstration and that the adjustment will not remove the influence of other substances must be obtained prior to any such adjustment. The Discharger may manually adjust the pH of whole effluent acute toxicity samples prior to performing bioassays to minimize ammonia toxicity interference.

5. Bioassay water monitoring shall include, on a daily basis, pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If a violation of an acute toxicity limit occurs, the bioassay test shall be repeated with new fish as soon as practical and shall be repeated until a test fish survival rate of 90 percent or greater is observed. If the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new fish and shall continue as soon as practical until an acceptable test is completed (i.e., control fish survival rate is 90 percent or greater).

B. Whole Effluent Chronic Toxicity

1. Monitoring Requirements

a. Sampling. During dry weather, the Discharger shall collect 24-hour composite effluent samples at Monitoring Location EFF-001A for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, the Discharger shall collect 24-hour composite samples on consecutive days.

b. Test Species. The test species shall be purple sea urchin (*Strongylocentroltus purpuratus*) or, if gravid purple sea urchin are unavailable, sand dollar (*Dendraster excentricus*), unless a more sensitive species is identified.

The Discharger shall conduct a screening chronic toxicity test as described in Appendix E-1 following any significant change in the nature of the effluent. If there is no significant change in the nature of the effluent, the Discharger shall conduct a screening test and submit the results with its application for permit reissuance.

c. Frequency. Chronic toxicity monitoring shall be as specified below:

i. The Discharger shall monitor routinely twice per year.

ii. The Discharger shall accelerate monitoring to monthly after either exceeding a three-sample median of 10 TUC or a single-sample maximum of 20 TU_c. Based on the TUc results, the Executive Officer may specify a different frequency for accelerated monitoring to ensure that accelerated monitoring provides useful information.

iii. The Discharger shall return to routine monitoring if accelerated monitoring does not exceed either trigger in ii, above.

iv. If accelerated monitoring confirms consistent toxicity in excess of either trigger in ii, above, the Discharger shall continue accelerated monitoring and initiate toxicity reduction evaluation (TRE) procedures in accordance with section V.B.3, below.

v. The Discharger shall return to routine monitoring after implementing appropriate elements of the TRE, and either the toxicity drops below both triggers in ii, above, or, based on the TRE results, the Executive Officer determines that accelerated monitoring would no longer provide useful information.

Monitoring conducted pursuant to a TRE shall satisfy the requirements for routine and accelerated monitoring while the TRE is underway.

d. Methodology. Sample collection, handling, and preservation shall be in accordance with U.S. EPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in Appendix E-1. These are *Short-Term Methods for Estimating the Chronic Toxcicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*, currently first edition (EPA/600/R-95-136). If these protocols prove unworkable, the Executive Officer and the Environmental Laboratory Accreditation Program may grant exceptions in writing upon the Discharger's request with justification. If the Discharger demonstrates that specific identifiable substances in the discharge are rapidly rendered harmless upon discharge to the receiving water, compliance with the chronic toxicity limit may be determined after test samples are adjusted to remove the influence of those substances. Written acknowledgement that the Executive Officer concurs with the Discharger's demonstration and that the adjustment will not remove the influence of other substances must be obtained prior to any such adjustment.

e. Dilution Series. The Discharger shall conduct tests at 20%, 15%, 10%, 5%, and 2.5%. The "%" represents percent effluent as discharged. Test sample pH may be controlled to the level of the effluent sample as received prior to being salted up.

2. Reporting Requirements

a. The Discharger shall provide toxicity test results for the current reporting period in the self-monitoring report and shall include the following, at a minimum, for each test.

i. Sample date

ii. Test initiation date

iii. Test species

iv. End point values for each dilution (e.g., number of young, growth rate, percent survival)

v. No Observable Effect Level (NOEL) values in percent effluent. The NOEL shall equal the IC_{25} or EC_{25} (see MRP Appendix E-1). If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall equal to the No Observable Effect Concentration (NOEC) derived using hypothesis testing. The NOEC is the maximum percent effluent concentration that causes no observable effect on test organisms based on a critical life stage toxicity test.

vi. IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25}, EC_{40}, and EC_{50}) as percent effluent

vii. TUc values (100/NOEL, where NOEL = IC_{25}, EC_{25}, or NOEC

viii. Mean percent mortality (±s.d.) after 96 hours in 100% effluent (if applicable)

ix. IC_{50} or EC_{50} values for reference toxicant tests

x. Available water quality measurements for each test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, and ammonia)

b. The Discharger shall provide the results of the most recent three chronic toxicity tests and the 3-sample median in the self-monitoring report as TUc's.

3. Toxicity Reduction Evaluation (TRE)

a. The Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order to be ready to respond to toxicity events. The Discharger shall review and update the work plan as necessary so that it remains current and applicable to the discharge and discharge facilities.

b. Within 30 days of exceeding either chronic toxicity trigger in section V.B.1.c.ii, above, the Discharger shall submit a TRE work plan, which shall be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.

c. Within 30 days of completing an accelerated monitoring test observed to exceed either trigger in section V.B.1.c.ii, above, the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.

d. The TRE shall be specific to the discharge and be in accordance with current technical guidance and reference materials, including U.S. EPA guidance materials. The Discharger shall conduct the TRE as a tiered evaluation as summarized below.

i. Tier 1 shall consist of basic data collection (routine and accelerated monitoring).

ii. Tier 2 shall consist of evaluation of treatment process optimization, including operational practices and in-plant process chemicals.

iii. Tier 3 shall consist of a toxicity identification evaluation (TIE).

iv. Tier 4 shall consist of evaluation of options for additional effluent treatment processes.

v. Tier 5 shall consist of evaluation of options for modifications of in-plant treatment processes.

vi. Tier 6 shall consist of implementation of selected toxicity control measures, and followup monitoring and confirmation of implementation success.

e. The Discharger may end the TRE at any stage if monitoring finds there is no longer consistent toxicity (i.e., compliance with Provision IV.A.5 of the Order).

f. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. The Discharger shall employ all reasonable efforts using currently available TIE methodologies.

g. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the sources and evaluating alternative strategies for reducing or eliminating the toxic substances from the discharge. The Discharger shall take all reasonable steps to reduce toxicity to levels below the chronic toxicity limit.

h. Many recommended TRE elements parallel required or recommended efforts related to source control, pollution prevention, and stormwater control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to demonstrate compliance with TRE requirements.

i. Chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be successful. Regional Water Board enforcement considerations will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

VI. RECEIVING WATER MONITORING REQUIREMENTS

A. Regional Monitoring. The Discharger shall continue to participate in the Regional Monitoring Program, which collects data on pollutants and toxicity in San Francisco Bay water, sediment, and biota.

B. Shoreline Monitoring. Following any combined sewer discharge event at Discharge Point Nos. 009, 010, 011, 013, or 015, the Discharger shall monitor shoreline receiving waters at Monitoring Locations S-202.4, S-202.5, S-210, and S-211. Following any combined sewer discharge event at Discharge Point Nos. 040, 041, or 042, the Discharger shall monitor at Monitoring Location S-301.2. Following any combined sewer discharge event at Discharge Point No. 043, the Discharger shall monitor at Monitoring Locations S-300.1 and S-301.1. Monitoring shall be conducted at each location as follows for up to seven days or until the single-sample bacteriological standards of Cal. Code of Regs. tit. 17, section 7958(a)(1), are met at that location (i.e., the enterococcus density is less than 104 most probable number (MPN)/100 mL and the fecal coliform density is less than 400 MPN/100 mL). Samples shall be collected between 8:00 a.m. and 4:00 p.m.

Table E-6. Shoreline Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Enterococcus [1]	MPN/100 mL [3]	Grab	1/Day
Fecal Coliform [2]	MPN/100 mL [3]	Grab	1/Day

Unit Abbreviations:

MPN/100 mL = most probable number per 100 milliliters

Sample Type:

Grab = Grab sample

Sampling Frequency:

1/Day = once per day

Footnotes:

[1] The Discharger shall monitor for enterococcus using U.S. EPA-approved methods, such as the IDEXX Enterolert method. When replicate analyses are made, the reported result shall be the geometric mean of the replicate results.

[2] Alternatively, the Discharger may measure *E. coli* as recommended for the U.S. EPA Beach Monitoring Program. *E. coli* may be measured using the IDEXX Colilert method.

[3] Results may be reported as CFU/100 mL if the test method used provides results in CFU/100 mL.

VII. PRETREATMENT AND BIOSOLIDS MONITORING REQUIREMENTS

The Discharger shall comply with the following pretreatment monitoring requirements for influent (at Monitoring Location INF-001), effluent (at Monitoring Location EFF-001A), and biosolids (at Monitoring Location BIO-001). The Discharger shall report summaries of analytical results in annual and semi-annual pretreatment reports in accordance with Attachment H. At its option, the Discharger may also report biosolids analytical results in its electronic self-monitoring reports by manual entry, by EDF/CDF, or as an attached file.

Table E-7. Pretreatment and Biosolids Monitoring

Constituents	Sampling Frequency			Sample Type	
	Influent INF-001 [1]	Effluent EFF-001A [1]	Biosolids BIO-001	Influent and Effluent	Biosolids
VOC [2]	2/Year	2/Year	2/Year	Grab	Grabs [6c]
BNA [3]	2/Year	2/Year	2/Year	Grab	Grabs [6c]
Metals [4]	1/Month	1/Month	2/Year	C-24 [6a]	Grabs [6c]
Hexavalent Chromium [5]	1/Month	1/Month	2/Year	Grab	Grabs [6c]
Mercury	1/Month	1/Month	2/Year	Grab or C-24 [6a][6b]	Grabs [6c]
Cyanide, Total	1/Month	1/Month	---	Grab	Grabs [6c]

Sample Type:

C-24 = 24-hour composite sample
Grab = Grab sample

Sampling Frequency:

1/Month = once per month
2/Year = twice per year

Footnotes:

[1] Influent and effluent monitoring conducted in accordance with Tables E-2 and E-3 may be used to satisfy these pretreatment monitoring requirements.

[2] VOC: volatile organic compounds

[3] BNA: base/neutrals and acids extractable organic compounds

[4] The metals are arsenic, cadmium, copper, lead, nickel, silver, zinc, and selenium.

[5] The Discharger may elect to report total chromium instead of hexavalent chromium. Samples collected for total chromium measurements shall be 24-hour composites.

[6] Sample types:

a. If an automatic compositor is used, the Discharger shall obtain 24-hour composite samples through flow-proportioned composite sampling. Alternatively, 24-hour composite samples may consist of discrete grab samples combined (volumetrically flow-weighted) prior to analysis or mathematically flow-weighted.

b. The Discharger may use automatic compositors for mercury if either (1) the compositing equipment (hoses and containers) complies with ultra-clean specifications, or (2) equipment blank samples demonstrate that the compositing equipment has not contaminated the sample.

c. The biosolids sample shall be a composite of the biosolids to be disposed. Biosolids collection and monitoring shall comply with the requirements specified in Attachment H, Appendix H-4. The Discharger shall also comply with the biosolids monitoring requirements of 40 C.F.R. part 503.

VIII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (Attachments D and G) related to monitoring, reporting, and recordkeeping, with modifications shown in section IX, below.

B. Self-Monitoring Reports (SMRs)

1. **SMR Format.** The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Web site (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS website will provide additional information for SMR submittal in the event of a planned service interruption for electronic submittal.

2. **SMR Due Dates and Contents.** The Discharger shall submit SMRs by the due dates, and with the contents, specified below:

   a. **Monthly SMRs —** Monthly SMRs shall be due 30 days after the end of each calendar month, covering that calendar month. The monthly SMR shall contain the applicable items described in sections V.B and V.C of both Attachments D and G of this Order. See Provision VI.C.2 (Effluent Characterization Study and Report) of this Order for information that must also be reported with monthly SMRs.

   Monthly SMRs shall include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the Discharger shall include the results of such monitoring in the calculations and reporting for the SMR.

   b. **Annual SMR —** Annual SMRs shall be due February 1 each year, covering the previous calendar year. The annual SMR shall contain the items described in sections V.C.1.f of Attachment G. See also Provisions VI.C.2 (Effluent Characterization Study and Report) and VI.C.5.b.ix (Monitor to Characterize Wet Weather Discharge Impacts and Efficacy of Controls) of the Order for requirements to submit reports with the annual SMR.

   c. **Specifications for Submitting SMRs to CIWQS —** The Discharger shall submit analytical results and other information using one of the following methods.

Table E-8. CIWQS Reporting

Parameter	Method of Reporting	
	EDF/CDF data upload or manual entry	**Attached File**
All parameters identified in influent, effluent, and receiving water monitoring tables (except Dissolved Oxygen and Temperature)	Required for all results	
Dissolved Oxygen Temperature	Required for monthly maximum and minimum results only [1]	Discharger may use this method for all results or keep records
Cyanide Arsenic Cadmium Chromium Copper Lead Mercury Nickel Selenium Silver Zinc Dioxins and Furans (by U.S. EPA Method 1613)	Required for all results [2]	
Antimony Beryllium Thallium Other Pollutants (by U.S. EPA Methods 601, 602, 608, 610, 614, 624, and 625)	Not required (unless identified in influent, effluent, or receiving water monitoring tables), but encouraged [1]	Discharger may use this method and submit results with application for permit reissuance, unless data are submitted by CDF/EDF upload
Volume and Duration of Blended Discharge [3]	Required for all blended effluent discharges	

Parameter	Method of Reporting	
	EDF/CDF data upload or manual entry	**Attached File**
Analytical Method	Not required (Discharger may select "data unavailable") [1]	
Collection Time Analysis Time	Not required (Discharger may select "0:00") [1]	

Footnotes:

[1] The Discharger shall continue to monitor at the minimum frequency specified in this MRP, keep records of the measurements, and make the records available upon request.

[2] These parameters require EDF/CDF data upload or manual entry regardless of whether monitoring is required by this MRP or other provisions of this Order (except for biosolids, sludge, or ash provisions).

[3] The requirement for volume and duration of blended discharge applies only if this Order authorizes the Discharger to discharge blended effluent.

The Discharger shall arrange all reported data in a tabular format and summarize data to clearly illustrate whether the Facility is operating in compliance with effluent limitations. The Discharger is not required to duplicate the submittal of data entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format, the Discharger shall electronically submit the data in a tabular format as an attachment.

3. **Monitoring Periods.** Monitoring periods for all required monitoring shall be as set forth below unless otherwise specified:

Table E-9. Monitoring Periods

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Permit effective date	All
1/Hour	Permit effective date	Hourly
1/Day	Permit effective date	Midnight through 11:59 p.m. or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
1/Week or 2/Week or 5/Week	Sunday following permit effective date or on permit effective date if on Sunday	Sunday through Saturday
1/Month	First day of calendar month following permit effective date or on permit effective date if on first day of month	First day of calendar month through last day of calendar month
1/2 Months	First day of calendar month following permit effective date or on permit effective date if that date is first day of month	First day of calendar month through last day of next calendar month
1/Year	January 1	January 1 through December 31
2/Year	Closest January 1 or July 1 following (or on) permit effective date	November 1 through April 30 May 1 through October 31
4/Year	Closest January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
1/5 Years	Permit effective date	Once during the Order term no more than 12 months prior to applying for permit reissuance.

4. **RL and MDL Reporting.** The Discharger shall report with each sample result the Reporting Level (RL) and Method Detection Limit (MDL) as determined by the procedure in 40 C.F.R. part 136. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+/- a percentage of the reported value), numerical ranges (low to high), or any other means the laboratory considers appropriate.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected" or ND.

   d. The Discharger shall instruct laboratories to establish calibration standards so that the minimum level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in the Fact Sheet and Attachments A, D, and G. For purposes of reporting and administrative enforcement by the Regional Water Board and State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

C. Discharge Monitoring Reports (DMRs)

1. At any time during the term of this Order, the State Water Board or Regional Water Board may notify the Discharger to electronically submit DMRs. Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. Once notified by the State Water Board or Regional Water Board, the Discharger shall submit hard copy DMRs. The Discharger shall sign and certify DMRs as Attachment D requires. The Discharger shall submit original DMRs to one of the addresses listed below:

Standard Mail	FedEx/UPS/Other Private Carriers
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results shall be reported on official U.S. EPA pre-printed DMR forms (EPA Form 3320-1) or self-generated forms that follow the exact same format as EPA Form 3320-1.

IX. MODIFICATIONS TO ATTACHMENT G

This MRP modifies Attachment G as indicated below:

A. Attachment G sections V.C.1.f and V.C.1.g are revised as follows, and section V.C.1.h (Reporting data in electronic format) is deleted.

f. Annual self-monitoring report requirements

By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

1) Annual compliance summary table of treatment plant performance (this summary table is not required if the Discharger has submitted the year's monitoring results to CIWQS in electronic reporting format by EDF/CDF upload or manual entry);

2) Comprehensive discussion of treatment plant performance and compliance with the permit (this discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices);

3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater (this item is not required if the Discharger has submitted the year's monitoring results to CIWQS in electronic reporting format by EDF/CDF upload or manual entry);

4) List of approved analyses, including the following:

(i) List of analyses for which the Discharger is certified;

(ii) List of analyses performed for the Discharger by a separate certified laboratory (copies of reports signed by the laboratory director of that laboratory shall not be submitted but be retained onsite); and

(iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all stormwater to the headworks of its wastewater treatment plant); and

7) Results of facility report reviews (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.).

g. Report submittal

The Discharger shall submit SMRs addressed as follows, unless the Discharger submits SMRs electronically to CIWQS:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: NPDES Wastewater Division

h. Reporting data in electronic format – *Deleted*

B. Attachment G sections V.E.2, V.E.2.a, and V.E.2.c are revised as follows, and sections V.E.2.b (24-hour Certification) and V.E.2.d (Communication Protocol) are deleted.

2. Unauthorized Discharges from Municipal Wastewater Treatment Plants[1]

The following requirements apply to municipal wastewater treatment plants that experience an unauthorized discharge at their treatment facilities and

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

supersede requirements imposed on the Discharger by the Executive Officer by letter of May 1, 2008.

a. Two (2)-Hour Notification

For any unauthorized discharges that enter a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the California Emergency Management Agency (CalEMA, currently 800-852-7550), the local health officers or directors of environmental health with jurisdiction over the affected water bodies, and the Regional Water Board. Timely notification by the Discharger to CalEMA also satisfies notification to the Regional Water Board. Notification shall include the following:

1) Incident description and cause;

2) Location of threatened or involved waterway(s) or storm drains;

3) Date and time the unauthorized discharge started;

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on); and

6) Identity of the person reporting the unauthorized discharge.

b. 24-hour Certification – *Deleted*

c. 5-day Written Report

Within five business days, the Discharger shall submit a written report that includes, in addition to the information required above, the following:

1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;

2) Efforts implemented to minimize public exposure to the unauthorized discharge;

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;

4) Corrective measures taken to minimize the impact of the unauthorized discharge;

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges; and

7) Quantity and duration of the unauthorized discharge, and the amount recovered.

d. Communication Protocol – *Deleted*

X. MODIFICATIONS TO ATTACHMENT H

This MRP modifies Attachment H as indicated below.

A. Attachment H, Appendix H-3, Signature Requirements for Pretreatment Annual and Semiannual Reports, is revised as follows.

The pretreatment annual and semiannual reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Discharger (POTW - 40 C.F.R. section 403.12[m]). Signed copies of the reports shall be submitted to the State Water Board and the Regional Water Board through the electronic self-monitoring report (eSMR) module of the California Integrated Water Quality System (CIWQS).

APPENDIX E-1
CHRONIC TOXICITY
DEFINITION OF TERMS AND SCREENING PHASE REQUIREMENTS

I. Definition of Terms

A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25}. If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.

C. Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a nonlethal, nonquantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as U.S. EPA's Bootstrap Procedure.

D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

A. The Discharger shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or

2. Prior to permit reissuance. Screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

B. Design of the screening phase shall, at a minimum, consist of the following elements:

1. Use of test species specified in Appendix E-2, attached, and use of the protocols referenced in those tables.

2. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Appendix E-2 (attached).

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results.

3. Appropriate controls.

4. Concurrent reference toxicant tests.

5. Dilution series of 100%, 50%, 25%, 12.5%, 6.25%, and 0%, where "%" is percent effluent as discharged, or as otherwise approved by the Executive Officer if different dilution ratios are needed to reflect discharge conditions.

C. The Discharger shall submit a screening phase proposal. The proposal shall address each of the elements listed above. If within 30 days, the Executive Officer does not comment, the Discharger shall commence with screening phase monitoring.

APPENDIX E-2
SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS

Table AE-1. Critical Life Stage Toxicity Tests for Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Alga	*(Skeletonema costatum)* *(Thalassiosira pseudonana)*	Growth rate	4 days	1
Red alga	*(Champia parvula)*	Number of cystocarps	7–9 days	3
Giant kelp	*(Macrocystis pyrifera)*	Percent germination; germ tube length	48 hours	2
Abalone	*(Haliotis rufescens)*	Abnormal shell development	48 hours	2
Oyster Mussel	*(Crassostrea gigas)* *(Mytilus edulis)*	Abnormal shell development; percent survival	48 hours	2
Echinoderms - Urchins Sand dollar	*(Strongylocentrotus purpuratus, S. franciscanus)* *(Dendraster excentricus)*	Percent fertilization or larval development	1 hour (fertilization) or 72 hours (development)	2
Shrimp	*(Americamysis bahia)*	Percent survival; growth	7 days	3
Shrimp	*(Holmesimysis costata)*	Percent survival; growth	7 days	2
Topsmelt	*(Atherinops affinis)*	Percent survival; growth	7 days	2
Silversides	*(Menidia beryllina)*	Larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for Conducting Static 96-Hour Toxicity Tests with Microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.

2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995.

3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/821/R-02/014. October 2002.

Table AE-2. Critical Life Stage Toxicity Tests for Fresh Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Fathead minnow	*(Pimephales promelas)*	Survival; growth rate	7 days	4
Water flea	*(Ceriodaphnia dubia)*	Survival; number of young	7 days	4
Alga	*(Selenastrum capricornutum)*	Final cell density	4 days	4

Toxicity Test Reference:

1. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, fourth Edition Chronic manual (EPA-821-R-02-013, October 2002).

Table AE-3. Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay [1]	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater [2] Marine/Estuarine	0 4	1 or 2 3 or 4	3 0
Total number of tests	4	5	3

[1] (a) Marine refers to receiving water salinities greater than 1 part per thousand (ppt) at least 95 percent of the time during a normal water year.

(b) Freshwater refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

(c) Estuarine refers to receiving water salinities that fall between those of marine and freshwater, as described above.

[2] The freshwater species may be substituted with marine species if:

(a) The salinity of the effluent is above 1 ppt greater than 95 percent of the time, or

(b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

ATTACHMENT F - FACT SHEET

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ATTACHMENT F – FACT SHEET

This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. As described in section II.B of the Order, the Regional Water Board incorporates this Fact Sheet as its findings supporting the issuance of the Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	2 386010001
CIWQS Place ID	256499
Discharger	City and County of San Francisco
Facility Name	Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities, and Wastewater Collection System
Facility Address	San Francisco Public Utilities Commission / Wastewater Enterprise 750 Phelps Street San Francisco, CA 94124
	San Francisco County
Facility Contact, Title, Phone	Tommy Moala, Assistant General Manager, Wastewater Enterprise, (415) 554-2465
Authorized Person to Sign and Submit Reports	Same as Facility Contact
Mailing Address	San Francisco Public Utilities Commission 525 Golden Gate Ave., 13th Floor San Francisco, CA 94102
Billing Address	Same as Mailing Address
Facility Type	Publicly Owned Treatment Works
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Reclamation Requirements	Not Applicable
Mercury and PCBs Requirements	NPDES Permit No. CA0038849
Permitted Flow	85.4 million gallons per day (MGD)
Design Flow	Southeast Water Pollution Control Plant: 85.4 MGD – Average dry weather design flow capacity; 250 MGD – Wet weather design flow capacity: 150 MGD receives primary and secondary treatment, and additional 100 MGD receives only primary treatment. North Point Wet Weather Facility: 150 MGD – Wet weather design flow capacity (only primary treatment).
Watershed	San Francisco Bay
Receiving Water	San Francisco Bay
Receiving Water Type	Marine

A. The City and County of San Francisco (Discharger) is the owner and operator of the Southeast Water Pollution Control Plant (Southeast Plant), North Point Wet Weather Facility (North Point Facility), Bayside Wet Weather Facilities, and wastewater collection system (collectively Facility).

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Discharger is regulated pursuant to National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037664. It was previously subject to Order No. R2-2008-0007 (previous order), which was adopted on January 30, 2008, and expired on March 31, 2013. The Facility discharges wastewater to Central and Lower San Francisco Bay, waters of the United States within the San Francisco Bay watershed. Attachment B provides a map of the area around the Facility. Attachment C provides a Facility flow schematic.

The Discharger must file a petition with the State Water Resources Control Board (State Water Board), Division of Water Rights, and receive approval for any change in the point of discharge, place of use, or purpose of use of treated wastewater that decreases the flow in any portion of a watercourse. The State Water Board retains the jurisdictional authority to enforce such requirements under Water Code section 1211.

C. The Discharger filed a Report of Waste Discharge and submitted an application for reissuance of its WDRs and NPDES permit on October 2, 2012.

D. The discharge is also regulated under NPDES Permit No. CA0038849, which establishes requirements on mercury and polychlorinated biphenyls (PCBs) from wastewater discharges to San Francisco Bay. This Order does not affect the mercury and PCBs permit.

II. FACILITY DESCRIPTION

A. Wastewater and Biosolids Treatment and Controls

1. **Location and Service Area.** The Facility serves eastern San Francisco and portions of Brisbane and Daly City (served by the City of Brisbane, the Bayshore Sanitary District, and the North San Mateo County Sanitation District). The service area population is approximately 580,000.

   The Southeast Plant is located on Phelps Street at Jarrold Avenue near the Islais Creek Channel. It provides primary and secondary treatment of combined wastewater and stormwater. The North Point Facility is located on Bay Street near The Embarcadero. It provides primary treatment of combined wastewater and stormwater during wet weather. The Bayside Wet Weather Facilities are located throughout the eastern side of San Francisco, primarily near the shore. They provide equivalent-to-primary treatment during wet weather.

2. **Collection System.** The collection system is primarily a combined sewer system that conveys wastewater and stormwater to the Southeast Plant, North Point Facility, and Bayside Wet Weather Facilities. It consists of approximately 600 miles of pipe, and 7 major and 11 minor pump stations. Separate sanitary and storm drains serve isolated areas, including parts of Candlestick Point and Mission Bay. The Facility also receives wastewater from three satellite wastewater collection systems: the Bayshore Sanitary District (portions of Brisbane and Daly City), the City of Brisbane (residential sector), and the North San Mateo County Sanitation District (portions of Daly City). For the purposes of this Order, the Facility does not include the satellite collection systems.

3. **Wastewater Treatment.** The Discharger operates the Southeast Plant, North Point Facility, and Bayside Wet Weather Facilities to maximize treatment.

   a. **Southeast Plant.** During dry weather, the Southeast Plant provides secondary wastewater treatment. The treatment processes include a headworks (with coarse and fine bar screens, and grit removal), primary sedimentation tanks, pure oxygen aeration basins, secondary clarifiers, and chlorine contact basins (for chlorination using sodium hypochlorite and dechlorination using sodium bisulfite). These processes are shown in the diagram in Attachment C. The Southeast Plant has a dry weather design capacity of 85.4 MGD. From June 2010 through August 2012, its average dry weather flow was 58 MGD.

      During wet weather, the Southeast Plant processes up to 250 MGD of combined wastewater (i.e., sewage, industrial wastewater, and stormwater). Up to 150 MGD receives both primary and secondary treatment; the remaining flow (up to 100 MGD) receives only primary treatment. The entire volume is disinfected prior to discharge.

   b. **North Point Facility.** The North Point Facility discharges only during wet weather and provides primary treatment of combined wastewater. The treatment consists of bar screens, sedimentation tanks equipped with skimmers (clarification, removal of floatables), sodium hypochlorite injection, and dechlorination using sodium bisulfite addition. The North Point Facility can provide primary treatment for up to 150 MGD of combined wastewater. The entire volume of treated wastewater is disinfected and dechlorinated prior to discharge. Solids are directed to the Southeast Plant for digestion.

      The North Point Facility discharges under the following circumstances:

      - the North Shore Storage/Transport Box is at 200 inches;
      - within 60 minutes of any combined sewer discharge through Discharge Point Nos. 013 through 017; or
      - as necessary to minimize the likelihood of combined sewer discharges in the Central and Southeast Drainage Basins.

   c. **Bayside Wet Weather Facilities.** During dry weather, storage/transport structures transport wastewater to the Southeast Plant. During wet weather, these structures transfer combined wastewater to the Southeast Plant and, if necessary, the North Point Facility. They also provide storage for more than 120 million gallons of combined wastewater. In the event that the capacities of the Southeast Plant, North Point Facility, and storage/transport structures are exceeded, the combined wastewater receives the equivalent of primary treatment in the storage/transport structures and is discharged to San Francisco Bay through any one of 29 shoreline combined sewer discharge structures. The treatment in the storage/transport structures consists of settling solids with a series of baffles and weirs that also remove floatable materials prior to discharge. This process equates to the minimum treatment specified in U.S. EPA's *Combined Sewer Overflow Control Policy* (see Fact Sheet section III.C.8). After the wet weather is over, wastewater and accumulated solids remaining in the storage/transport structures are sent to the Southeast Plant for secondary treatment.

4. **Sludge and Biosolids Management.** Sludge from the primary and secondary clarification operations is processed using anaerobic digestion. The process consists of gravity belt thickeners for waste activated sludge thickening, mesophilic anaerobic digesters, and horizontal bowl centrifuges for dewatering. After digestion, the sludge is conditioned with ferric chloride and polymer, dewatered, and stored in cake hoppers for hauling. The digested and dewatered biosolids are beneficially used at a permitted landfill or land-applied at a permitted site. A portion of the biosolids is blended with green waste to create Class A compost. Class B biosolids are land-applied on farms in Solano and Sonoma counties or used at a landfill.

B. Discharge Points and Receiving Waters

1. **Dry Weather Discharges.** During dry weather, all flow receives secondary treatment and is discharged to Lower San Francisco Bay (a tidally-influenced, marine waterbody) through a deep water outfall (Discharge Point No. 001) at Pier 80, which is immediately north of the Islais Creek Channel. The outfall is approximately 810 feet east of Pier 80 at a depth of approximately 43 feet below mean lower low water. A diffuser at the outfall consists of 18 ports placed 15.9 feet apart on center along the terminal end of the outfall. The length of the diffuser is oriented approximately 90 degrees off north, perpendicular to the predominant current direction. The diffuser port openings are 8 inches in diameter, located at an elevation 42 inches above the sediment bed, and set at 0 degrees from horizontal.

   Following a September 2010 inspection that discovered that some fittings on the diffuser risers had broken off, the Discharger began replacing the discharge ports on the diffuser. The number of ports will remain the same, but the new ports will be equipped with duckbill valves to prevent rocks and debris from entering. The duckbill valves will likely increase dilution at the outfall.

2. **Wet Weather Discharges.** During wet weather, when secondary treatment capacity at the Southeast Plant has been exceeded, a portion of the primary-treated effluent bypasses aeration and secondary clarification. The bypassed primary effluent is chlorinated and dechlorinated, and then blended with disinfected secondary-treated wastewater and discharged through Discharge Point No. 001. The discharge from the Southeast Plant through Discharge Point No. 001 is maximized up to 110 MGD. Effluent flows in excess of 110 MGD are discharged via the Quint Street shallow water outfall into Islais Creek (Discharge Point No. 002). All effluent discharged through Discharge Point No. 002 receives secondary treatment, and all primary treated effluent is directed to the deep water outfall. Up to 140 MGD of secondary-treated wastewater may be discharged through Discharge Point No. 002. Under the most critical circumstances, up to 100 MGD of disinfected primary-treated effluent may be blended with 10 MGD of disinfected secondary-treated effluent and discharged through Discharge Point No. 001.

   When necessary, treated wastewater from the North Point Facility is discharged into San Francisco Bay through four deepwater outfalls, two of which discharge at the end of Pier 33 (Discharge Point Nos. 003 and 004) and two of which discharge at the end of Pier 35 (Discharge Point Nos. 005 and 006). If the capacities of the Southeast Plant, the North Point Facility, and the storage/transport structures are exceeded, wastewater in the storage/transport structures is discharged to San Francisco Bay through one or more of the 29 combined sewer discharge structures (Discharge Point Nos. 009 through 043).

C. Summary of Existing Requirements and Monitoring Data

Effluent limitations contained in the previous order and representative monitoring data from the previous order term are presented below:

Table F-2. Previous Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitations					Monitoring Data (4/08–9/12)
		Monthly Average	Weekly Average	Daily Maximum	Instant-aneous Maximum	Instant-aneous Minimum	Highest Daily Discharge
Dry Weather (Discharge Point No. 001)							
Biochemical Oxygen Demand, 5-day @ 20°C (BOD_5)	mg/L	30	45	---	---	---	47 [6]
Total Suspended Solids (TSS)	mg/L	30	45	---	---	---	62 [6]
Oil and Grease	mg/L	10	---	20	---	---	17
pH	s.u.	---	---	---	9.0	6.0	6.1 – 7.7
Total Residual Chlorine	mg/L	---	---	---	0.0	---	0.0
Enterococcus	MPN/ 100 mL	35 [1]	---	---	---	---	16 [4]
Fecal Coliform	MPN/ 100 mL	500 [2]	---	---	---	---	270
Copper	µg/L	53 [3]	---	76 [3]	---	---	37
Lead	µg/L	36	---	89	---	---	1.6
Silver	µg/L	7	---	22	---	---	2.6
Zinc	µg/L	490	---	720	---	---	55
Cyanide	µg/L	20 [4]	---	43 [4]	---	---	9.5
Dioxin-TEQ	mg/yr			[5]			0 [5]
Tetrachloroethylene	µg/L	84	---	240	---	---	0.79
Bis (2-ethylhexyl) phthalate	µg/L	55	---	110	---	---	1.7
Ammonia	mg/L as N	190	---	290	---	---	42
Tributyltin	µg/L	0.032	---	0.065	---	---	< 0.0026
Wet Weather (Discharge Point No. 001)							
Total Residual Chlorine	mg/L	---	---	---	0.0	---	0.0
Enterococcus	MPN/ 100 mL	---	---	---	104	---	600
Fecal Coliform	MPN/ 100 mL	500 [2]	---	---	---	---	450
Wet Weather (Discharge Point No. 002)							
Total Residual Chlorine	mg/L	---	---	---	0.0	---	0.0
Enterococcus	MPN/ 100 mL	---	---	---	104	---	>24,000

Parameter	Units	Effluent Limitations					Monitoring Data (4/08–9/12)
		Monthly Average	Weekly Average	Daily Maximum	Instant-aneous Maximum	Instant-aneous Minimum	Highest Daily Discharge
Fecal Coliform	MPN/ 100 mL	500 [2]	---	---	---	---	680 [7]
Wet Weather (Discharge Point Nos. 004 through 006)							
Total Residual Chlorine	mg/L	---	---	---	0.0	---	0.0
Enterococcus	MPN/ 100 mL	---	---	---	104	---	5,800
Fecal Coliform	MPN/ 100 mL	500 [2]	---	---	---	---	>16,000 [7]

Unit Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter
s.u. = standard units
CFU/100 mL = colony forming units per 100 milliliters
MPN/100 mL = Most Probable Number per 100 milliliters
mg/L as N = milligrams per liter as nitrogen
mg/yr = milligrams per year

Footnotes:

[1] Monthly geometric mean.

[2] The 30-day moving median value was not to exceed 500 MPN/100 mL and no more than 10 percent of the samples in any 30-day period were to equal or exceed 1,100 MPN/100 mL.

[3] Final effluent limitations for copper became effective on the effective date of the copper site-specific objectives (January 6, 2009).

[4] Final effluent limitations for cyanide became effective on the effective date of the cyanide site specific objectives (July 22, 2008).

[5] Final effluent limitations for dioxin-TEQ became effective on June 30, 2012. The dioxin-TEQ limit was 1.6 mg/year. Compliance was to be based on the product of the average concentration in samples collected each year and the annual dry weather flow. No dioxin or furan congener was detected above the ML in Attachment G, Table A; therefore, in accordance with Attachment G section V.C.1.c.3, the 2012 dioxin-TEQ discharge was 0 mg/year.

[6] The monthly and weekly average BOD_5 and TSS concentrations at these times complied with BOD_5 and TSS effluent limitations.

[7] The 30-day median and 10th percentile fecal coliform densities at these times complied with fecal coliform effluent limitations.

Table F-3. Additional Wet Weather Monitoring Data

Parameter	Units	Discharge Point No. 001		Discharge Point No. 002		Discharge Point Nos. 003 through 006	
		Range	Median [1]	Range	Median [1]	Range	Median [1]
Chemical Oxygen Demand (COD)	mg/L	53 – 200	120	25 – 100	52	74 – 360	160
Oil and Grease	mg/L	--	--	--	--	<5 – 43	9.5
Total Residual Chlorine	mg/L	0	0	0	0	0	0
Enterococcus	MPN/ 100 mL	<10 – 600	<10	<10 – >24,000	31	<10 – 5,800	<10
Fecal Coliform	MPN/ 100 mL	<2 – 450	<10	<2 – 680	<10	<2 – >16,000	<10
Copper	µg/L	3 – 64	35	1 – 17	8	5 – 99	45
Lead	µg/L	1 – 43	12	0.1[2] – 2	1	1 – 31	13

Mercury	µg/L	<0.2 – 0.40	<0.2	<0.2	<0.2	<0.2 – 0.30[2]	<0.2
Silver	µg/L	0.04 – 2.6	0.28	0.03[2] – 0.51	0.14	0.04[2] – 0.75	0.32
Zinc	µg/L	12 – 230	100	4 – 64	32	14 – 290	130
Cyanide	µg/L	<3 – 3.3[2]	<3	<3	<3	1.9[2] – 12	<3
Ammonia	mg/L as N	3 – 29	5	7 – 41	32	2 – 14	5

Unit Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter
MPN/100 mL = Most Probable Number per 100 milliliters
mg/L as N = milligrams per liter as nitrogen

Footnotes:

[1] Median calculation reflects inclusion of estimated concentrations (i.e., detected but not quantified, DNQs) and nondetects (at the detection limit).

[2] Estimated concentration (i.e., detected but not quantified, DNQ)

D. Summary of Combined Sewer Discharge Events

The following tables summarize combined sewer discharge events over a 14-year period and estimated average combined sewer discharge event durations for wet season 2008-2009 through wet season 2012-2013:

Table F-4. Frequency of Combined Sewer Discharge Events

Year	Rainfall (inches)	Number of Combined Sewer Discharge Events		
		North Shore Basin [2]	Central Basin [3]	Southeast Basin [3]
1998-1999	17.0	1	13	0
1999-2000	20.9	3	12	1
2000-2001	15.8	0	8	0
2001-2002	19.3	2	9	2
2002-2003	21.1	3	14	4
2003-2004	16.9	4	8	2
2004-2005	28.2	4	15	1
2005-2006	28.9	3	16	2
2006-2007	15.1	1	5	1
2007-2008	17.4	3	7	2
2008-2009	15.6	3	4	1
2009-2010	22.4	5	11	3
2010-2011	26.3	6	21	0
2011-2012	15.9	2	8	1
14-Year Median	**18.4**	**3**	**10**	**1**
Design Criterion [1]		**4**	**10**	**1**

Footnotes:

[1] These criteria were based on 70 years of historic rainfall data and used to design the the Bayside Wet Weather Facilities. They are useful in evaluating system performance.

[2] North Shore Basin combined sewer discharges occur from Discharge Point Nos. 009 through 017.

[3] Central Basin combined sewer discharges occur from Discharge Point Nos. 018 through 035.

[4] Southeast Basin combined sewer discharges occur from Discharge Point Nos. 037 through 043.

Table F-5. Durations of Combined Sewer Discharge Events

Northshore Basin		Central Basin		Southeast Basin	
Discharge Point	Estimated Average Duration (Hours)	Discharge Point	Estimated Average Duration (Hours)	Discharge Point	Estimated Average Duration (Hours)
009	2	018	3	037	5
010	2	019	3	038	5
011	0	022	3	040	1
013	4	023	3	041	1
015	2	024	3	042	1
017	3	025	3	043	1
		026	3		
		027	3		
		028	3		
		029	2		
		030	2		
		030A	2		
		031	4		
		031A	4		
		032	4		
		033	4		
		035	4		

E. Compliance Summary

1. **Effluent Limitation Violations.** The Discharger violated its wet weather enterococcus limit ten times during the previous order term, as listed in the following table:

Table F-6. Wet Weather Enterococcus Effluent Limitation Violations

Violation Date	Monitoring Location	Unit	Effluent Limit	Reported Value
December 16, 2008	EFF-002	MPN/100mL	104	110
January 22, 2009	EFF-002	MPN/100mL	104	8,664 [1]
April 7, 2009	EFF-002	MPN/100mL	104	>24,196 [1]
January 29, 2010	EFF-002	MPN/100mL	104	11,199 [1]
December 5, 2010	EFF-001B	MPN/100mL	104	402
January 30, 2011	EFF-001B	MPN/100mL	104	598
March 19, 2011	EFF-001B	MPN/100mL	104	784 [1]
March 15, 2011	EFF-003	MPN/100mL	104	1,317 [2]
March 24, 2011	EFF-003	MPN/100mL	104	5,794 [2]
November 16, 2012	EFF-003	MPN/100mL	104	108

Footnotes:

[1] The Discharger asserts that these values may be false positives since simultaneous fecal coliform results were relatively low.

[2] These violations may be subject to minimum penalties of $3,000 each pursuant to California Water Code §13385(i).

The Discharger asserts that four reported values may be false positives due to matrix interference because, in each case, simultaneous fecal coliform results were relatively low.

However, the Discharger certified these results and, to date, has presented no corroborating information to invalidate them pursuant to MRP section XI.D.2 or Attachment G section V.C.1.a.5 of the previous order. The Discharger modified its sampling practices in early 2010 to test for interference before completing enterococcus analyses. As for the other violations, the Discharger points to the challenge of adding sufficient chlorine when operating at maximum hydraulic capacity, indicating that sudden stormwater surges make predicting the chlorine dose necessary for compliance difficult. The Discharger is considering options but has not proposed corrective actions.

The March 15 and 24, 2011, violations may be subject to minimum penalties of $3,000 each pursuant to California Water Code section 13385(i) because they are the fourth and fifth effluent limit violations within six months. Regional Water Board staff will evaluate relevant evidence and present the matter for Regional Water Board consideration as a separate action in the near future, as appropriate.

2. **Inspections.** The Facility is subject to annual compliance evaluation inspections. During the previous order term, there were five inspections, four of which focused on treatment plant operations at the Southeast Plant. The treatment plant inspections concluded with satisfactory ratings for compliance. An October 2010 inspection focused on the collection system.

   The collection system inspection addressed two main issues: (1) accumulation of grease and debris in the storage/transports; and (2) Discharger responsiveness to reports of collection system excursions onto sidewalks and streets. The Discharger responded to the inspection report by describing its routine collection system maintenance practices and programs addressing fats and grease and by pointing out that the number of apparent collection system problems reported was very high because all of its emergency hotline calls were included, whether or not they related to actual collection system problems. At the time, the Discharger was developing a new computer-based asset management system to allow it to better track and respond to calls.

   To follow up on the inspection and the Discharger's response, the Executive Officer issued an order requiring additional information pursuant to Water Code section 13267. This 13267 order required information on the extent and causes of excursions onto sidewalks and streets, and progress toward collection system improvements, asset management system development and implementation, and collection system cleaning and maintenance.

   In response, the Discharger submitted several reports, including a special study on combined sewer system excursions during the period from October 1, 2011, through September 30, 2012. Using its computer-based asset management system, it reported how many calls it received and how many of the calls related to collection system issues. Most (98 percent) of the reports related to private sewer laterals for which others were responsible. Nevertheless, the Discharger often resolved these problems on behalf of the other parties. The rest (about 70) related to the Discharger's collection system.

   The Discharger described specific maintenance activities, improvements, and repairs to its collections system; tracked the effectiveness of its fats, oil, and grease control program; and

described program improvements. Grease buildup is the main cause of the Discharger's sewer system blockages.

F. Planned Changes

The Discharger has started several infrastructure projects. In October 2012, the Discharger began the Southeast Plant Northside Facility Reliability Upgrade (Phase 2) project, which is an $11.5-million project to replace aging secondary sludge handlers and aeration-related electrical systems and to modify the secondary clarification process. The project is expected to be completed in August 2014. The Discharger began an Oxygen Generation Plant Replacement project in December 2012 and plans to complete this $12-million project in December 2013. The Discharger began dewatering facility corrosion repairs in August 2012, a $9.1-million project to address corrosion damage to concrete, the sludge piping network, and the electrical system at the sludge dewatering building. This project is expected to be completed in January 2014. The Discharger is also designing a project to begin in August 2013 to replace and relocate the sodium hypochlorite storage tanks for disinfection.

The Discharger's Sewer System Improvement Program is a three-phase, $6.9-billion effort over the next 20 years to address deficiencies, improve operational flexibility, provide seismic reliability, and ensure future compliance with anticipated environmental regulatory requirements. The program will address aging infrastructure and technologies at the treatment plants and increase the ability of the collection system to convey wastewater.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements in this Order are based on the requirements and authorities described below:

A. Legal Authorities

This Order serves as WDRs pursuant to California Water Code article 4, chapter 4, division 7 (commencing with § 13260). This Order is also issued pursuant to Clean Water Act (CWA) section 402 and implementing regulations adopted by U.S. EPA, and Water Code chapter 5.5, division 7 (commencing with § 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters.

B. California Environmental Quality Act

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act, Public Resources Code division 13, chapter 3 (commencing with § 21100).

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The Regional Water Board adopted the *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan), which designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan. In addition, this Order is consistent with State Water Board Resolution No. 88-63, which established State policy that all waters, with certain exceptions,

should be considered suitable or potentially suitable for municipal or domestic supply. Because of the marine influence on San Francisco Bay, total dissolved solids levels exceed 3,000 mg/L; therefore, San Francisco Bay meets an exception to State Water Board Resolution No. 88-63.

Beneficial uses for the receiving waters of each Facility discharge point are listed below:

Table F-7. Basin Plan Beneficial Uses

Discharge Points	Receiving Water	Beneficial Uses
001, 002, 019, 043	Lower San Francisco Bay	Industrial Service Supply (IND) Ocean, Commercial, and Sport Fishing (COMM) Shellfish Harvesting (SHELL) Estuarine Habitat (EST) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE) Fish Spawning (SPWN) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
003, 004, 005, 006, 009, 010, 011, 013, 015, 017, 018	Central San Francisco Bay	Industrial Service Supply (IND) Industrial Process Supply (PROC) Ocean, Commercial, and Sport Fishing (COMM) Shellfish Harvesting (SHELL) Estuarine Habitat (EST) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE) Fish Spawning (SPWN) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
022, 023, 024, 025, 026, 027, 028	Mission Creek	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
029, 030, 030A	Central Basin	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
031, 031A, 032, 033, 035	Islais Creek	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)

037, 038	India Basin	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
040, 042	South Basin	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)
041	Yosemite Creek	Ocean, Commercial, and Sport Fishing (COMM) Estuarine Habitat (EST) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2)

2. **Sediment Quality.** The State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* on September 16, 2008, and it became effective on August 25, 2009. This plan supersedes other narrative sediment quality objectives, and establishes new sediment quality objectives and related implementation provisions for specifically defined sediments in most bays and estuaries. This Order implements the sediment quality objectives of this plan.

3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992, and amended it on May 4, 1995 and November 9, 1999. About 40 criteria in the NTR apply in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and incorporated the previously adopted NTR criteria that applied in the State. U.S. EPA amended the CTR on February 13, 2001. These rules contain water quality criteria for priority pollutants.

4. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria U.S. EPA promulgated for California through the NTR and the priority pollutant objectives the Regional Water Board established in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria U.S. EPA promulgated through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives, and provisions for chronic toxicity control. Requirements of this Order implement the SIP for dry weather discharges.

5. **Antidegradation Policy.** Federal regulations at 40 C.F.R. section 131.12 requires that state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy through State Water Board Resolution 68-16, which is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing

water quality be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. Permitted discharges must be consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

6. **Anti-Backsliding Requirements.** CWA sections 402(o) and 303(d)(4) and 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the State, including protecting rare, threatened, or endangered species. The Discharger is responsible for meeting all applicable Endangered Species Act requirements.

8. **Combined Sewer Overflow Control Policy.** U.S. EPA's *Combined Sewer Overflow Control Policy* (59 Fed. Reg. 18688-18698, April 19, 1994). The policy establishes a national approach for controlling combined sewer discharges and overflows and calls for a two-phased process. During the first phase, dischargers operating combined sewer systems were required to implement the Nine Minimum Controls, which were to constitute CWA technology-based requirements as applied to combined sewer systems (best conventional pollutant control technology [BCT] and best available control technology economically achievable [BAT]). Dischargers were also required to develop Long-Term Control Plans based on their financial capabilities. During the second phase, dischargers were required to implement the Long-Term Control Plans, thus providing a basis for demonstrating or presuming attainment of water quality objectives protective of beneficial uses. This Order requires the Discharger to continue operating its combined sewer system in accordance with the Nine Minimum Controls and its Long-Term Control Plan.

D. Impaired Waters on CWA 303(d) List

In October 2011, U.S. EPA approved a revised list of impaired waters prepared pursuant to CWA section 303(d), which requires identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. Where it has not done so already, the Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for pollutants on the 303(d) list. TMDLs establish wasteload allocations for point sources and load allocations for non-point sources, and are established to achieve the water quality standards for the impaired waters.

Central and Lower San Francisco Bay are listed as impaired waters. The pollutants impairing Central San Francisco Bay are chlordane, DDT, dieldrin, dioxins and furans, exotic species, mercury, dioxin-like PCBs and PCBs, selenium, and trash. The pollutants impairing Lower San Francisco Bay are chlordane, DDT, dieldrin, exotic species, dioxins and furans, mercury, trash, and dioxin-like PCBs and PCBs. On February 12, 2008, U.S. EPA approved a TMDL for

mercury in San Francisco Bay. On March 29, 2010, U.S. EPA approved a TMDL for PCBs in San Francisco Bay. The TMDLs for mercury and PCBs are incorporated into the Basin Plan and apply to this discharge; however, mercury and PCBs discharges are not covered by this Order. Instead, they are regulated under NPDES Permit No. CA0038849.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants discharged into waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of receiving waters.

A. Discharge Prohibitions

1. Prohibitions in this Order

a. Discharge Prohibition III.A (No discharge other than as described in this Order): This prohibition is based on 40 C.F.R. section 122.21(a) and Water Code section 13260, which require filing an application and Report of Waste Discharge before a discharge can occur. Discharges not described in the application and Report of Waste Discharge, and subsequently in this Order, are prohibited.

b. Discharge Prohibition III.B (Minimum initial dilution of 231:1): This Order is based on a modeled dilution ratio of 231:1 for the calculation of one or more effluent limitations reflecting available information regarding the dilution achieved at Discharge Point No. 001 (see section IV.C.4.a of this Fact Sheet). Therefore, this prohibition is necessary to ensure that the assumptions used to derive the dilution credit remain substantially the same so the limitations remain protective of water quality.

c. Discharge Prohibition III.C (No bypass of secondary treatment): This prohibition is based on 40 C.F.R. section 122.41(m) and U.S. EPA's *Combined Sewer Overflow Control Policy*. Bypass of secondary treatment is prohibited except during wet weather as defined in Attachment A or in accordance with 40 C.F.R. section §122.41(m) (see Attachment D section I.G.)

d. Discharge Prohibition III.D (No dry weather discharges at Discharge Point Nos. 002 through 043): This prohibition reflects the principle objective of U.S. EPA's *Combined Sewer overflow Control Policy* (i.e., to ensure that combined sewer discharges only result from wet weather and that such discharges only occur at specified locations). Dry weather discharges must receive full secondary treatment prior to discharge through Discharge Point No. 001.

e. Discharge Prohibition III.E (Average dry weather effluent flow not to exceed dry weather design capacity): This prohibition is based on the Southeast Plant's design

treatment capacity (i.e., the historic and tested reliability of the treatment plant). Exceeding the average dry weather flow design capacity could result in lowering the reliability of achieving compliance with water quality requirements.

This Order prohibits an average dry weather effluent flow greater than 85.4 MGD. The previous order prohibited an average dry weather flow greater than 84.5 MGD. That value was a typographical error. The prohibitions in earlier orders (e.g., Order No. R2-2002-0073) specified 85.4 MGD. Federal regulations allow correction of this error (40 C.F.R. § 122.63).

f. Discharge Prohibition III.F (No sewer overflows): Basin Plan Table 4-1, Discharge Prohibition 15, and the CWA prohibit the discharge of wastewater to surface waters except as authorized under an NPDES permit. Publicly owned treatment works must achieve secondary treatment at a minimum and any more stringent limitations necessary to meet water quality standards (33 U.S.C. § 1311[b][1][B and C]). A sanitary sewer or combined sewer overflow that results in the discharge of raw sewage or wastewater not meeting this Order's effluent limitations to surface waters is therefore prohibited under the CWA and the Basin Plan. This prohibition does not apply to combined sewer discharges explicitly authorized in this Order pursuant to U.S. EPA's *Combined Sewer Overflow Control Policy*.

2. Exception to Shallow Water and Dead-End Slough Discharge Prohibition

Basin Plan Table 4-1, Discharge Prohibition 1, prohibits discharges not receiving a minimum of 10:1 initial dilution and discharges to dead-end sloughs. Basin Plan section 4.2 provides for exceptions under certain circumstances:

- An inordinate burden would be placed on the Discharger relative to the beneficial uses protected, and an equivalent level of environmental protection can be achieved by alternate means;
- A discharge is approved as part of a reclamation project;
- Net environmental benefits will be derived as a result of the discharge; or
- A discharge is approved as part of a groundwater cleanup project.

Discharges to Discharge Point Nos. 001 and 003 through 006 receive a minimum of at least 10:1 dilution[1]; therefore, they are not subject this discharge prohibition. During wet weather, this Order grants an exception for discharges to Discharge Point Nos. 002 and 009 through 043 for the following reasons:

a. Wet weather discharges to Discharge Point Nos. 002 and 009 through 043 occur as a result of the Discharger's efforts to maximize treatment of sanitary and industrial wastewater *and* stormwater. To eliminate all combined sewer discharges would place an inordinate burden on the Discharger, which has invested heavily in infrastructure that

[1] Dilution at Discharge Point No. 001 is discussed in section IV.C.4.a of this Fact Sheet. Discharge Point Nos. 003 through 006 are located off of Piers 33 and 35 and discharge at a depth of about 10 feet below mean low low water (MLLW). In August 1973, the Discharger completed a study that estimated dilution ratios to be at least 10:1 at each outfall when discharging at a maximum flow of 170 MGD.

captures and treats most combined wastewater and stormwater. Providing additional deepwater discharge capacity is unwarranted for the relatively small portion of the combined wastewater not discharged to deep water. Such a burden would be wholly disproportional relative to the beneficial uses protected because this Order's requirements are sufficient to protect beneficial uses.

b. An equivalent level of environmental protection has been achieved because Provision VI.C.5 specifies controls that ensure the reliability of the Discharger's system in maximizing treatment and minimizing discharges not receiving at least 10:1 initial dilution. Combined sewer discharges at Discharge Point Nos. 009 through 043 receive equivalent-to-primary treatment, but before any combined sewer discharges occur, the Discharger optimizes discharges at Discharge Point Nos. 001 through 006. Discharges to Discharge Point Nos. 001 and 003 through 006 receive at least 10:1 dilution. When Discharge Point No. 001 (the Pier 80 deepwater outfall) is at capacity, the Discharger redirects only its highest quality effluent (secondary-treated wastewater) to Discharge Point No. 002.

Furthermore, in 1999 the Discharger took steps to enhance San Francisco Bay's beneficial uses by contributing $1 million to the Port of San Francisco to restore a 25-acre wetland at Heron's Head Park (Pier 98). Enhancing beneficial uses in this way provides environmental protection equivalent to providing at least 10:1 dilution for additional flows.

c. Net environmental benefits result from the operation of a combined sewer system. The system removes many pollutants in urban runoff, which elsewhere in the Region are discharged through stormwater outfalls with little or no treatment. For example, the system removes almost 2,000 tons, or 84 percent, of suspended sediment from the stormwater component of its influent each year (*Special Study Overflow Impacts and Efficacy of Combined Sewer Overflow Controls for the San Francisco Bayside System, Southeast Water Pollution Control Plant, North Point Wet Weather Facility and Bayside Wet Weather Facilities*, June 29, 2012).

B. Conventional and Non-Conventional Pollutant Effluent Limitations

1. Scope and Authority

a. Dry Weather Discharges. CWA section 301(b) and 40 C.F.R. section 122.44 require that permits include conditions meeting technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet water quality standards. The dry weather discharges authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 C.F.R. section 133 as summarized below. In addition, the 30-day average percent removal for biochemical oxygen demand (BOD_5) (or carbonaceous biochemical oxygen demand, $CBOD_5$) and total suspended solids (TSS), by concentration, is not to be less than 85 percent. The Basin Plan contains additional requirements for certain pollutants.

Table F-8. Secondary Treatment Requirements

Parameter	Monthly Average	Weekly Average
BOD_5	30 mg/L	45 mg/L
$CBOD_5$ [1]	25 mg/L	40 mg/L
TSS	30 mg/L	45 mg/L
pH	6.0 – 9.0 standard units [2]	

Footnotes:

[1] $CBOD_5$ effluent limitations may be substituted for BOD_5 limitations.

[2] The pH is to be between 6.0 and 9.0 unless inorganic chemicals are added during treatment or industrial sources cause the pH to be less than 6.0 or greater than 9.0.

b. Wet Weather Discharges. Discharges from combined sewer systems are point sources subject to NPDES permit requirements; however, such wet weather discharges are not subject to the Secondary Treatment Standards. The *Combined Sewer Overflow Control Policy* establishes technology-based requirements for combined sewer systems based on 40 C.F.R. section 125.3. The Policy requires the Discharger to implement Nine Minimum Controls, which represent the best conventional technology and best available technology economically achievable. Provision VI.C.5.b of this Order contains these requirements. This Order contains total residual chlorine and enterococcus limits for disinfected effluent from Discharge Point Nos. 001 through 006 to ensure proper operations and maintenance consistent with the Nine Minimum Controls.

2. Effluent Limitations

a. Dry Weather Discharges (Discharge Point No. 001)

i. BOD_5 and TSS. The dry weather BOD_5 and TSS effluent limitations, including the 85 percent removal requirements, are based on the Secondary Treatment Standards and Basin Plan Table 4-2.

ii. Oil and Grease. The oil and grease effluent limitations are based on Basin Plan Table 4-2.

iii. pH. The pH effluent limitations are based on the Secondary Treatment Standards and Basin Plan Table 4-2.

iv. Total Residual Chlorine. The total residual chlorine effluent limitation is based on Basin Plan Table 4-2. The allowance for determining false positives when using continuous devices is based on the fact that continuous instruments occasionally have anomalous spikes, and it is chemically improbable to have free chlorine present in the presence of sodium bisulfite.

v. Enterococcus. Basin Plan Table 4-2A requires the enterococcus effluent limitation for discharges to receiving waters with the water contact recreation beneficial use.

vi. Fecal Coliform. Basin Plan Table 4-2A requires total coliform effluent limitations for discharges to receiving waters with the shellfish harvesting beneficial use, but Basin Plan Table 4-2A, footnote c, allows substituting fecal coliform limitations for

total coliform limitations provided that the substitution will not result in unacceptable adverse impacts on beneficial uses. This Order contains the following fecal coliform effluent limits:

- The median fecal coliform density in any calendar month is not to exceed 500 MPN/100 mL); and
- no more than 10 percent of the samples in any calendar month may contain a fecal coliform density equal to or greater than 1,100 MPN/100 mL.

The Fact Sheet for Regional Water Board Order No. 94-149 attributes these limits to "recommendations for the Department of Health Services (Memorandum from Don Womeldorf, Chief Environmental Management Branch to James Baetge SWRCB dated Octover 24, 1990) and the initial dilution achieved at the Pier 80 Outfall."

These limits will not result in unacceptable adverse impacts on beneficial uses, including water contact recreation and shellfish harvesting. The enterococcus limit discussed above adequately protects water contact recreation. As for shellfish harvesting, Southeast Plant effluent is diluted at least 50:1 at the Pier 80 outfall (*Dilution Model for the San Francisco Southeast Treatment Plant Bay Outfall [Pier 80]*, December 6, 2007) and the nearest shellfish beds are near Candlestick Point, more than three miles away (*San Francisco Bay Subtidal Habitat Goals Report*, 2010). Basin Plan Table 3-1 contains a 30-day median fecal coliform objective of 14 MPN/100 mL and a 90th percentile fecal coliform objective of 43 MPN/100 mL to protect shellfish harvesting. Therefore, accounting for mixing and dilution, the fecal coliform limits in this Order will protect shellfish harvesting. Moreover, in April 1993, the Discharger decreased its chlorine residual for a time and observed that total coliform and fecal coliform levels near Candlestick Point remained equal to San Francisco Bay background levels ("NPDES Limits for Bacteria," *Water Environment & Technology*, Vol. 8, August 1996, pp 69-73). Other Lower San Francisco Bay dischargers have conducted similar receiving water impact studies and found no relationship between effluent and shoreline fecal coliform densities (City of San Mateo, November 1997; South Bayside System Authority, January 1998). Apparently, other fecal coliform sources (e.g., birds, wildlife, urban runoff) more directly affect shoreline fecal coliform levels. The studies evaluated a range of effluent discharges that included fecal coliform densities considerably higher than those allowed by this Order.

The Monitoring and Reporting Program requires weekly monitoring, but samples may be collected more frequently. The 10 percent requirement will be interpreted as follows. If up to nine samples are collected in a calendar month, a single sample with a fecal coliform density equal to or greater than 1,100 MPN/100 mL would violate the 10 percent limit; if 10 to 19 samples are collected, two samples at or above 1,100 MPN/100 mL would violate the limit; if 20 to 29 samples are collected, three samples at or above 1,100 MPN/100 mL would violate the limit; and if 30 or 31 samples are collected, four samples at or above 1,100 MPN/100 mL would violate the limit.

b. Wet Weather Discharges (Discharge Point Nos. 001 through 006)

i. **Total Residual Chlorine.** The total residual chlorine effluent limitation is based on Basin Plan Table 4-2, as guidance, to ensure that Southeast Plant and North Point Facility treatment, including disinfection, is conducted in a manner consistent with proper operations and maintenance as required by the Nine Minimum Controls. The allowance for determining false positives when using continuous devices accounts for the fact that continuous instruments occasionally have anomalous spikes, and it is chemically improbable to have free chlorine present in the presence of sodium bisulfite.

ii. **Enterococcus.** To ensure that Southeast Plant and North Point Facility disinfection is conducted in a manner consistent with proper operations and maintenance, as required by the Nine Minimum Controls, this Order contains an enterococcus effluent limitation. Disinfection performance is to be evaluated using a monthly geometric mean enterococcus limit of 35 MPN/100 mL, chosen based on the receiving water quality objective for water contact recreation in Basin Plan Table 3-1.

This Order does not retain the previous order's single-sample maximum enterococcus limit because, in the context of using single-sample maxima for enterococcus, U.S. EPA states in part:

> Other than in the beach notification and closure decision context, the geometrice mean is the more relevant value for ensuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation, and more directly linked to the underlying studies on which the 1986 bacteria criteria were based. (69 Fed. Reg. 67224, November 16, 2004.)

This change is not subject to anti-backsliding requirements because the two limits reflect different averaging periods and both are consistent with Basin Plan Table 3-1 water quality objectives.

This Order also does not retain the previous order's fecal coliform limits. The enterococcus limit is sufficient to evaluate treatment performance. Anti-backsliding requirements do not apply because this Order replaces the fecal coliform limits with a new enterococcus limit; therefore, a direct comparison is impossible.

C. Toxic Pollutant Effluent Limitations

1. Scope and Authority

For toxic pollutants, this Order contains water quality-based effluent limitations (WQBELs) that implement water quality objectives that protect beneficial uses. CWA section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than federal technology-based requirements where necessary to achieve applicable water quality standards. According to 40 C.F.R. section 122.44(d)(1)(i), permits must include effluent limitations for all pollutants that are or may be discharged at levels that have a reasonable potential to cause or

contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective, WQBELs must be established using (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting a narrative criterion, supplemented with relevant information (40 C.F.R. § 122.44[d][1][vi]). The process for determining reasonable potential and calculating WQBELs is intended to achieve applicable water quality objectives and criteria and protect designated uses of receiving waters as specified in the Basin Plan.

During dry weather, this Order imposes numeric effluent limitations at Discharge Point No. 001 for toxic pollutants with reasonable potential to cause or contribute to exceedances of water quality standards. During wet weather, this Order imposes narrative effluent limitations for toxic pollutants, not numeric limitations. In accordance with the *Combined Sewer Overflow Control Policy*, this Order requires the Discharger to implement its Long-Term Control Plan to control combined sewer discharges and overflows. The plan calls for meeting CWA water quality-based requirements by providing a minimum level of treatment. The *Combined Sewer Overflow Control Policy* presumes that CWA water quality-based requirements will be met if the Discharger implements at least primary clarification of at least 85 percent of collected wastewater (unless data indicate otherwise). U.S. EPA describes this "presumption approach" as follows:

> A program that meets any of the criteria listed below would be presumed to provide an adequate level of control to meet the water quality-based requirements of the CWA, provided the permitting authority determines that such presumption is reasonable in light of the data and analysis conducted in the characterization, monitoring, and modeling of the system and the consideration of sensitive areas described above. These criteria are provided because data and modeling of wet weather events often do not give a clear picture of the level of [combined sewer overflow] controls necessary to protect [water quality standards].
>
> i. No more than an average of four overflow events per year, provided that the permitting authority may allow up to two additional overflow events per year. For the purpose of this criterion, an overflow event is one or more overflows from a CSS (Combined Sewer System) as the result of a precipitation event that does not receive the minimum treatment specified below; or
>
> ii. The elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the Combined Sewer System during precipitation events on a system-wide annual average basis; or
>
> iii. The elimination or removal of no less than the mass of the pollutants, identified as causing water quality impairment through the sewer system characterization, monitoring, and modeling effort, for the volumes that would be eliminated or captured for treatment under paragraph ii above.

> Combined sewer overflows remaining after implementation of the nine minimum controls and within the criteria specified at [i or ii], should receive a minimum of:
>
> - Primary clarification (Removal of floatables and settleable solids may be achieved by any combination of treatment technologies or methods that are shown to be equivalent to primary clarification.);
> - Solids and floatables disposal; and
> - Disinfection of effluent, if necessary, to meet [water quality standards], protect designated uses and protect human health, including removal of harmful disinfection chemical residuals, where necessary."

The Discharger's Long-Term Control Plan exceeds the specifications for the presumption approach. The Discharger's system is designed to capture 100 percent of combined wastewater within the storage/transport boxes and to provide treatment consisting of floatables and settleable solids removal. Therefore, no untreated combined sewer overflows occur (combined sewer discharges receive equivalent-to-primary treatment). Provision VI.C.5.c of this Order requires the Discharger to continue implementing its Long-Term Control Plan.

2. Beneficial Uses and Water Quality Criteria and Objectives

Discharge Point No. 001 discharges to Lower San Francisco Bay. Section III.C.1, above, identifies the beneficial uses of Lower San Francisco Bay. Water quality criteria and objectives to protect these beneficial uses are described below:

a. Basin Plan Objectives. The Basin Plan specifies numeric water quality objectives for 10 priority pollutants and narrative water quality objectives for toxicity and bioaccumulation. The narrative toxicity objective states, "All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The narrative bioaccumulation objective states, "Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered."

b. CTR Criteria. The CTR specifies numeric aquatic life and human health criteria for numerous priority pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries. Some human health criteria are for consumption of "water and organisms" and others are for consumption of "organisms only." The criteria applicable to "organisms only" apply to Lower San Francisco Bay because it is not a source of drinking water.

c. NTR Criteria. The NTR establishes numeric aquatic life and human health criteria for a number of toxic pollutants for San Francisco Bay waters upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. The NTR criteria apply to Lower San Francisco Bay.

d. Sediment Quality Objectives. The *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* contains a narrative water quality objective: "Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California." This objective is to be implemented by integrating three lines of evidence: sediment toxicity, benthic community condition, and sediment chemistry. The policy requires that if the Regional Water Board determines that a discharge has reasonable potential to cause or contribute to an exceedance of this objective, it is to impose the objective as a receiving water limit.

e. Receiving Water Salinity. Basin Plan section 4.6.2 (like the CTR and NTR) states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water are to be considered in determining the applicable water quality objectives. Freshwater criteria apply to discharges to waters with salinities equal to or less than one part per thousand (ppt) at least 95 percent of the time. Saltwater criteria apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to waters with salinities between these two categories, or tidally-influenced freshwaters that support estuarine beneficial uses, the water quality objectives are the lower of the salt or freshwater objectives (the latter calculated based on ambient hardness) for each substance.

Lower San Francisco Bay is a salt water environment based on salinity data generated through the Regional Monitoring Program (RMP). Salinity data collected at the Alameda (BB70) sampling location between 1993 and 2001 indicate that the salinity was greater than 10 ppt in 100 percent of the samples. Lower San Francisco Bay is therefore classified as saltwater, and the reasonable potential analysis and WQBELs are based on saltwater water quality criteria and objectives.

f. Site-Specific Metals Translators. Effluent limitations for metals must be expressed as total recoverable metal (40 C.F.R. § 122.45[c]). Since the water quality objectives for metals are typically expressed as dissolved metal, translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. The CTR contains default translators; however, site-specific conditions, such as water temperature, pH, suspended solids, and organic carbon may affect the form of metal (dissolved, non-filterable, or otherwise) present and therefore available to cause toxicity. In general, dissolved metals are more available and more toxic to aquatic life than other forms. Site-specific translators can account for site-specific conditions, thereby preventing overly stringent or under-protective water quality objectives. For copper, Basin Plan Table 7.2.1-2 contains site-specific translators for deep water discharges to Lower San Francisco Bay: 0.73 and 0.87 (monthly and daily). For nickel, this Order uses site-specific translators the Clean Estuary Partnership developed, as set forth in *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* report (March 2005): 0.65 and 0.85 (monthly and daily). For silver, this Order uses a site-specific translator based on RMP data collected from 1993 through 2001 at the Alameda sampling station (BB70): 0.66.

3. Need for Water Quality-Based Effluent Limitations (Reasonable Potential Analysis)

Assessing whether a pollutant has reasonable potential to exceed a water quality objective is the fundamental step in determining whether a WQBEL is required.

a. Methodology. For dry weather discharges, SIP section 1.3 sets forth the methodogy used for this Order for assessing whether a pollutant has reasonable potential to exceed a water quality objective. The analysis begins with identifying the maximum effluent concentration (MEC) observed for each pollutant based on available effluent concentration data and the ambient background concentration (B). SIP section 1.4.3 states that ambient background concentrations are either the maximum ambient concentration observed or, for water quality objectives intended to protect human health, the arithmetic mean of observed concentrations.There are three triggers in determining reasonable potential:

i. Trigger 1 is activated if the maximum effluent concentration is greater than or equal to the lowest applicable water quality objective (MEC $\geq$ water quality objective).

ii. Trigger 2 is activated if the ambient background concentration observed in the receiving water is greater than the water quality objective (B > water quality objective) *and* the pollutant is detected in any effluent sample.

iii. Trigger 3 is activated if a review of other information indicates that a WQBEL is needed to protect beneficial uses.

b. Effluent Data. The reasonable potential analysis for this Order is based on effluent monitoring data the Discharger collected from April 2008 through September 2012. The copper data were collected from October 2009 through September 2012 because these more recent three years of data better represent current discharge conditions.

c. Ambient Background Data. The reasonable potential analysis for this Order is based on RMP data collected at the Yerba Buena Island station (BC10) from 1993 through 2011, and additional Bay Area Clean Water Agencies data from *San Francisco Bay Ambient Water Monitoring Interim Report* (2003) and *Ambient Water Monitoring: Final CTR Sampling Update* (2004). These reports contain monitoring results from 2002 and 2003 for priority pollutants the RMP did not monitor at the time. For ammonia, the ambient concentration at the RMP station nearest to the discharge point, the Alameda RMP station (BB70), was used because, as described in section IV.C.4.a.iii of this Fact Sheet, this Order grants full dilution credit for ammonia.

d. Reasonable Potential Analysis for Toxic Pollutants. The maximum effluent concentrations, most stringent applicable water quality criteria and objectives, and ambient background concentrations used in the analysis are presented in the following table, along with the reasonable potential analysis results (yes or no) for each pollutant. Reasonable potential was not determined for all pollutants because there are not water quality objectives for all pollutants, and monitoring data are unavailable for others. The pollutants that exhibit reasonable potential are copper, cyanide, dioxin-TEQ, 1,2-diphenylhydrazine, and total ammonia.

Table F-9. Reasonable Potential Analysis

CTR #	Priority Pollutants	Governing criterion or objective (µg/L)	MEC or Minimum DL [1][2] (µg/L)	B or Minimum DL [1][2] (µg/L)	Results [3]
1	Antimony	4,300	0.71	1.8	No
2	Arsenic	36	3.7	2.46	No
3	Beryllium	No Criteria	0.29	0.22	Ud
4	Cadmium	9.36	1.3	0.13	No
5a	Chromium (III)	No Criteria	3.7	4.4	No
5b	Chromium (VI)	50	1.4	4.4	No
6	**Copper**	**8.2**	**13**	**2.5**	**Yes**
7	Lead	8.5	1.6	0.80	No
8	Mercury (303(d) listed) [4]	---	---	---	---
9	Nickel	13	5.1	3.7	No
10	Selenium (303(d) listed)	5	1.2	0.39	No
11	Silver	2.9	2.6	0.052	No
12	Thallium	6.3	0.18	0.21	No
13	Zinc	86	55	5.1	No
14	**Cyanide**	**2.9**	**9.5**	**< 0.4**	**Yes**
15	Asbestos	No Criteria	Unavailable	Unavailable	Ud
16	2,3,7,8-TCDD (303(d) listed)	$1.40x10^{-8}$	$< 3.5x10^{-7}$	$8.2x10^{-9}$	No
	Dioxin-TEQ (303(d) listed)	**$1.40x10^{-8}$**	**$2.2x10^{-9}$**	**$5.3x10^{-8}$**	**Yes**
17	Acrolein	780	< 1.0	< 0.5	No
18	Acrylonitrile	0.66	< 0.80	0.03	No
19	Benzene	71	< 0.051	< 0.05	No
20	Bromoform	360	< 0.078	< 0.5	No
21	Carbon Tetrachloride	4.4	< 0.068	0.06	No
22	Chlorobenzene	21,000	< 0.052	< 0.5	No
23	Chlorodibromomethane	34	0.48	< 0.05	No
24	Chloroethane	No Criteria	1.1	< 0.5	Ud
25	2-Chloroethylvinyl ether	No Criteria	< 0.095	< 0.5	Ud
26	Chloroform	No Criteria	11	< 0.5	Ud
27	Dichlorobromomethane	46	1.1	< 0.05	No
28	1,1-Dichloroethane	No Criteria	< 0.047	< 0.05	Ud
29	1,2-Dichloroethane	99	< 0.052	0.04	No
30	1,1-Dichloroethylene	3.2	< 0.038	< 0.5	No
31	1,2-Dichloropropane	39	< 0.038	< 0.05	No
32	1,3-Dichloropropylene	1,700	< 0.054	< 0.5	No
33	Ethylbenzene	29,000	0.11	< 0.5	No
34	Methyl Bromide	4,000	< 0.067	< 0.5	No
35	Methyl Chloride	No Criteria	1.1	< 0.5	Ud
36	Methylene Chloride	1,600	3.3	22	No
37	1,1,2,2-Tetrachloroethane	11	< 0.064	< 0.05	No
38	Tetrachloroethylene	8.85	0.79	< 0.05	No
39	Toluene	200,000	1.5	< 0.3	No
40	1,2-Trans-Dichloroethylene	140,000	< 0.062	< 0.5	No
41	1,1,1-Trichloroethane	No Criteria	< 0.064	< 0.5	Ud
42	1,1,2-Trichloroethane	42	< 0.053	< 0.05	No
43	Trichloroethylene	81	0.25	< 0.5	No
44	Vinyl Chloride	525	1.2	< 0.5	No
45	2-Chlorophenol	400	< 0.15	< 1.2	No
46	2,4-Dichlorophenol	790	0.75	< 1.3	No
47	2,4-Dimethylphenol	2,300	< 0.22	< 1.3	No
48	2-Methyl- 4,6-Dinitrophenol	765	< 0.33	< 1.2	No
49	2,4-Dinitrophenol	14,000	< 0.23	< 0.7	No

CTR #	Priority Pollutants	Governing criterion or objective (µg/L)	MEC or Minimum DL [1][2] (µg/L)	B or Minimum DL [1][2] (µg/L)	Results [3]
50	2-Nitrophenol	No Criteria	< 0.20	< 1.3	Ud
51	4-Nitrophenol	No Criteria	< 0.27	< 1.6	Ud
52	3-Methyl 4-Chlorophenol	No Criteria	< 0.21	< 1.1	Ud
53	Pentachlorophenol	7.9	< 0.23	< 1	No
54	Phenol	4,600,000	< 0.20	< 1.3	No
55	2,4,6-Trichlorophenol	6.5	0.94	< 1.3	No
56	Acenaphthene	2,700	0.034	0.0019	No
57	Acenaphthylene	No Criteria	< 0.044	0.0013	Ud
58	Anthracene	110,000	0.0011	0.00059	No
59	Benzidine	0.00054	< 0.42	< 0.0015	No
60	Benzo(a)Anthracene	0.049	0.0034	0.0053	No
61	Benzo(a)Pyrene	0.049	< 0.0020	0.0033	No
62	Benzo(b)Fluoranthene	0.049	0.0024	0.0046	No
63	Benzo(ghi)Perylene	No Criteria	< 0.0016	0.0045	Ud
64	Benzo(k)Fluoranthene	0.049	< 0.0016	0.0018	No
65	Bis(2-Chloroethoxy)Methane	No Criteria	< 0.24	< 0.3	Ud
66	Bis(2-Chloroethyl)Ether	1.4	< 0.19	< 0.00015	No
67	Bis(2-Chloroisopropyl)Ether	170,000	< 0.19	Unavailable	No
68	Bis(2-Ethylhexyl)Phthalate	5.9	1.7	< 0.7	No
69	4-Bromophenyl Phenyl Ether	No Criteria	< 0.12	< 0.23	Ud
70	Butylbenzyl Phthalate	5,200	0.47	0.0056	No
71	2-Chloronaphthalene	4,300	< 0.20	< 0.3	No
72	4-Chlorophenyl Phenyl Ether	No Criteria	< 0.24	< 0.3	Ud
73	Chrysene	0.049	0.0018	0.0028	No
74	Dibenzo(a,h)Anthracene	0.049	< 0.0010	0.00064	No
75	1,2-Dichlorobenzene	17,000	0.57	< 0.3	No
76	1,3-Dichlorobenzene	2,600	0.46	< 0.3	No
77	1,4-Dichlorobenzene	2,600	0.66	< 0.3	No
78	3,3 Dichlorobenzidine	0.077	< 0.41	< 0.001	No
79	Diethyl Phthalate	120,000	0.35	< 0.21	No
80	Dimethyl Phthalate	2,900,000	< 0.29	< 0.21	No
81	Di-n-Butyl Phthalate	12,000	1.0	0.016	No
82	2,4-Dinitrotoluene	9.1	< 0.23	< 0.27	No
83	2,6-Dinitrotoluene	No Criteria	< 0.16	< 0.29	Ud
84	Di-n-Octyl Phthalate	No Criteria	< 0.36	< 0.38	Ud
85	**1,2-Diphenylhydrazine**	**0.54**	**1.1**	**0.0037**	**Yes**
86	Fluoranthene	370	< 0.0092	0.011	No
87	Fluorene	14,000	0.0052	0.00208	No
88	Hexachlorobenzene	0.00077	< 0.15	0.000022	No
89	Hexachlorobutadiene	50	< 0.15	< 0.3	No
90	Hexachlorocyclopentadiene	17,000	< 0.11	< 0.3	No
91	Hexachloroethane	8.9	< 0.13	< 0.2	No
92	Indeno(1,2,3-cd)Pyrene	0.049	< 0.0020	0.0040	No
93	Isophorone	600	< 0.23	< 0.3	No
94	Naphthalene	No Criteria	< 0.017	0.013	Ud
95	Nitrobenzene	1,900	< 0.20	< 0.25	No
96	N-Nitrosodimethylamine	8.1	< 0.060	< 0.3	No
97	N-Nitrosodi-n-Propylamine	1.4	< 0.21	< 0.001	No
98	N-Nitrosodiphenylamine	16	< 0.090	< 0.001	No
99	Phenanthrene	No Criteria	0.029	0.0095	Ud
100	Pyrene	11,000	0.011	0.019	No
101	1,2,4-Trichlorobenzene	No Criteria	< 0.20	< 0.3	Ud

CTR #	Priority Pollutants	Governing criterion or objective (µg/L)	MEC or Minimum DL [1][2] (µg/L)	B or Minimum DL [1][2] (µg/L)	Results [3]
102	Aldrin	0.00014	< 0.00075	0.0000028	No
103	Alpha-BHC	0.013	< 0.00059	0.00050	No
104	Beta-BHC	0.046	< 0.00040	0.00041	No
105	Gamma-BHC	0.063	< 0.00050	0.00070	No
106	Delta-BHC	No Criteria	< 0.00051	0.000053	Ud
107	Chlordane (303(d) listed)	0.00059	< 0.0090	0.00018	No
108	4,4'-DDT (303(d) listed)	0.00059	< 0.00093	0.00017	No
109	4,4'-DDE (linked to DDT)	0.00059	< 0.00038	0.00069	No
110	4,4'-DDD	0.00084	< 0.0021	0.00031	No
111	Dieldrin (303d listed)	0.00014	< 0.00056	0.00026	No
112	Alpha-Endosulfan	0.0087	< 0.00048	0.000031	No
113	beta-Endosulfan	0.0087	< 0.00071	0.000069	No
114	Endosulfan Sulfate	240	< 0.0028	0.000082	No
115	Endrin	0.0023	< 0.00091	0.00004	No
116	Endrin Aldehyde	0.81	< 0.00089	Unavailable	No
117	Heptachlor	0.00021	< 0.00099	0.000019	No
118	Heptachlor Epoxide	0.00011	< 0.00050	0.000094	No
119-125	PCBs sum (303(d) listed) [4]	---	---	---	---
126	Toxaphene	0.0002	< 0.032	Unavailable	No
	Tributyltin	0.0074	< 0.00036	Unavailable	No
	Total PAHs	15	Unavailable	0.013	Ud
	Total Ammonia [5]	**1.1**	**42**	**0.22**	**Yes**

Footnotes:

[1] The maximum effluent concentration and ambient background concentration are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).

[2] The maximum effluent concentration or ambient background concentration is "Unavailable" when there are no monitoring data for the constituent.

[3] RPA Results = Yes, if MEC ≥ WQC, B > WQC and MEC is detected, or Trigger 3
= No, if MEC and B are < WQC or all effluent data are undetected
= Undetermined (Ud), if no criteria have been promulgated or data are insufficient.

[4] SIP section 1.3 excludes from its reasonable potential analysis procedure priority pollutants for which a TMDL has been developed. TMDLs have been developed for mercury and PCBs in San Francisco Bay. Mercury and PCBs from wastewater discharges are regulated by NPDES Permit No. CA0038849, which implements the San Francisco Bay Mercury and PCBs TMDLs.

[5] Units for total ammonia are milligrams per liter as nitrogen.

e. Reasonable Potential Analysis for Sediment Quality. Pollutants in some receiving water sediments may be present in quantities that alone or in combination are toxic to benthic communities. Efforts are underway to identify stressors causing such conditions. However, to date there is no evidence directly linking compromised sediment conditions to the discharges subject to this Order; therefore, the Regional Water Board cannot draw a conclusion about reasonable potential for these discharges to cause or contribute to exceedances of the sediment quality objectives. Nevertheless, the Discharger continues to participate in the RMP, which monitors San Francisco Bay sediment and seeks to identify stressors responsible for degraded sediment quality. Thus far, the monitoring has provided only limited information about potential stressors and sediment transport. The Regional Water Board is exploring options for obtaining additional information that may inform future analyses.

f. Constituents with limited data. In some cases, reasonable potential cannot be determined because effluent data are limited or ambient background concentrations are unavailable. Provision VI.C.2 of the Order requires the Discharger to continue monitoring for these constituents in its effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether numeric effluent limitations are necessary.

g. Pollutants with No Reasonable Potential. This Order does not contain WQBELs for constituents that do not demonstrate reasonable potential; however, Provision VI.C.2 of the Order still requires monitoring for those pollutants. If concentrations are found to have increased significantly, Provision VI.C.2 of the Order requires the Discharger to investigate the sources of the increases and implement remedial measures if the increases pose a threat to receiving water quality.

4. Water Quality-Based Effluent Limitations

For dry weather discharges, WQBELs were developed for the pollutants determined to have reasonable potential to cause or contribute to exceedances of water quality objectives. The WQBELs are based on the procedures specified in SIP section 1.4.

a. Dilution Credits. SIP section 1.4.2 allows dilution credits under certain circumstances. The Discharger submitted a dilution study titled *Dilution Model for the San Francisco Southeast Treatment Plant Bay Outfall (Pier 80)*, dated December 6, 2007. The study contains estimates of initial dilution based on the UM3 model as implemented with the U.S. EPA-supported Visual PLUMES modeling package. The study used the average dry weather flow, 62 MGD, to estmate the initial dilution representing chronic (long-term average) conditions, and the 95th percentile of dry weather flows, 72 MGD, to calculate the initial dilution representing acute (short-term) conditions. Estimated initial dilution ratios are 231:1 (230 parts ambient water to one part effluent) at 62 MGD and 51:1 at 72 MGD.

i. Bioaccumulative Pollutants. For certain bioaccumulative pollutants, dilution credit is significantly restricted or denied. Specifically, these pollutants include dioxin and furan compounds, which appear on the CWA section 303(d) list for Lower San Francisco Bay because, based on available data on the concentrations of these pollutants in aquatic organisms, sediment, and the water column, they impair San Francisco Bay beneficial uses. The following factors suggest insufficient assimilative capacity in San Francisco Bay for these pollutants.

Tissue samples taken from San Francisco Bay fish show the presence of these pollutants at concentrations greater than screening levels (*Contaminant Concentrations in Fish from San Francisco Bay*, May 1997). The results of a 1994 San Francisco Bay pilot study, presented in *Contaminated Levels in Fish Tissue from San Francisco Bay* (Regional Water Board, 1994) also show elevated levels of chemical contaminants in fish tissues. The Office of Environmental Health and Hazard Assessment (OEHHA) completed a preliminary review of the data in the 1994 report and in December 1994 issued an interim consumption advisory covering certain fish species in San Francisco Bay due to the levels of some of these pollutants.

OEHHA updated this advisory in a May 2011 report, *Health Advisory and Safe Eating Guidelines for San Francisco Bay Fish and Shellfish*, which still suggests insufficient assimilative capacity in San Francisco Bay for 303(d)-listed pollutants. Therefore, dilution credits are denied for bioaccumulative pollutants on the 303(d) list for which data are lacking on sources and significant uncertainty exists about how different sources contribute to bioaccumulation.

ii. Non-Bioaccumulative Pollutants (except ammonia). For non-bioaccumulative pollutants (except ammonia), a conservative dilution credit of 10:1 (D = 9) has been assigned. The 10:1 dilution credit is based, in part, on Basin Plan Prohibition 1 (Table 4-1), which prohibits discharges with less than 10:1 dilution. SIP section 1.4.2 allows for limiting the dilution credit. The dilution credit is limited for the following reasons:

(a) San Francisco Bay is a complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs. SIP section 1.4.3 allows background conditions to be determined on a discharge-by-discharge or water body-by-water body basis. A water body-by-water body approach is taken here due to inherent uncertainties in characterizing ambient background conditions in a complex estuarine system on a discharge-by-discharge basis.

(b) Because of the complex hydrology of San Francisco Bay, there are uncertainties in accurately determining an appropriate mixing zone. The models used to predict dilution do not consider the three dimensional nature of San Francisco Bay currents resulting from the interaction of tidal flushes and seasonal fresh water outflows. Being heavier and colder than fresh water, ocean salt water enters San Francisco Bay on a twice-daily tidal cycle, generally beneath the warmer fresh water that flows seaward. When these waters mix and interact, complex circulation patterns occur due to the varying densities of the fresh and ocean waters. The complex patterns occur throughout San Francisco Bay, but are most prevalent in San Pablo Bay, Carquinez Strait, and Suisun Bay. The locations of this mixing and interaction change, depending on the strength of each tide. Additionally, sediment loads from the Central Valley change on a long-term basis, affecting the depth of different parts of San Francisco Bay, resulting in alteration of flow patterns, mixing, and dilution at the outfall.

For non-bioaccumultive pollutants (except ammonia), the Yerba Buena Island RMP monitoring station (BC10), relative to other RMP stations, fits SIP guidance for establishing background conditions. SIP section 1.4.3 requires that background water quality data be representative of the ambient receiving water that will mix with the discharge. Because the WQBELs for non-bioaccumultive pollutants (except ammonia) are based on a restricted dilution credit, water quality data from the Yerba Buena Island monitoring station best represents the water that will mix with the discharge.

iii. Ammonia. For ammonia, a conservative estimate of actual initial dilution was used to calculate the effluent limitations. This is justified because ammonia, a non-

persistent pollutant, quickly disperses and degrades to a non-toxic state, and cumulative toxicity is unlikely. The 231:1 dilution ratio is appropriate for calculating limits based on the chronic water quality objective because that objective is an annual median; the dilution ratio associtated with the long-term average flow best represents long-term (chronic) conditions. The 51:1 dilution ratio is appropriate for calculating limits based on the acute water quality objective because that objective is an absolute maximum; the dilution associated with the maximum flow best represents short-term (acute) conditions.

For ammonia, the Alameda RMP monitoring station (BB70), relative to other RMP stations, fits SIP guidance for establishing background conditions. SIP section 1.4.3 requires that background water quality data be representative of the ambient receiving water that will mix with the discharge. Because the ammonia WQBELs are based on actual dilution at the edge of the initial mixing zone, data from the Alameda RMP station best represents the water at the edge of the initial mixing zone.

b. WQBEL Development. For those pollutants with reasonable potential, average monthly effluent limitations (AMELs) and maximum daily effluent limitations (MDELs) were developed as explained below:

i. Copper

(a) Water Quality Objectives. Basin Plan Table 3-3A contains chronic and acute marine water quality objectives for copper of 6.0 and 9.4 µg/L (site-specific objectives for San Francisco Bay), expressed as dissolved metal and accounting for a Water Effects Ratio of 2.4. Converting these water quality objectives to total recoverable metal using the site-specific translators of 0.73 (chronic) and 0.87 (acute) results in water quality criteria of 8.2 µg/L (chronic) and 10.8 µg/L (acute).

(b) Reasonable Potential Analysis. This Order establishes copper WQBELs because the maximum effluent concentration (13 µg/L) exceeds the governing water quality objective (8.2 µg/L), demonstrating reasonable potential by Trigger 1, and because Basin Plan section 7.2.1.2 requires that individual NPDES permits for municipal and industrial wastewater treatment facilities include copper WQBELs.

(c) WQBELs. Copper WQBELs, calculated according to SIP procedures with an effluent data coefficient of variation of 0.28 and a dilution credit of D = 9 (dilution ratio = 10:1), are an AMEL of 53 µg/L and an MDEL of 76 µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because this Order's copper WQBELs are the same as those in the previous order.

ii. Cyanide

(a) Water Quality Objectives. Basin Plan Table 3-3C contains chronic and acute marine water quality objectives for cyanide of 2.9 µg/L and 9.4 µg/L (site-specific objectives for San Francisco Bay).

(b) Reasonable Potential Analysis. This Order establishes cyanide WQBELs because the maximum effluent concentration (9.5 µg/L) exceeds the governing water quality objective (2.9 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. Cyanide WQBELs, calculated according to SIP procedures with an effluent data coefficient of variation of 0.80 and a dilution credit of D = 9, are an AMEL of 20 µg/L and an MDEL of 45 µg/L. This MDEL is less stringent than the one in the previous order (43 µg/L); therefore, this Order retains the previous MDEL to avoid backsliding.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because this Order's cyanide WQBELs are at least as stringent as those in the previous order.

iii. Dioxin-TEQ

(a) Water Quality Objective. The Basin Plan narrative water quality objective for bioaccumulative substances states, "Many pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered."

Because it is the consensus of the scientific community that dioxins and furans associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms, the Basin Plan's narrative bioaccumulation water quality objective applies to these pollutants. Elevated levels of dioxins and furans in San Francisco Bay fish tissue demonstrate that the narrative bioaccumulation water quality objective is not being met. U.S. EPA has therefore placed Lower San Francisco Bay on its 303(d)-list of receiving waters where water quality objectives are not being met after imposition of applicable technology-based requirements.

When the CTR was promulgated, U.S. EPA stated its support of the regulation of dioxin and dioxin-like compounds through the use of toxicity equivalencies (TEQs). U.S. EPA stated, "For California waters, if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of a narrative criterion, numeric WQBELs for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme" (65 Fed. Reg. 31695-31696, May 18, 2000). This Order uses a TEQ scheme based on a set of toxicity equivalency factors (TEFs) the World Health Organization developed in 1998, and a set of bioaccumulation equivalency factors (BEFs) U.S. EPA developed for the Great Lakes region (40 C.F.R. part 132, Appendix F) to convert the concentration of any congener of dioxin or furan into an equivalent concentration of 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD). Although the 1998 World Health Organization scheme includes TEFs for dioxin-like PCBs, they are not included in this Order's TEQ scheme.

The CTR has established a specific water quality criterion for PCBs, and dioxin-like PCBs are included in the analysis of total PCBs.

The CTR establishes a numeric water quality objective for 2,3,7,8-TCDD of 1.4×10^{-8} µg/L for the protection of human health when aquatic organisms are consumed. The CTR criterion is used as a criterion for dioxin-TEQ because dioxin-TEQ represents a toxicity weighted concentration equivalent to 2,3,7,8-TCDD, thus translating the narrative bioaccumulation objective into a numeric criterion.

(b) Reasonable Potential Analysis. TEFs and BEFs were used to express measured concentrations of 16 dioxin congeners in effluent and background samples as equivalent 2,3,7,8-TCDD concentrations. For each sample, the sum of these equivalent concentrations is the dioxin-TEQ concentration. This Order establishes dioxin-TEQ WQBELs because the ambient background receiving water dioxin-TEQ concentration (5.3×10^{-8} µg/L) exceeds the CTR numeric criterion for 2,3,7,8-TCDD (1.4×10^{8} µg/L) and dioxin-TEQ was detected in the effluent, demonstrating reasonable potential by Trigger 2.

(c) WQBELs. Dioxin-TEQ WQBELs, calculated according to SIP procedures with a default coefficient of variation of 0.60 and no dilution credit, are an AMEL of 1.4×10^{-8} µg/L and an MDEL of 2.8×10^{-8} µg/L.

(d) Anti-backsliding. The previous order contained an annual mass-based dioxin-TEQ effluent limit based on a dry weather flow of 85.4 MGD and a monthly average effluent concentration of 1.4×10^{-8} µg/L. Anti-backsliding requirements are satisfied because this Order's dioxin-TEQ WQBELs are as stringent as the previous mass-based limitation (the new AMEL is the same as the concentration used to derive the prevous mass-based limit).

iv. 1,2-Diphenylhydrazine

(a) Water Quality Objectives. The CTR contains a human health water quality criterion for 1,2-diphenylhydrazine of 0.54 µg/L when organisms only (not water) are consumed from the receiving water.

(b) Reasonable Potential Analysis. This Order establishes WQBELs for 1,2-diphenylhydrazine because the maximum effluent concentration (1.1 µg/L) exceeds the governing water quality objective (0.54 µg/L), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. WQBELs for 1,2-diphenylhydrazine, calculated according to SIP procedures with a default coefficient of variation of 0.60 and a dilution credit of D = 9, are an AMEL of 5.4 µg/L and an MDEL of 11 µg/L.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because the previous order did not contain 1,2-diphenylhydrazine limitations.

v. Ammonia

(a) Water Quality Objectives. The discharge into Lower San Francisco Bay occurs south of the San Francisco Bay Bridge. For these waters, Basin Plan section 3.3.20 contains water quality objectives for un-ionized ammonia of 0.025 mg/L as an annual median and 0.4 mg/L as a maximum. These objectives were translated from un-ionized ammonia concentrations to equivalent total ammonia concentrations (as nitrogen) since (1) sampling and laboratory methods are unavailable to analyze for un-ionized ammonia, and (2) the fraction of total ammonia that exists in the toxic un-ionized form depends on the pH, salinity, and temperature of the receiving water.

To translate the un-ionized ammonia objectives, pH, salinity, and temperature data were obtained from the RMP station nearest to the outfall (Alameda station, BB70). The un-ionized fraction of total ammonia was calculated as follows:

$$\text{For salinity} > 10 \text{ ppt: fraction of } NH_3 = \frac{1}{1+10^{(pK-pH)}}$$

Where:

$$pK = 9.245 + 0.116(I) + 0.0324\,(298 - T) + \frac{0.0415(P)}{(T)}$$

$$I = \text{Molal ionic strength of saltwater} = \frac{19.9273(S)}{(1{,}000 - 1.005109(S))}$$

S = Salinity (parts per thousand)

T = Temperature (degrees Kelvin)

P = Pressure (one atmosphere)

The median and 90th percentile un-ionized ammonia fractions were then used to express the daily maximum and the annual average un-ionized objectives as chronic and acute total ammonia criteria. This approach is consistent with U.S. EPA guidance on translating dissolved metal water quality objectives to total recoverable metal water quality objectives (U.S. EPA, 1996, *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion*, EPA Publication 823-B-96-007).

The equivalent total ammonia chronic and acute criteria are 1.1 mg/L and 8.5 mg/L as nitrogen.

(b) Reasonable Potential Analysis. This Order relies on the SIP methodology as guidance to perform the reasonable potential analysis. This Order establishes total ammonia WQBELs because the maximum effluent concentration (42 mg/L as nitrogen) exceeds the governing water quality criterion (1.1 mg/L as nitrogen), demonstrating reasonable potential by Trigger 1.

(c) WQBELs. This Order relies on the SIP methodology as guidance to calculate the total ammonia WQBELs. The WQBELs are the more stringent AMEL and MDEL based on independent calculations using the chronic and acute objectives. To calculate an AMEL and MDEL based on the chronic objective, the median background concentration at the Alameda RMP station (BB70) (0.11 mg/L) and the minimum dilution based on the average flow (231:1) were used. To calculate an AMEL and MDEL based on the acute objective, the maximum background concentration (0.22 mg/L) and the minimum dilution based on the maximum flow (51:1) were used. Because the Basin Plan's chronic un-ionized ammonia objective is an annual median, the median background concentration and long-term average dilution represent ambient conditions better than a daily maximum concentration and minimum dilution.

The total ammonia WQBELs in this Order are based on the chronic objective. Calculated using an effluent data coefficient of variation of 0.15 and a dilution credit of D = 230, they are an AMEL of 220 mg/L and an MDEL of 300 mg/L.

Statistical adjustments were made to the total ammonia WQBEL calculations. The SIP assumes a 4-day average concentration and a monthly sampling frequency of 4 days per month to calculate effluent limitations based on chronic criteria, but the Basin Plan's chronic water quality objective for un-ionized ammonia is based on an annual median instead of the typical 4-day average. Therefore, a 365-day average and a monitoring frequency of 30 days per month (the maximum daily sampling frequency in a month since the averaging period for the chronic criteria is longer than 30 days) were used. These statistical adjustments are supported by U.S. EPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia* (64 Fed. Reg. 71974-71980, December 22, 1999).

The newly calculated AMEL and MDEL are less stringent than those in the previous order (190 µg/L and 290 µg/L); therefore, this Order retains the previous AMEL and MDEL to avoid backsliding.

(d) Anti-backsliding. Anti-backsliding requirements are satisfied because this Order's total ammonia WQBELs are the same as those in the previous order.

(e) Growing Regional Concern with Nutrients. As described above and in section IV.C.4.a.iii of this Fact Sheet, a translated Basin Plan un-ionized ammonia objective and a conservative estimate of actual initial dilution were used to calculate the total ammonia effluent limitations. In the future, the Regional Water Board may grant less dilution credit or change the ammonia limitations in other ways to address growing concerns about nutrients in the receiving water. Currently, a region-wide effort is underway to study and evaluate potential effects. This effort, which is referred to as the San Francisco Bay Nutrient Strategy, includes developing a nutrient assessment framework that can be used to calculate WQBELs for nutrients. The Regional Water Board, through its Executive Officer, has also required wastewater dischargers, including this Discharger, to monitor nutrients, including ammonia, in their influent and

effluent. This information will be used to compare nutrient loads from wastewater discharges to loads from other sources, to support modeling and evaluation of load reduction scenarios, and to determine the need for additional wastewater treatment to address nutrients.

c. Effluent Limit Calculations. The following table shows the WQBEL calculations:

Table F-10. WQBEL Calculations

PRIORITY POLLUTANTS	Copper	Cyanide	Dioxin TEQ	1,2-Diphenyl-hydrazine	Total Ammonia (acute)	Total Ammonia (chronic)
Units	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L N**	**mg/L N**
Basis and Criteria type	Basin Plan SSO	Basin Plan SSO	Basin Plan Narrative	CTR Human Health	Basin Plan Aquatic Life	Basin Plan Aquatic Life
Criteria -Acute	-----	-----	-----	-----	8.5	-----
Criteria -Chronic	-----	-----	-----	-----	-----	1.05
SSO Criteria -Acute	9.4	9.4	-----	-----	-----	-----
SSO Criteria -Chronic	6.0	2.9	-----	-----	-----	-----
Water Effects ratio (WER)	1	1	1	1	1	1
Lowest water quality objective	6.0	2.9	1.4E-08	0.54	8.5	1.05
Site Specific Translator - MDEL	0.87	-----	-----	-----	-----	-----
Site Specific Translator - AMEL	0.73	-----	-----	-----	-----	-----
Dilution Factor (D)	9	9	0	9	50	230
No. of samples per month	4	4	4	4	4	30
Aquatic life criteria analysis required? (Y/N)	Y	Y	N	N	Y	Y
HH criteria analysis required? (Y/N)	N	Y	Y	Y	N	N
Applicable Acute water quality objective	10.8	9.4	-----	-----	9	-----
Applicable Chronic water quality objective	8.2	2.9	-----	-----	-----	1.1
HH criteria	-----	220000	1.4E-08	0.54	-----	-----
Background (Maximum Conc for Aquatic Life calc)	2.5	0.4	-----	-----	0.22	0.11
Background (Average Conc for Human Health calc)	-----	0.4	5.3E-08	3.7E-03	-----	-----
Is the pollutant on the 303d list (Y/N)?	N	N	Y	N	N	N
ECA acute	85	90	-----	-----	424	
ECA chronic	59	25	-----	-----	-----	218
ECA HH	-----	2.2E+06	1.4E-08	5.4	-----	-----
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	Y	N	N
Average of effluent data	6.0	1.9	N/A	0.22	35	35
Standard Deviation of effluent data	1.7	1.5	N/A	0.28	5.2	5.2
CV calculated	0.28	0.80	N/A	N/A	0.15	0.15
CV (Selected) - Final	0.28	0.80	0.60	0.60	0.15	0.15
ECA acute mult99	0.55	0.25	-----	-----	0.72	-----
ECA chronic mult99	0.73	0.44	-----	-----	-----	0.98
LTA acute	47	23	-----	-----	305	-----
LTA chronic	43	11	-----	-----	-----	214
minimum of LTAs	43	11	-----	-----	305	214

PRIORITY POLLUTANTS	Copper	Cyanide	Dioxin TEQ	1,2-Diphenyl-hydrazine	Total Ammonia (acute)	Total Ammonia (chronic)
AMEL mult95	1.2	1.8	1.6	1.6	1.1	1.0
MDEL mult99	1.8	4.0	3.1	3.1	1.4	1.4
AMEL (aq life)	54	20	-----	-----	340	220
MDEL(aq life)	79	45	-----	-----	420	300
MDEL/AMEL Multiplier	1.5	2.3	2.0	2.0	1.2	1.3
AMEL (human hlth)	-----	2.2E+06	1.4E-08	5.4	-----	-----
MDEL (human hlth)	-----	5.0E+06	2.8E-08	11	-----	-----
minimum of AMEL for Aq. life vs HH	54	20	1.4E-08	5.4	340	220
minimum of MDEL for Aq. Life vs HH	79	43	2.8E-08	11	420	300
AMEL in previous order	53	20	-----	-----	190	190
MDEL in previous order	76	43	-----	-----	290	290
Final limit - AMEL	53	20	1.4E-08	5.4	190	190
Final limit - MDEL	76	43	2.8E-08	11	290	290

5. Whole Effluent Acute Toxicity

This Order includes dry weather effluent limitations for whole effluent acute toxicity based on Basin Plan Table 4-3. All bioassays are to be performed according to the U.S. EPA approved method in 40 C.F.R. section 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 5th Edition (EPA-821-R-02-012). The approved test species specified in the MRP are rainbow trout (*Oncorhynchus mykiss*) and fathead minnow (*Pimephales promelas*).

Based on Basin Plan section 3.3.20, if the Discharger can demonstrate that ammonia causes acute toxicity in excess of the acute toxicity limitations in this Order, and that the ammonia in the discharge complies with the ammonia effluent limitations in this Order, then such toxicity does not constitute a violation of the effluent limitations for whole effluent acute toxicity.

6. Whole Effluent Chronic Toxicity

a. Water Quality Objective. Basin Plan section 3.3.18 states, "There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community."

b. Reasonable Potential Analysis. The Discharger conducted semiannual chronic toxicity tests during the previous order term using the echinoderm larval development test. The previous order contained chronic toxicity triggers (three-sample median of 10 TUc or single-sample maximum of 20 TUc) for accelerated chronic toxicity testing. The maximum single-sample chronic toxicity result during the previous order term was 10 TUc in July 2009. The relatively low toxicity indicates low reasonable potential for

chronic toxicity so this Order contains only a narrative chronic toxicity limit. A numeric limit is unwarranted.

c. Requirements. The Order contains a narrative chronic toxicity effluent limitation based on the Basin Plan's narrative toxicity water quality objective. The Order also includes requirements for chronic toxicity monitoring to ensure attainment of the narrative toxicity objective and a monitoring "trigger" for initiation of accelerated monitoring requirements when exceeded. The Discharger is required to implement a chronic toxicity reduction evaluation in some circumstances. These requirements are consistent with CTR and SIP requirements.

d. Screening Phase Study and Monitoring Requirement. The MRP requires the Discharger to conduct a chronic toxicity screening phase study, as described in MRP Appendix E-1, prior to permit reissuance. The Discharger's April 2012 chronic toxicity screening study did not indicate the presence of toxicity effects in the effluent for the test species examined. Therefore, the Discharger will continue to using the echinoderm larval development test (i.e., purple sea urchin [*Strongylocentroltus purpuratus*] or sand dollar [*Dendraster excentricus*]. The accelerated monitoring triggers are based on Basin Plan Table 4-5.

D. Effluent Limitation Considerations

1. Anti-backsliding. This Order complies with the anti-backsliding provisions of CWA sections 402(o) and 303(d)(4) and 40 C.F.R. section 122.44(l), which generally require effluent limitations in a reissued permit to be as stringent as those in the previous permit. Most requirements of this Order are at least as stringent as those in the previous order, with some exceptions:

- This Order does not retain silver, lead, zinc, tetrachloroethylene, tributyltin, and bis(2-ethylhexyl)phthalate limits from the previous order because data no longer indicate that these pollutants have reasonable potential to exceed water quality objectives. This is consistent with State Water Board Order WQ 2001-16.

- This Order replaces the previous order's wet weather enterococcus and fecal coliform limits with a new wet weather enterococcus limit. The change from an instantaneous maximum enterococcus limit to a geometric mean is not subject to anti-backsliding requirements because the two limits reflect different averaging periods, both are consistent with Basin Plan Table 3-1 water quality objectives, and a direct comparison between the two types of limits is impossible. Likewise, the change from fecal coliform limits to an enterococcus limit is not subject to anti-backsliding requirements because a direct comparison between these two types of limits is also impossible.

- This Order does not retain mercury limits from the previous order because NPDES Permit No. CA0038849 now covers mercury discharges.

2. Antidegradation. This Order complies with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. It continues the status quo with respect to the level of discharge authorized in the previous order, which is the baseline by

which to measure whether degradation will occur. This Order does not allow for a reduced level of treatment relative to the previous order.

This Order corrects a typographical error in the previous order. Discharge Prohibition III.E allows the average dry weather flow to increase from 84.5 MGD to 85.4 MGD. Earlier orders (e.g., Order No. R2-2002-0073) allowed this slightly higher flow. This change will not affect water quality, particularly since the effluent limitations and other provisions of this Order require the Discharger to maintain its existing treatment performance. Therefore, discharges subject to this Order will not degrade water quality, and findings authorizing degradation are unnecessary.

This Order replaces the previous order's wet weather enterococcus and fecal coliform limits with a new wet weather enterococcus limit. This change will not degrade receiving water quality because the old and new limits are all consistent with Basin Plan Table 3-1 water quality objectives, and any difference in effects would be temporally limited and would not result in any long-term deleterious effect on water quality (e.g., they would cease after wet weather is over).

3. **Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. This Order's technology-based requirements implement minimum, applicable federal technology-based requirements. In addition, this Order contains more stringent effluent limitations as necessary to meet water quality standards. Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement CWA requirements.

   This Order's WQBELs have been derived to implement water quality objectives that protect beneficial uses. The beneficial uses and water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating these WQBELs are based on the CTR, as implemented in accordance with the SIP, which U.S. EPA approved on May 18, 2000. U.S. EPA approved most Basin Plan beneficial uses and water quality objectives prior to May 30, 2000. Beneficial uses and water quality objectives submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 C.F.R. section 131.21(c)(1). U.S. EPA approved the remaining beneficial uses and water quality objectives so they are applicable water quality standards pursuant to 40 C.F.R. section 131.21(c)(2).

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

The receiving water limitations in sections V.A.1 and V.A.2 of the Order are based on Basin Plan narrative and numeric water quality objectives. The receiving water limitation in section V.A.3 of the Order requires compliance with federal and State water quality standards in accordance with the CWA and regulations adopted thereunder.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Attachment D contains standard provisions that apply to all NPDES permits in accordance with 40 C.F.R. section 122.41 and additional conditions applicable to specific categories of permits in accordance with 40 C.F.R. section 122.42. The Discharger must comply with these provisions. The conditions set forth in 40 C.F.R. sections 122.41(a)(1) and (b) through (n) apply to all state-issued NPDES permits and must be incorporated into the permits either expressly or by reference.

In accordance with 40 C.F.R. section 123.25(a)(12), states may omit or modify conditions to impose more stringent requirements. Attachment G contains standard provisions that supplement the federal standard provisions in Attachment D.

This Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the State's enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates Water Code section 13387(e) by reference.

B. Monitoring and Reporting

Pursuant to 40 C.F.R. section 122.48, NPDES permits must specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383, and 40 C.F.R. sections 122.41(h) and (j), authorize the Regional Water Board to require technical and monitoring reports. This Order establishes monitoring and reporting requirements, contained in the Monitoring and Reporting Program (Attachment E), that implement federal and State requirements. For more background regarding these requirements, see section VII of this Fact Sheet.

C. Special Provisions

1. Reopener Provisions

These provisions are based on 40 C.F.R. sections 122.62 and 122.63 and allow modification of this Order and its effluent limitations as necessary in response to updated water quality objectives, regulations, or other new and relevant information that may become available in the future, and other circumstances as allowed by law.

2. Effluent Characterization Study and Report

This Order does not include effluent limitations for priority pollutants that do not demonstrate reasonable potential, but this provision requires the Discharger to continue monitoring for these pollutants during dry weather as described in the MRP and Attachment G. Dry weather monitoring data are necessary to verify that the "no" and "cannot determine" reasonable potential analysis conclusions of this Order remain valid. This requirement is authorized pursuant to CWC section 13267, and is necessary to inform the

next permit reissuance and to ensure that the Discharger takes timely action in response to any unanticipated change in effluent quality during the term of this Order.

3. Pollutant Minimization Program

This provision is based on Basin Plan section 4.13.2 and SIP section 2.4.5.

4. Special Provisions for Municipal Facilities

a. Pretreatment Program. This provision is based on 40 C.F.R. part 403. The Discharger implements a pretreatment program due to the nature and volume of industrial influent to the Southeast Plant. Two significant industrial users discharge to the Facility and are subject to the Discharger's pretreatment program. This provision lists the Discharger's responsibilities regarding its pretreatment program and requires compliance with the provisions in Attachment H, "Pretreatment Requirements."

b. Sludge and Biosolids Management. "Sludge" refers to the solid, semisolid, and liquid residue removed during primary, secondary, and advanced wastewater treatment processes. "Biosolids" refers to sludge that has been treated and may be beneficially used. This provision is based on Basin Plan section 4.17 and 40 C.F.R. parts 257 and 503.

c. Collection System Management. The Discharger's collection system is predominantly a combined sewer system with some limited separate sanitary sewers. It is part of the Facility regulated through this Order. This provision explains this Order's requirements as they relate to the Discharger's collection system and promotes consistency with the State Water Board's *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems* (General Collection System WDRs), Order 2006-0003-DWQ as amended by WQ 2008-0002-EXEC.

i. Separate Sanitary Sewer System. The General Collection System WDRs require public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Collection System WDRs. The General Collection System WDRs contain requirements for collection system operation and maintenance and for reporting and mitigating sanitary sewer overflows. They also require agencies to develop sanitary sewer management plans and report all sanitary sewer overflows. The Discharger must comply with both the General Collection System WDRs and this Order. To the extent that the Discharger's separate sanitary sewer collection system is part of the Facility subject to this Order, certain provisions apply, as specified in Provision VI.C.4.c.i.

ii. Combined Sewer System. For purposes of this Order, an "excursion" is a release or diversion of untreated or partially treated wastewater from the combined sewer system that exits the system temporarily and then re-enters it. The Discharger and U.S. EPA developed the collection system excursion reporting requirement in this Order so the information would be available.

5. Combined Sewer Overflow Controls

The *Combined Sewer Overflow Control Policy* addresses combined sewer system operations. Its requirements are summarized below as they relate to this Order. The Discharger has designed, constructed, and implemented control strategies that address wet weather flows. This provision specifies performance criteria for wet weather combined sewer system operations.

a. Combined Sewer Operations and Maintenance Plan. This provision is necessary to ensure that combined sewer system operations and maintenance comply with the Nine Minimum Controls and the Long-Term Control Plan requirements of the *Combined Sewer Overflow Control Policy*.

b. Nine Minimum Controls. The *Combined Sewer Overflow Control Policy* requires these "Nine Minimum Controls" to satisfy CWA technology-based requirements:

- Conduct proper operations and maintenance programs,
- Maximize use of collection system for storage,
- Review and modify pretreatment program,
- Maximize flow to Southeast Plant and North Point Facility,
- Prohibit dry weather combined sewer overflows,
- Control solid and floatable materials in combined sewer discharges,
- Develop and implement pollution prevention program,
- Notify public of combined sewer discharges, and
- Monitor to characterize wet weather discharge impacts and efficacy of controls.

The *Combined Sewer Overflow Control Policy* requires monitoring to ascertain the effectiveness of controls and to verify compliance with water quality standards and protection of beneficial uses. If implemented controls do not result in attainment of water quality standards, including beneficial uses, a discharger must evaluate its operating practices. If monitoring indicates that water quality standards are not met, the data may be used to identify additional controls necessary to achieve water quality standards.

Over the previous order term, the Discharger monitored combined sewer discharges (*Special Study: Overflow Impacts and Efficacy of Combined Sewer Overflow Controls for the San Francisco Bayside System, Southeast Water Pollution Control Plant, North Point Wet Weather Facility and Bayside Wet Weather Facilities*, June 29, 2012). It found that average combined sewer discharge pollutant concentrations are below acute water quality objectives for metals and other priority pollutants, with the exceptions of copper and zinc. The average dissolved zinc concentration was 91 µg/L (based on the default CTR acute translator), compared to the water quality objective of 90 µg/L. The average dissolved copper concentration was 19 µg/L (based on the Basin Plan Table 7.2.1-2 acute translator), compared to the water quality objective of 10.8 µg/L. Water quality objectives apply in the receiving water, not combined sewer discharges *per se*. Therefore, given the relatively short duration of combined sewer discharges (i.e., just a few hours each time), and accounting for the inevitable dilution within the receiving waters during wet weather, water quality standards appear to be maintained.

The Order requires the Discharger to continue monitoring wet weather discharges to characterize their impacts and evaluate the efficacy of its wet weather controls. The Order also requires receiving water monitoring for enterococcus and fecal coliform at recreational use locations to determine the impacts of wet weather discharges on water contact recreation. The data collected may be used to document current conditions and evaluate whether beneficial uses are protected.

Among other requirements, the Nine Minimum Controls require the Discharger to notify the public when combined sewer discharges occur. The Discharger's current notification process fulfills these requirements. It includes posting permanent signs at San Francisco beaches that inform the public in English, Spanish, and Chinese that international "No Swimming" signs will be posted when it is unsafe to enter the water and to warn users that bacteria concentrations may be elevated during heavy rain. The Discharger posts "No Swimming" signs at beaches whenever a combined sewer discharge occurs in the area. These signs remain posted until water sampling indicates that bacteria concentrations have dropped below levels of concern for water contact recreation (i.e., the single-sample bacteriological standards of Cal. Code of Regs. tit. 17, § 7958[a][1]). Both types of signs provide the Discharger's toll-free water quality hotline (1-877-SFBEACH) that the Discharger updates weekly and whenever new bacteria results are available. The Discharger also provides color-coded indicators (green/open; red/posted) of beach water quality conditions on the Internet (http://beaches.sfwater.org).

The Discharger has designated Lewis Harrison as the contact person responsible for the wastewater collection system. The Order allows the Discharger to designate a different contact person as long as the Discharger notifies the Regional Water Board within 90 days.

c. Long-Term Control Plan. The *Combined Sewer Overflow Control Policy* requires implementation of a Long-Term Control Plan to to satisfy CWA water quality-based requirements (see section IV.C.1 of this Fact Sheet). The Discharger designed and built a combined sewer system that provides for long-term control and treatment. This provision specifies how the combined sewer system is to be operated, consistent with implementation of the Long-Term Control Plan. The Discharger designed the system based on historical rainfall to achieve the following long-term average annual goals:

- Four combined sewer discharge events along the North Shore (Discharge Point Nos. 009 through 017);
- Ten combined sewer discharge events within the Central Basin (Discharge Point Nos. 018 through 036); and
- One combined sewer discharge event along the Southeast Sector (Discharge Point Nos. 037 through 043).

Some years are wetter than others and may contribute more or less flow than anticipated by these design goals; therefore, these goals are not intended for determining compliance.

This provision requires the Discharger to synthesize and update its Long-Term Control Plan into one document that reflects current circumstances. The updated plan is necessary to optimize system operations so as to maximize pollutant removal during wet weather

and minimize combined sewer discharges. This requirement recognizes that circumstances have changed since the plan was first developed and implemented. However, the Order maintains the historical long-term average annual design goals for combined sewer discharges.

In addition to the system design elements of the plan, the Discharger is to describe additional measures, to the extent technically and economically feasible, to minimize combined sewer discharges (e.g., implementing and promoting low-impact development measures that enhance stormwater percolation and slow stormwater runoff to the combined sewer system).

The Discharger is also to develop and propose a mechanism to evaluate the performance of its wet weather disinfection system for Discharge Point Nos. 001 through 006. Based on the proposal, the Regional Water Board may consider replacing the wet weather enterococcus limits in this Order when it next takes up this permit for reissuance.

This provision also requires the Discharger to review its approach to protecting sensitive areas, which include waters with threatened or endangered species and their habitat, waters with primary contact recreation, and waters with shellfish beds, among others. This provision implements *Combined Sewer Overflow Control Policy* section II.C.3, "Consideration of Sensitive Areas," which requires the following with each permit reissuance:

i. Prohibit new or significantly increased combined sewer discharges;

ii. Eliminate and relocate combined sewer discharges that discharge to sensitive areas wherever physically possible and economically achievable, except where elimination or relocation would provide less environmental protection than additional treatment (where elimination or relocation is not physically possible and economically achievable, or would provide less environmental protection than additional treatment, treatment for remaining combined sewer discharges must be sufficient to protect beneficial uses); and

iii. Where elimination or relocation is not physically possible and economically achievable, reassess the situation, based on new or improved techniques to eliminate or relocate the combined sewer discharges, or based on changed circumstances that influence economic achievability, with each subsequent permit term.

d. This provision sets forth steps the Discharger must take if the Executive Offer finds that its discharges cause violations of water quality standards in receiving waters.

6. Other Special Provisions

a. Copper Action Plan. This provision is based on Basin Plan section 7.2.1.2 and is necessary to ensure that use of copper site-specific objectives is consistent with antidegradation policies. Data the San Francisco Estuary Institute compiled for 2008-2010 indicate no degradation of San Francisco Bay water quality with respect to copper (http://www.sfei.org/content/copper-site-specific-objective-3-year-rolling-averages).

b. Cyanide Action Plan. This provision is based on Basin Plan section 4.7.2.2 and is necessary to ensure that use of cyanide site-specific objectives is consistent with antidegradation policies. The threshold for considering influent cyanide concentrations to indicate a possible "significant cyanide discharge" in the Discharger's service area is set at 21 µg/L. This concentration is about 1.5 times the maximum cyanide concentration (14 µg/L) found in the facility's influent during the previous order term. Because the Discharger has not observed influent cyanide concentrations greater than 14 µg/L, if influent concentrations 1.5 times this level were observed, there could be a significant cyanide source.

c. Standard Operating Procedures Requirement for Resource Recovery. Standard Operating Procedures are required for dischargers that accept hauled waste fats, oil, and grease for injection into anaerobic digesters. The development and implementations of Standard Operating Procedures for management of these materials is intended to allow the California Deparment of Resources Recycling and Recovery to exempt operations from separate and redundant permitting programs. If the Discharger does not accept fats, oil, and grease for resource recovery purposes, it is not required to develop and implement Standard Operating Procedures.

VII. RATIONALE FOR MONITORING AND REPORTING PROGRAM (MRP)

Attachment E contains the MRP for this Order. It specifies sampling stations, pollutants to be monitored (including all parameters for which effluent limitations are specified), monitoring frequencies, and reporting requirements. The following provides the rationale for the MRP requirements.

A. MRP Requirements Rationale

1. **Influent Monitoring.** Influent flow monitoring is necessary to identify wet weather as defined in Attachment A and to evaluate implementation of Long-Term Control Plan requirements. BOD_5 and TSS monitoring is necessary to evaluate compliance with this Order's 85 percent removal requirement. Basin Plan section 4.7.2.2 requires cyanide monitoring because this Order is based on site-specific cyanide water quality objectives.

2. **Effluent Monitoring.** Effluent flow monitoring is necessary to evaluate compliance with Prohibition III.E (average dry weather flow) and to understand Facility operations. During dry weather, monitoring for the other parameters in Table E-3 is necessary to evaluate compliance with this Order's effluent limitations applicable to Discharge Point No. 001. During wet weather, enterococcus and total residual chlorine monitoring is necessary to evaluate compliance with this Order's effluent limitations applicable to Discharge Point Nos. 001 through 006. Fecal coliform monitoring will provide additional information regarding the efficacy of controls. During combined sewer discharge events, duration and flow volume monitoring is necessary to characterize combined sewer discharges. Provision VI.C.2 of the Order requires monitoring for additional priority pollutants for which there are no effluent limits to inform the next permit reissuance and to ensure that the Discharger takes timely steps in response to any unanticipated change in effluent quality.

Provision VI.C.5.b.ix(a) of the Order requires monitoring to characterize combined sewer discharge impacts and efficacy of controls.

3. **Whole Effluent Toxicity Testing**. Acute and chronic whole effluent toxicity tests are necessary to evaluate compliance with acute and chronic toxicity effluent limitations during dry weather. Chronic toxicity tests during dry weather are also necessary to evaluate whether chronic toxicity triggers the need for a Toxicity Reduction Evaluation. Acute toxicity tests during wet weather are necessary to evaluate the efficacy of wet weather controls.

4. **Receiving Water Monitoring.** The Discharger is required to continue participating in the RMP, which involves collecting data on pollutants and toxicity in San Francisco Bay water, sediment, and biota. This monitoring is necessary to characterize the receiving water and the effects of the discharges authorized in this Order. The Discharger is also required to monitor shoreline locations where water contact recreation takes place. This monitoring is necessary to assess the possible effects of combined sewer discharges and to comply with Provisions VI.C.5.b.viii, "Notify Public of Combined Sewer Discharges," and VI.C.5.b.ix, "Monitor to Characterize Combined Sewer Discharge Impacts and Efficacy of Controls."

5. **Pretreatment and Biosolids Monitoring.** The pretreatment and biosolids monitoring requirements for influent, effluent, and biosolids are necessary to evaluate compliance with the Discharger's U.S. EPA-approved pretreatment program. Biosolids monitoring is also required pursuant to 40 C.F.R. part 503.

B. Monitoring Requirements Summary. The table below summarizes routine monitoring requirements. This table is for informational purposes only. The actual requirements are specified in the MRP and elsewhere in this Order.

Table F-11. Monitoring Requirements Summary

Parameter	Influent INF-001	Effluent EFF-001A	Effluent EFF-001B, EFF-002, and EFF-003	Effluent CSD-010 through CSD-043	Biosolids BIO-001	Receiving Water
Flow	Continuous[1]	Continuous[1]	Continuous[1]	1/Event[1]		
BOD_5	1/Week[2]	1/Week[3]				
TSS	5/Week[2]	5/Week	1/Month	1/Event		
Chemical Oxygen Demand (COD)		5/Week[3]	1/Month			
Oil and Grease		1/Month	1/Month			
pH		Continuous or 5/Week	Continuous or 1/Month	1/Event		Support RMP
Total Residual Chlorine		Continuous or 1/Hour	Continuous or 1/Hour			
Acute Toxicity		1/Month	1/Month[8]			Support RMP
Chronic Toxicity		2/Year				Support RMP
Enterococcus		4/Year[4]	1/Day			1/Day[6]
Fecal Coliform		1/Week	1/Day			1/Day[6]
Dissolved Oxygen						Support RMP
Sulfides						Support RMP
Temperature						Support RMP
Copper, Total Recoverable		1/Month	1/Month			Support RMP
Cyanide, Total	1/Month[2]	1/Month	1/Month	1/Event		Support RMP

Parameter	Influent INF-001	Effluent EFF-001A	Effluent EFF-001B, EFF-002, and EFF-003	Effluent CSD-010 through CSD-043	Biosolids BIO-001	Receiving Water
Ammonia, Total		1/Month	1/Month	1/Event		Support RMP
Dioxin-TEQ		2/Year				Support RMP
1,2-Diphenylhydrazine		1/Month				Support RMP
Settleable Matter				1/Event		
All other priority pollutants		1/Year	1/Year	1/Year[7]		Support RMP
Volatile Organic Compounds	2/Year	2/Year			2/Year	
Base/Neutrals Acid Extractable Organic Compounds	2/Year	2/Year			2/Year	
Metals[2]	1/Month	1/Month		1/Event	2/Year	Support RMP
Hexavalent Chromium	1/Month	1/Month			2/Year	Support RMP
Mercury	1/Month	1/Month			2/Year	Support RMP
Metric tons/year					See Attach. G, § III.B.1	
Paint filter test					See Attach. G, § III.B.2	

Footnotes:

[1] The following flow information is to be reported:

- Daily average flow (MGD)
- Monthly average flow (MGD)
- Total monthly flow volume (MG)
- Maximum and minimum daily average flow rates (MGD)

For Monitoring Locations CSD-010 through CSD-043, only total flow volume (MG) and event duration are to be reported.

[2] The metals are arsenic, cadmium, copper, lead, nickel, selenium, silver, and zinc.

[3] If the COD_5 concentration exceeds 75 mg/L on two consecutive days, the Discharger is to increase the BOD_5 sampling frequency to daily until it demonstreates that the BOD_5 concentration is below 30 mg/L.

[4] If the enterococcus effluent limitation is exceeded, the Discharger is to conduct 5/Month accelerated sampling for at least three consecutive months. If full compliance is demonstrated after the three months, the Discharger may return to the 4/Year sampling.

[5] Influent monitoring is only required during dry weather.

[6] Monitoring is to be once per day following nearby combined sewer discharges. Otherwise, monitoring is to be sufficient to characterize ambient background conditions (e.g., weekly).

[7] Monitoring is only required at Monitoring Location CSD-041.

[8] Monitoring is only required at Monitoring Locations EFF-001B and EFF-003.

VIII. PUBLIC PARTICIPATION

The Regional Water Board considered the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the WDR adoption process, Regional Water Board staff developed tentative WDRs and encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties. The Regional Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through *The Recorder*. The public had access to the agenda and any changes in dates and locations through the Regional Water Board's website at http://www.waterboards.ca.gov/sanfranciscobay.

B. Written Comments. Interested persons were invited to submit written comments concerning the tentative WDRs as explained through the notification process. Comments were due either in person or by mail at the Regional Water Board office at 1515 Clay Street, Suite 1400, Oakland, California 94612, to the attention of Derek Whitworth.

For full staff response and Regional Water Board consideration, the written comments were due at the Regional Water Board office by 5:00 p.m. on July 1, 2013.

C. Public Hearing. The Regional Water Board held a public hearing on the tentative WDRs during its regular meeting at the following date and time, and at the following location:

Date: Wednesday, August 14, 2013
Time: 9:00 a.m.
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Contact: Derek Whitworth, (510) 622-2349, DWhitworth@waterboards.ca.gov

Interested persons were invited to attend. At the public hearing, the Regional Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony wasrequested to be in writing.

Dates and venues change. The Regional Water Board web address is http://www.waterboards.ca.gov/sanfranciscobay, where one could access the current agenda for changes in dates and locations.

D. Reconsideration of Waste Discharge Requirements. Any aggrieved person may petition the State Water Board to review the Regional Water Board decision regarding the final WDRs. The State Water Board must receive the petition at the following address within 30 calendar days of the Regional Water Board action:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

For instructions on how to file a petition for review, see http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml.

E. Information and Copying. The Report of Waste Discharge, related supporting documents, and comments received are on file and may be inspected at the address above at any time between 9:00 a.m. and 5:00 p.m., Monday through Friday. Copying of documents may be arranged by calling (510) 622-2300.

F. Register of Interested Persons. Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference the Facility, and provide a name, address, and phone number.

G. Additional Information. Requests for additional information or questions regarding this Order should be directed to Derek Whitworth at (510) 622-2349 or DWhitworth@waterboards.ca.gov.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT G

REGIONAL STANDARD PROVISIONS, AND MONITORING
AND REPORTING REQUIREMENTS
(SUPPLEMENT TO ATTACHMENT D)

For

NPDES WASTEWATER DISCHARGE PERMITS

March 2010

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS (SUPPLEMENT TO ATTACHMENT D)

FOR

NPDES WASTEWATER DISCHARGE PERMITS

APPLICABILITY

This document applies to dischargers covered by a National Pollutant Discharge Elimination System (NPDES) permit. This document does not apply to Municipal Separate Storm Sewer System (MS4) NPDES permits.

The purpose of this document is to supplement the requirements of Attachment D, Standard Provisions. The requirements in this supplemental document are designed to ensure permit compliance through preventative planning, monitoring, recordkeeping, and reporting. In addition, this document requires proper characterization of issues as they arise, and timely and full responses to problems encountered. To provide clarity on which sections of Attachment D this document supplements, this document is arranged in the same format as Attachment D.

I. STANDARD PROVISIONS - PERMIT COMPLIANCE

A. Duty to Comply – Not Supplemented

B. Need to Halt or Reduce Activity Not a Defense – Not Supplemented

C. Duty to Mitigate – This supplements I.C. of Standard Provisions (Attachment D)

1. Contingency Plan - The Discharger shall maintain a Contingency Plan as originally required by Regional Water Board Resolution 74-10 and as prudent in accordance with current municipal facility emergency planning. The Contingency Plan shall describe procedures to ensure that existing facilities remain in, or are rapidly returned to, operation in the event of a process failure or emergency incident, such as employee strike, strike by suppliers of chemicals or maintenance services, power outage, vandalism, earthquake, or fire. The Discharger may combine the Contingency Plan and Spill Prevention Plan into one document. Discharge in violation of the permit where the Discharger has failed to develop and implement a Contingency Plan as described below will be the basis for considering the discharge a willful and negligent violation of the permit pursuant to California Water Code Section 13387. The Contingency Plan shall, at a minimum, contain the provisions of a. through g. below.

a. Provision of personnel for continued operation and maintenance of sewerage facilities during employee strikes or strikes against contractors providing services.

b. Maintenance of adequate chemicals or other supplies and spare parts necessary for continued operations of sewerage facilities.

c. Provisions of emergency standby power.

d. Protection against vandalism.

e. Expeditious action to repair failures of, or damage to, equipment and sewer lines.

f. Report of spills and discharges of untreated or inadequately treated wastes, including measures taken to clean up the effects of such discharges.

g. Programs for maintenance, replacement, and surveillance of physical condition of equipment, facilities, and sewer lines.

2. Spill Prevention Plan - The Discharger shall maintain a Spill Prevention Plan to prevent accidental discharges and minimize the effects of such events. The Spill Prevention Plan shall:

a. Identify the possible sources of accidental discharge, untreated or partially treated waste bypass, and polluted drainage;

b. Evaluate the effectiveness of present facilities and procedures, and state when they became operational; and

c. Predict the effectiveness of the proposed facilities and procedures, and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

This Regional Water Board, after review of the Contingency and Spill Prevention Plans or their updated revisions, may establish conditions it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of the permit upon notice to the Discharger.

D. Proper Operation & Maintenance – This supplements I.D of Standard Provisions (Attachment D)

1. Operation and Maintenance (O&M) Manual - The Discharger shall maintain an O&M Manual to provide the plant and regulatory personnel with a source of information describing all equipment, recommended operational strategies, process control monitoring, and maintenance activities. To remain a useful and relevant document, the O&M Manual shall be kept updated to reflect significant changes in treatment facility equipment and operational practices. The O&M Manual shall be maintained in usable condition and be available for reference and use by all relevant personnel and Regional Water Board staff.

2. Wastewater Facilities Status Report - The Discharger shall regularly review, revise, or update, as necessary, its Wastewater Facilities Status Report. This report shall document how the Discharger operates and maintains its wastewater collection, treatment, and disposal facilities to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

3. Proper Supervision and Operation of Publicly Owned Treatment Works (POTWs) - POTWs shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

E. Property Rights – Not Supplemented

F. Inspection and Entry – Not Supplemented

G. Bypass – Not Supplemented

H. Upset – Not Supplemented

I. Other – This section is an addition to Standard Provisions (Attachment D)

1. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by California Water Code Section 13050.

2. Collection, treatment, storage, and disposal systems shall be operated in a manner that precludes public contact with wastewater, except in cases where excluding the public is infeasible, such as private property. If public contact with wastewater could reasonably occur on public property, warning signs shall be posted.

3. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit continues in force and effect until a new permit is issued or the Regional Water Board rescinds the permit.

J. Storm Water – This section is an addition to Standard Provisions (Attachment D)

These provisions apply to facilities that do not direct all storm water flows from the facility to the wastewater treatment plant headworks.

1. Storm Water Pollution Prevention Plan (SWPP Plan)

The SWPP Plan shall be designed in accordance with good engineering practices and shall address the following objectives:

a. To identify pollutant sources that may affect the quality of storm water discharges; and

b. To identify, assign, and implement control measures and management practices to reduce pollutants in storm water discharges.

The SWPP Plan may be combined with the existing Spill Prevention Plan as required in accordance with Section C.2. The SWPP Plan shall be retained on-site and made available upon request of a representative of the Regional Water Board.

2. Source Identification

The SWPP Plan shall provide a description of potential sources that may be expected to add significant quantities of pollutants to storm water discharges, or may result in non-storm water discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing the wastewater treatment facility process areas, surface water bodies (including springs and wells), and discharge point(s) where the facility's storm water discharges to a municipal storm drain system or other points of discharge to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

b. A site map showing the following:

   1) Storm water conveyance, drainage, and discharge structures;

   2) An outline of the storm water drainage areas for each storm water discharge point;

   3) Paved areas and buildings;

   4) Areas of actual or potential pollutant contact with storm water or release to storm water, including but not limited to outdoor storage and process areas; material loading, unloading, and access areas; and waste treatment, storage, and disposal areas;

   5) Location of existing storm water structural control measures (i.e., berms, coverings, etc.);

   6) Surface water locations, including springs and wetlands; and

   7) Vehicle service areas.

c. A narrative description of the following:

   1) Wastewater treatment process activity areas;

   2) Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with storm water discharges;

   3) Material storage, loading, unloading, and access areas;

   4) Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharges; and

   5) Methods of on-site storage and disposal of significant materials.

d. A list of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities.

3. Storm Water Management Controls

The SWPP Plan shall describe the storm water management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of storm water management controls to be implemented shall include, as appropriate:

a. Storm water pollution prevention personnel

Identify specific individuals (and job titles) that are responsible for developing, implementing, and reviewing the SWPP Plan.

b. Good housekeeping

Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm drain conveyance system.

c. Spill prevention and response

Identify areas where significant materials can spill into or otherwise enter storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, and cleanup equipment and procedures shall be identified, as appropriate. The necessary equipment to implement a cleanup shall be available, and personnel shall be trained in proper response, containment, and cleanup of spills. Internal reporting procedures for spills of significant materials shall be established.

d. Source control

Source controls include, for example, elimination or reduction of the use of toxic pollutants, covering of pollutant source areas, sweeping of paved areas, containment of potential pollutants, labeling of all storm drain inlets with “No Dumping” signs, isolation or separation of industrial and non-industrial pollutant sources so that runoff from these areas does not mix, etc.

e. Storm water management practices

Storm water management practices are practices other than those that control the sources of pollutants. Such practices include treatment or conveyance structures, such as drop inlets, channels, retention and detention basins, treatment vaults, infiltration galleries, filters, oil/water separators, etc. Based on assessment of the potential of various sources to contribute pollutants to storm water discharges in significant quantities, additional storm water management practices to remove pollutants from storm water discharges shall be implemented and design criteria shall be described.

f. Sediment and erosion control

Measures to minimize erosion around the storm water drainage and discharge points, such as riprap, revegetation, slope stabilization, etc., shall be described.

g. Employee training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training shall address spill response, good housekeeping, and material management practices. New employee and refresher training schedules shall be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering storm water discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded. Inspection records shall be retained for five years.

i. Records

A tracking and follow-up procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. Annual Verification of SWPP Plan

An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up-to-date. The results of this review shall be reported in the Annual Report to the Regional Water Board described in Section V.C.f.

K. Biosolids Management – This section is an addition to Standard Provisions (Attachment D)

Biosolids must meet the following requirements prior to land application. The Discharger must either demonstrate compliance or, if it sends the biosolids to another party for further treatment or distribution, must give the recipient the information necessary to ensure compliance.

1. Exceptional quality biosolids meet the pollutant concentration limits in Table III of 40 CFR Part 503.13, Class A pathogen limits, and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8). Such biosolids do not have to be tracked further for compliance with general requirements (503.12) and management practices (503.14).

2. Biosolids used for agricultural land, forest, or reclamation shall meet the pollutant limits in Table I (ceiling concentrations) and Table II or Table III (cumulative loadings or pollutant concentration limits) of 503.13. They shall also meet the general requirements (503.12) and management practices (503.14) (if not exceptional quality biosolids) for Class A or Class B pathogen levels with associated access restrictions (503.32) and one of the 10 vector attraction reduction requirements in 503.33(b)(1)-(b)(10).

3. Biosolids used for lawn or home gardens must meet exceptional quality biosolids limits.

4. Biosolids sold or given away in a bag or other container must meet the pollutant limits in either Table III or Table IV (pollutant concentration limits or annual pollutant loading rate limits) of 503.13. If Table IV is used, a label or information sheet must be attached to the biosolids packing that explains Table IV (see 503.14). The biosolids must also meet the Class A pathogen limits and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8).

II. STANDARD PROVISIONS – PERMIT ACTION – Not Supplemented

III. STANDARD PROVISIONS – MONITORING

A. Sampling and Analyses – This section is a supplement to III.A and III.B of Standard Provisions (Attachment D)

1. Use of Certified Laboratories

Water and waste analyses shall be performed by a laboratory certified for these analyses in accordance with California Water Code Section 13176.

2. Use of Appropriate Minimum Levels

Table C lists the suggested analytical methods for the 126 priority pollutants and other toxic pollutants that should be used, unless a particular method or minimum level (ML) is required in the MRP.

For priority pollutant monitoring, when there is more than one ML value for a given substance, the Discharger may select any one of the analytical methods cited in Table C for compliance determination, or any other method described in 40 CFR part 136 or approved by U.S. EPA (such as the 1600 series) if authorized by the Regional Water Board. However, the ML must be below the effluent limitation and water quality objective. If no ML value is below the effluent limitation and water quality objective, then the method must achieve an ML no greater than the lowest ML value indicated in Table C. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

3. Frequency of Monitoring

The minimum schedule of sampling analysis is specified in the MRP portion of the permit.

a. Timing of Sample Collection

1) The Discharger shall collect samples of influent on varying days selected at random and shall not include any plant recirculation or other sidestream wastes, unless otherwise stipulated by the MRP.

2) The Discharger shall collect samples of effluent on days coincident with influent sampling unless otherwise stipulated by the MRP or the Executive Officer. The Executive Officer may approve an alternative sampling plan if it is demonstrated to be representative of plant discharge flow and in compliance with all other permit requirements.

3) The Discharger shall collect grab samples of effluent during periods of day-time maximum peak effluent flows (or peak flows through secondary treatment units for facilities that recycle effluent flows).

4) Effluent sampling for conventional pollutants shall occur on at least one day of any multiple-day bioassay test the MRP requires. During the course of the test, on at least one day, the Discharger shall collect and retain samples of the discharge. In the event a bioassay test does

not comply with permit limits, the Discharger shall analyze these retained samples for pollutants that could be toxic to aquatic life and for which it has effluent limits.

i. The Discharger shall perform bioassay tests on final effluent samples; when chlorine is used for disinfection, bioassay tests shall be performed on effluent after chlorination-dechlorination; and

ii. The Discharger shall analyze for total ammonia nitrogen and calculate the amount of un-ionized ammonia whenever test results fail to meet the percent survival specified in the permit.

b. Conditions Triggering Accelerated Monitoring

1) If the results from two consecutive samples of a constituent monitored in a 30-day period exceed the monthly average limit for any parameter (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the Discharger shall, within 24 hours after the results are received, increase its sampling frequency to daily until the results from the additional sampling show that the parameter is in compliance with the monthly average limit.

2) If any maximum daily limit is exceeded, the Discharger shall increase its sampling frequency to daily within 24 hours after the results are received that indicate the exceedance of the maximum daily limit until two samples collected on consecutive days show compliance with the maximum daily limit.

3) If final or intermediate results of an acute bioassay test indicate a violation or threatened violation (e.g., the percentage of surviving test organisms of any single acute bioassay test is less than 70 percent), the Discharger shall initiate a new test as soon as practical, and the Discharger shall investigate the cause of the mortalities and report its findings in the next self monitoring report (SMR).

4) The Discharger shall calibrate chlorine residual analyzers against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, the Discharger shall collect grab samples at least every 30 minutes until compliance with the limit is achieved, unless the Discharger monitors chlorine residual continuously. In such cases, the Discharger shall continue to conduct continuous monitoring as required by its permit.

5) When a bypass occurs (except one subject to provision III.A.3.b.6 below), the Discharger shall monitor flows and collect samples on a daily basis for all constituents at affected discharge points that have effluent limits for the duration of the bypass (including acute toxicity using static renewals), except chronic toxicity, unless otherwise stipulated by the MRP.

6) Unless otherwise stipulated by the MRP, when a bypass approved pursuant to Attachment D, Standard Provisions, Sections I.G.2 or I.G.4, occurs, the Discharger shall monitor flows and, using appropriate procedures as specified in the MRP, collect and retain samples for affected discharge points on a daily basis for the duration of the bypass. The Discharger shall analyze for total suspended solids (TSS) using 24-hour composites (or more frequent increments) and for bacteria indicators with effluent limits using grab samples. If TSS exceeds 45 mg/L in any composite sample, the Discharger shall also analyze the retained samples for that discharge

for all other constituents that have effluent limits, except oil and grease, mercury, dioxin-TEQ, and acute and chronic toxicity. Additionally, at least once each year, the Discharger shall analyze the retained samples for one approved bypass discharge event for all other constituents that have effluent limits, except oil and grease, mercury, dioxin-TEQ, and acute and chronic toxicity. This monitoring shall be in addition to the minimum monitoring specified in the MRP.

c. Storm Water Monitoring

The requirements of this section only apply to facilities that are not covered by an NPDES permit for storm water discharges and where not all site storm drainage from process areas (i.e., areas of the treatment facility where chemicals or wastewater could come in contact with storm water) is directed to the headworks. For storm water not directed to the headworks during the wet season (October 1 to April 30), the Discharger shall:

1) Conduct visual observations of the storm water discharge locations during daylight hours at least once per month during a storm event that produces significant storm water discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor, etc.

2) Measure (or estimate) the total volume of storm water discharge, collect grab samples of storm water discharge from at least two storm events that produce significant storm water discharge, and analyze the samples for oil and grease, pH, TSS, and specific conductance.

   The grab samples shall be taken during the first 30 minutes of the discharge. If collection of the grab samples during the first 30 minutes is impracticable, grab samples may be taken during the first hour of the discharge, and the Discharger shall explain in the Annual Report why the grab sample(s) could not be taken in the first 30 minutes.

3) Testing for the presence of non-storm water discharges shall be conducted no less than twice during the dry season (May 1 to September 30) at all storm water discharge locations. Tests may include visual observations of flows, stains, sludges, odors, and other abnormal conditions; dye tests; TV line surveys; or analysis and validation of accurate piping schematics. Records shall be maintained describing the method used, date of testing, locations observed, and test results.

4) Samples shall be collected from all locations where storm water is discharged. Samples shall represent the quality and quantity of storm water discharged from the facility. If a facility discharges storm water at multiple locations, the Discharger may sample a reduced number of locations if it establishes and documents through the monitoring program that storm water discharges from different locations are substantially identical.

5) Records of all storm water monitoring information and copies of all reports required by the permit shall be retained for a period of at least three years from the date of sample, observation, or report.

d. Receiving Water Monitoring

The requirements of this section only apply when the MRP requires receiving water sampling.

1) Receiving water samples shall be collected on days coincident with effluent sampling for conventional pollutants.

2) Receiving water samples shall be collected at each station on each sampling day during the period within one hour following low slack water. Where sampling during lower slack water is impractical, sampling shall be performed during higher slack water. Samples shall be collected within the discharge plume and down current of the discharge point so as to be representative, unless otherwise stipulated in the MRP.

3) Samples shall be collected within one foot of the surface of the receiving water, unless otherwise stipulated in the MRP.

B. Biosolids Monitoring – This section supplements III.B of Standard Provisions (Attachment D)

When biosolids are sent to a landfill, sent to a surface disposal site, or applied to land as a soil amendment, they must be monitored as follows:

1. Biosolids Monitoring Frequency

Biosolids disposal must be monitored at the following frequency:

Metric tons biosolids/365 days	Frequency
0-290	Once per year
290-1500	Quarterly
1500-15,000	Six times per year
Over 15,000	Once per month

(Metric tons are on a dry weight basis)

2. Biosolids Pollutants to Monitor

Biosolids shall be monitored for the following constituents:

- Land Application: Arsenic, cadmium, copper, mercury, molybdenum, nickel, lead, selenium, and zinc
- Municipal Landfill: Paint filter test (pursuant to 40 CFR 258)
- Biosolids-only Landfill or Surface Disposal Site (if no liner and leachate system): arsenic, chromium, and nickel

C. Standard Observations – This section is an addition to III of Standard Provisions (AttachmentD)

1. Receiving Water Observations

The requirements of this section only apply when the MRP requires standard observations of the receiving water. Standard observations shall include the following:

a. *Floating and suspended materials* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.

b. *Discoloration and turbidity*: description of color, source, and size of affected area.

c. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

d. *Beneficial water use*: presence of water-associated waterfowl or wildlife, fisherpeople, and other recreational activities in the vicinity of each sampling station.

e. *Hydrographic condition*: time and height of corrected high and low tides (corrected to nearest National Oceanic and Atmospheric Administration location for the sampling date and time of sample collection).

f. *Weather conditions*:

1) Air temperature; and

2) Total precipitation during the five days prior to observation.

2. Wastewater Effluent Observations

The requirements of this section only apply when the MRP requires wastewater effluent standard observations. Standard observations shall include the following:

a. *Floating and suspended material of wastewater origin* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence.

b. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

3. Beach and Shoreline Observations

The requirements of this section only apply when the MRP requires beach and shoreline standard observations. Standard observations shall include the following:

a. *Material of wastewater origin*: presence or absence, description of material, estimated size of affected area, and source.

b. *Beneficial use*: estimate number of people participating in recreational water contact, non-water contact, or fishing activities.

4. Land Retention or Disposal Area Observations

The requirements of this section only apply to facilities with on-site surface impoundments or disposal areas that are in use. This section applies to both liquid and solid wastes, whether confined or unconfined. The Discharger shall conduct the following for each impoundment:

a. Determine the amount of freeboard at the lowest point of dikes confining liquid wastes.

b. Report evidence of leaching liquid from area of confinement and estimated size of affected area. Show affected area on a sketch and volume of flow (e.g., gallons per minute [gpm]).

c. Regarding odor, describe presence or absence, characterization, source, distance of travel, and wind direction.

d. Estimate number of waterfowl and other water-associated birds in the disposal area and vicinity.

5. Periphery of Waste Treatment and/or Disposal Facilities Observations

The requirements of this section only apply when the MRP specifies periphery standard observations. Standard observations shall include the following:

a. *Odor*: presence or absence, characterization, source, and distance of travel.

b. *Weather conditions*: wind direction and estimated velocity.

IV. STANDARD PROVISIONS – RECORDS

A. Records to be Maintained – This supplements IV.A of Standard Provisions (Attachment D)

The Discharger shall maintain records in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Regional Water Board staff. The minimum period of retention specified in Section IV, Records, of the Federal Standard Provisions shall be extended during the course of any unresolved litigation regarding the subject discharge, or when requested by the Regional Water Board or Regional Administrator of U.S. EPA, Region IX.

A copy of the permit shall be maintained at the discharge facility and be available at all times to operating personnel.

B. Records of monitoring information shall include – This supplements IV.B of Standard Provision (Attachment D)

1. Analytical Information

Records shall include analytical method detection limits, minimum levels, reporting levels, and related quantification parameters.

2. Flow Monitoring Data

For all required flow monitoring (e.g., influent and effluent flows), the additional records shall include the following, unless otherwise stipulated by the MRP:

a. Total volume for each day; and

b. Maximum, minimum, and average daily flows for each calendar month.

3. Wastewater Treatment Process Solids

a. For each treatment unit process that involves solids removal from the wastewater stream, records shall include the following:

1) Total volume or mass of solids removed from each collection unit (e.g., grit, skimmings, undigested biosolids, or combination) for each calendar month or other time period as appropriate, but not to exceed annually; and

2) Final disposition of such solids (e.g., landfill, other subsequent treatment unit).

b. For final dewatered biosolids from the treatment plant as a whole, records shall include the following:

1) Total volume or mass of dewatered biosolids for each calendar month;

2) Solids content of the dewatered biosolids; and

3) Final disposition of dewatered biosolids (disposal location and disposal method).

4. Disinfection Process

For the disinfection process, these additional records shall be maintained documenting process operation and performance:

a. For bacteriological analyses:

1) Wastewater flow rate at the time of sample collection; and

2) Required statistical parameters for cumulative bacterial values (e.g., moving median or geometric mean for the number of samples or sampling period identified in this Order).

b. For the chlorination process, when chlorine is used for disinfection, at least daily average values for the following:

1) Chlorine residual of treated wastewater as it enters the contact basin (mg/L);

2) Chlorine dosage (kg/day); and

3) Dechlorination chemical dosage (kg/day).

5. Treatment Process Bypasses

A chronological log of all treatment process bypasses, including wet weather blending, shall include the following:

a. Identification of the treatment process bypassed;

b. Dates and times of bypass beginning and end;

c. Total bypass duration;

d. Estimated total bypass volume; and

e. Description of, or reference to other reports describing, the bypass event, the cause, the corrective actions taken (except for wet weather blending that is in compliance with permit conditions), and any additional monitoring conducted.

6. Treatment Facility Overflows

This section applies to records for overflows at the treatment facility. This includes the headworks and all units and appurtenances downstream. The Discharger shall retain a chronological log of overflows at the treatment facility and records supporting the information provided in section V.E.2.

C. Claims of Confidentiality – Not Supplemented

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information – Not Supplemented

B. Signatory and Certification Requirements – Not Supplemented

C. Monitoring Reports – This section supplements V.C of Standard Provisions (Attachment D)

1. Self Monitoring Reports

For each reporting period established in the MRP, the Discharger shall submit an SMR to the Regional Water Board in accordance with the requirements listed in this document and at the frequency the MRP specifies. The purpose of the SMR is to document treatment performance, effluent quality, and compliance with the waste discharge requirements of this Order.

a. Transmittal letter

Each SMR shall be submitted with a transmittal letter. This letter shall include the following:

1) Identification of all violations of effluent limits or other waste discharge requirements found during the reporting period;

2) Details regarding violations: parameters, magnitude, test results, frequency, and dates;

3) Causes of violations;

4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrences, and dates or time schedule of action implementation (if previous reports have been submitted that address corrective actions, reference to the earlier reports is satisfactory);

5) Data invalidation (Data should not be submitted in an SMR if it does not meet quality assurance/quality control standards. However, if the Discharger wishes to invalidate any measurement after it was submitted in an SMR, a letter shall identify the measurement suspected to be invalid and state the Discharger's intent to submit, within 60 days, a formal request to invalidate the measurement. This request shall include the original measurement in question, the reason for invalidating the measurement, all relevant documentation that

supports invalidation [e.g., laboratory sheet, log entry, test results, etc.], and discussion of the corrective actions taken or planned [with a time schedule for completion] to prevent recurrence of the sampling or measurement problem.);

6) If the Discharger blends, the letter shall describe the duration of blending events and certify whether blended effluent was in compliance with the conditions for blending; and

7) Signature (The transmittal letter shall be signed according to Section V.B of this Order, Attachment D – Standard Provisions.).

b. Compliance evaluation summary

Each report shall include a compliance evaluation summary. This summary shall include each parameter for which the permit specifies effluent limits, the number of samples taken during the monitoring period, and the number of samples that exceed applicable effluent limits.

c. Results of analyses and observations

1) Tabulations of all required analyses and observations, including parameter, date, time, sample station, type of sample, test result, method detection limit, method minimum level, and method reporting level, if applicable, signed by the laboratory director or other responsible official.

2) When determining compliance with an average monthly effluent limitation and more than one sample result is available in a month, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of detected but not quantified (DNQ) or nondetect (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

i. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

ii. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

If a sample result, or the arithmetic mean or median of multiple sample results, is below the reporting limit, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the Discharger conducts a Pollutant Minimization Program, the Discharger shall not be deemed out of compliance.

3) Dioxin-TEQ Reporting: The Discharger shall report for each dioxin and furan congener the analytical results of effluent monitoring, including the quantifiable limit (reporting level), the method detection limit, and the measured concentration. The Discharger shall report all measured values of individual congeners, including data qualifiers. When calculating dioxin-TEQ, the Discharger shall set congener concentrations below the minimum levels (ML) to zero. The Discharger shall calculate and report dioxin-TEQs using the following formula,

where the MLs, toxicity equivalency factors (TEFs), and bioaccumulation equivalency factors (BEFs) are as provided in Table A:

$$\text{Dioxin-TEQ} = \Sigma\ (C_x \times TEF_x \times BEF_x)$$

where: C_x = measured or estimated concentration of congener *x*
TEF_x = toxicity equivalency factor for congener x
BEFx = bioaccumulation equivalency factor for congener *x*

Table A

Minimum Levels, Toxicity Equivalency Factors,
and Bioaccumulation Equivalency Factors

Dioxin or Furan Congener	Minimum Level (pg/L)	1998 Toxicity Equivalency Factor (TEF)	Bioaccumulation Equivalency Factor (BEF)
2,3,7,8-TCDD	10	1.0	1.0
1,2,3,7,8-PeCDD	50	1.0	0.9
1,2,3,4,7,8-HxCDD	50	0.1	0.3
1,2,3,6,7,8-HxCDD	50	0.1	0.1
1,2,3,7,8,9-HxCDD	50	0.1	0.1
1,2,3,4,6,7,8-HpCDD	50	0.01	0.05
OCDD	100	0.0001	0.01
2,3,7,8-TCDF	10	0.1	0.8
1,2,3,7,8-PeCDF	50	0.05	0.2
2,3,4,7,8-PeCDF	50	0.5	1.6
1,2,3,4,7,8-HxCDF	50	0.1	0.08
1,2,3,6,7,8-HxCDF	50	0.1	0.2
1,2,3,7,8,9-HxCDF	50	0.1	0.6
2,3,4,6,7,8-HxCDF	50	0.1	0.7
1,2,3,4,6,7,8-HpCDF	50	0.01	0.01
1,2,3,4,7,8,9-HpCDF	50	0.01	0.4
OCDF	100	0.0001	0.02

d. Data reporting for results not yet available

The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a timely manner. Certain analyses require additional time to complete analytical processes and report results. For cases where required monitoring parameters require additional time to complete analytical processes and reports, and results are not available in time to be included in the SMR for the subject monitoring period, the Discharger shall describe such circumstances in the SMR and include the data for these parameters and relevant discussions of any observed exceedances in the next SMR due after the results are available.

e. Flow data

The Discharger shall provide flow data tabulation pursuant to Section IV.B.2.

f. Annual self monitoring report requirements

By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

1) Annual compliance summary table of treatment plant performance, including documentation of any blending events;

2) Comprehensive discussion of treatment plant performance and compliance with the permit (This discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices.);

3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater;

4) List of approved analyses, including the following:

(i) List of analyses for which the Discharger is certified;

(ii) List of analyses performed for the Discharger by a separate certified laboratory (copies of reports signed by the laboratory director of that laboratory shall not be submitted but be retained onsite); and

(iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all storm water to the headworks of its wastewater treatment plant); and

7) Results of facility report reviews (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.).

g. Report submittal

The Discharger shall submit SMRs to:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attn: NPDES Wastewater Division

h. Reporting data in electronic format

The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

1) *Reporting Method*: The Discharger shall submit SMRs electronically via a process approved by the Executive Officer (see, for example, the letter dated December 17, 1999, "Official Implementation of Electronic Reporting System [ERS]" and the progress report letter dated December 17, 2000).

2) *Monthly or Quarterly Reporting Requirements*: For each reporting period (monthly or quarterly as specified in the MRP), the Discharger shall submit an electronic SMR to the Regional Water Board in accordance with the provisions of Section V.C.1.a-e, except for requirements under Section V.C.1.c(1) where ERS does not have fields for dischargers to input certain information (e.g., sample time). However, until U.S. EPA approves the electronic signature or other signature technologies, Dischargers that use ERS shall submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, and a violation report (a receipt of the electronic transmittal shall be retained by the Discharger). This electronic SMR submittal suffices for the signed tabulations specified under Section V.C.1.c(1).

3) *Annual Reporting Requirements*: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting the portion of the annual report required under Section V.C.1.f(1) and (3).

D. Compliance Schedules – Not supplemented

E. Twenty-Four Hour Reporting – This section supplements V.E of Standard Provision (Attachment D)

1. Spill of Oil or Other Hazardous Material Reports

a. Within 24 hours of becoming aware of a spill of oil or other hazardous material that is not contained onsite and completely cleaned up, the Discharger shall report by telephone to the Regional Water Board at (510) 622-2369.

b. The Discharger shall also report such spills to the State Office of Emergency Services [telephone (800) 852-7550] only when the spills are in accordance with applicable reporting quantities for hazardous materials.

c. The Discharger shall submit a written report to the Regional Water Board within five working days following telephone notification unless directed otherwise by Regional Water Board staff. A report submitted electronically is acceptable. The written report shall include the following:

1) Date and time of spill, and duration if known;

2) Location of spill (street address or description of location);

3) Nature of material spilled;

4) Quantity of material involved;

5) Receiving water body affected, if any;

6) Cause of spill;

7) Estimated size of affected area;

8) Observed impacts to receiving waters (e.g., oil sheen, fish kill, water discoloration);

9) Corrective actions taken to contain, minimize, or clean up the spill;

10) Future corrective actions planned to be taken to prevent recurrence, and schedule of implementation; and

11) Persons or agencies notified.

2. Unauthorized Discharges from Municipal Wastewater Treatment Plants[1]

The following requirements apply to municipal wastewater treatment plants that experience an unauthorized discharge at their treatment facilities and are consistent with and supercede requirements imposed on the Discharger by the Executive Officer by letter of May 1, 2008, issued pursuant to California Water Code Section 13383.

a. Two (2)-Hour Notification

For any unauthorized discharges that result in a discharge to a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the State Office of Emergency Services (telephone 800-852-7550), the local health officers or directors of environmental health with jurisdiction over the affected water bodies, and the Regional Water Board. The notification to the Regional Water Board shall be via the Regional Water Board's online reporting system at www.wbers.net, and shall include the following:

1) Incident description and cause;

2) Location of threatened or involved waterway(s) or storm drains;

3) Date and time the unauthorized discharge started;

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on); and

6) Identity of the person reporting the unauthorized discharge.

b. 24-hour Certification

Within 24 hours, the Discharger shall certify to the Regional Water Board, at www.wbers.net, that the State Office of Emergency Services and the local health officers or directors of environmental health with jurisdiction over the affected water bodies have been notified of the unauthorized discharge.

c. 5-Day Written Report

Within five business days, the Discharger shall submit a written report, via the Regional Water Board's online reporting system at www.wbers.net, that includes, in addition to the information required above, the following:

1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;

2) Efforts implemented to minimize public exposure to the unauthorized discharge;

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;

4) Corrective measures taken to minimize the impact of the unauthorized discharge;

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges; and

7) Quantity and duration of the unauthorized discharge, and the amount recovered.

d. Communication Protocol

To clarify the multiple levels of notification, certification, and reporting, the current communication requirements for unauthorized discharges from municipal wastewater treatment plants are summarized in Table B that follows.

Table B

Summary of Communication Requirements for Unauthorized Discharges[1] from Municipal Wastewater Treatment Plants

Discharger is required to:	Agency Receiving Information	Time frame	Method for Contact
1. Notify	California Emergency Management Agency (Cal EMA)	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Telephone – (800) 852-7550 (obtain a control number from Cal EMA)
	Local health department	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Depends on local health department
	Regional Water Board	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Electronic[2] www.wbers.net
2. Certify	Regional Water Board	As soon as possible, but not later than **24 hours** after becoming aware of the unauthorized discharge.	Electronic[3] www.wbers.net
3. Report	Regional Water Board	Within **5 business days** of becoming aware of the unauthorized discharge.	Electronic[4] www.wbers.net

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

[2] In the event that the Discharger is unable to provide online notification within 2 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the notification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the notification information into the Regional Water Board's online system in electronic format.

[3] In most instances, the 2-hour notification will also satisfy 24-hour certification requirements. This is because the notification form includes fields for documenting that OES and the local health department have been contacted. In other words, if the Discharger is able to complete all the fields in the notification form within 2 hours, certification requirements are also satisfied. In the event that the Discharger is unable to provide online certification within 24 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the certification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the certification information into the Regional Water Board's online system in electronic format.

[4] If the Discharger cannot satisfy the 5-day reporting requirements via the Regional Water Board's online reporting system, it shall submit a written report (preferably electronically in pdf) to the appropriate Regional Water Board case manager. In cases where the Discharger cannot satisfy the 5-day reporting requirements via the online reporting system, it must still complete the Regional Water Board's online reporting requirements within 15 calendar days of becoming aware of the unauthorized discharge.

F. Planned Changes – Not supplemented

G. Anticipated Noncompliance – Not supplemented

H. Other Noncompliance – Not supplemented

I. Other Information – Not supplemented

VI. STANDARD PROVISION – ENFORCEMENT – Not Supplemented

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS – Not Supplemented

VIII. DEFINITIONS – This section is an addition to Standard Provisions (Attachment D)

More definitions can be found in Attachment A of this NPDES Permit.

1. Arithmetic Calculations

   a. Geometric mean is the antilog of the log mean or the back-transformed mean of the logarithmically transformed variables, which is equivalent to the multiplication of the antilogarithms. The geometric mean can be calculated with either of the following equations:

   $$\text{Geometric Mean} = Anti\log\left(\frac{1}{N}\sum_{i=1}^{N} Log(C_i)\right)$$

   or

   $$\text{Geometric Mean} = (C_1 * C_2 * \ldots * C_N)^{1/N}$$

   Where "N" is the number of data points for the period analyzed and "C" is the concentration for each of the "N" data points.

   b. Mass emission rate is obtained from the following calculation for any calendar day:

   $$\text{Mass emission rate (lb/day)} = \frac{8.345}{N}\sum_{i=1}^{N} Q_i C_i$$

   $$\text{Mass emission rate (kg/day)} = \frac{3.785}{N}\sum_{i=1}^{N} Q_i C_i$$

   In which "N" is the number of samples analyzed in any calendar day and "Q_i" and "C_i" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" grab samples that may be taken in any calendar day. If a composite sample is taken, "C_i" is the concentration measured in the composite sample and "Q_i" is the average flow rate occurring during the period over which the samples are composited. The daily concentration of a constituent measured over any calendar day shall be determined from the flow-weighted average of the same constituent in the combined waste streams as follows:

$$\text{Cd} = \text{Average daily concentration} = \frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$$

In which "N" is the number of component waste streams and "Q" and "C" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" waste streams. "Q_t" is the total flow rate of the combined waste streams.

c. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the formulas in the paragraph above, using the effluent concentration limit specified in the permit for the period and the specified allowable flow.

d. POTW removal efficiency is the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities (expressed as a percentage). The Discharger shall determine removal efficiencies using monthly averages (by calendar month unless otherwise specified) of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

Removal Efficiency (%) = 100 × [1-(Effluent Concentration/Influent Concentration)]

2. Biosolids means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates separated from or created in wastewater by the unit processes of a treatment system. It also includes, but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow and underflow in the solids handling parts of the wastewater treatment system.

3. Blending is the practice of recombining wastewater that has been biologically treated with wastewater that has bypassed around biological treatment units.

4. Bottom sediment sample is (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertebrates.

5. Composite sample is a sample composed of individual grab samples collected manually or by an automatic sampling device on the basis of time or flow as specified in the MRP. For flow-based composites, the proportion of each grab sample included in the composite sample shall be within plus or minus five percent (+/-5%) of the representative flow rate of the waste stream being measured at the time of grab sample collection. Alternatively, equal volume grab samples may be individually analyzed with the flow-weighted average calculated by averaging flow-weighted ratios of each grab sample analytical result. Grab samples comprising time-based composite samples shall be collected at intervals not greater than those specified in the MRP. The quantity of each grab sample comprising a time-based composite sample shall be a set of flow proportional volumes as specified in the MRP. If a particular time-based or flow-based composite sampling protocol is not specified in the MRP, the Discharger shall determine and implement the most representative sampling protocol for the given parameter subject to Executive Officer approval.

6. Depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled. The Discharger shall collect depth-integrated samples in such a manner that the collected sample will be representative of the waste or water body at that sampling point.

7. Flow sample is an accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.

8. Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples represent only the condition that exists at the time the wastewater is collected.

9. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

10. Overflow is the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a transport system (e.g., through manholes, at pump stations, and at collection points) upstream from the treatment plant headworks or from any part of a treatment plant facility.

11. Priority pollutants are those constituents referred to in 40 CFR Part 122 as promulgated in the Federal Register, Vol. 65, No. 97, Thursday, May 18, 2000, also known as the California Toxics Rule, the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses.

12. Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

13. Toxic pollutant means any pollutant listed as toxic under federal Clean Water Act section 307(a)(1) or under 40 CFR 401.15.

14. Untreated waste is raw wastewater.

15. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in the permit. The requirements of the permit apply to the entire volume of water, and the material therein, that is disposed of to surface and ground waters of the State of California.

Table C

List of Monitoring Parameters and Analytical Methods

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
1.	Antimony	204.2					10	5	50	0.5	5	0.5		1000
2.	Arsenic	206.3				20		2	10	2	2	1		1000
3.	Beryllium						20	0.5	2	0.5	1			1000
4.	Cadmium	200 or 213					10	0.5	10	0.25	0.5			1000
5a.	Chromium (III)	SM 3500												
5b.	Chromium (VI)	SM 3500				10	5							1000
	Chromium (total)[3]	SM 3500					50	2	10	0.5	1			1000
6.	Copper	200.9					25	5	10	0.5	2			1000
7.	Lead	200.9					20	5	5	0.5	2			10,000
8.	Mercury	1631 (note)[4]												
9.	Nickel	249.2					50	5	20	1	5			1000
10.	Selenium	200.8 or SM 3114B or C						5	10	2	5	1		1000
11.	Silver	272.2					10	1	10	0.25	2			1000
12.	Thallium	279.2					10	2	10	1	5			1000
13.	Zinc	200 or 289					20		20	1	10			
14.	Cyanide	SM 4500 CN^- C or I				5								
15.	Asbestos (only required for dischargers to MUN waters)[5]	0100.2 [6]												
16.	2,3,7,8-TCDD and 17 congeners (Dioxin)	1613												
17.	Acrolein	603	2.0	5										
18.	Acrylonitrile	603	2.0	2										
19.	Benzene	602	0.5	2										
33.	Ethylbenzene	602	0.5	2										
39.	Toluene	602	0.5	2										
20.	Bromoform	601	0.5	2										
21.	Carbon Tetrachloride	601	0.5	2										
22.	Chlorobenzene	601	0.5	2										
23.	Chlorodibromomethane	601	0.5	2										
24.	Chloroethane	601	0.5	2										

[1] The suggested method is the U.S. EPA Method unless otherwise specified (SM = Standard Methods). The Discharger may use another U.S. EPA-approved or recognized method if that method has a level of quantification below the applicable water quality objective. Where no method is suggested, the Discharger has the discretion to use any standard method.

[2] Minimum levels are from the *State Implementation Policy*. They are the concentration of the lowest calibration standard for that technique based on a survey of contract laboratories. Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., U.S. EPA 200.9); Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; DCP = Direct Current Plasma.

[3] Analysis for total chromium may be substituted for analysis of chromium (III) and chromium (VI) if the concentration measured is below the lowest hexavalent chromium criterion (11 ug/l).

[4] The Discharger shall use ultra-clean sampling (U.S. EPA Method 1669) and ultra-clean analytical methods (U.S. EPA Method 1631) for mercury monitoring. The minimum level for mercury is 2 ng/l (or 0.002 ug/l).

[5] MUN = Municipal and Domestic Supply. This designation, if applicable, is in the Findings of the permit.

[6] Determination of Asbestos Structures over 10 [micrometers] in Length in Drinking Water Using MCE Filters, U.S. EPA 600/R-94-134, June 1994.

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
25.	2-Chloroethylvinyl Ether	601	1	1										
26.	Chloroform	601	0.5	2										
75.	1,2-Dichlorobenzene	601	0.5	2										
76.	1,3-Dichlorobenzene	601	0.5	2										
77.	1,4-Dichlorobenzene	601	0.5	2										
27.	Dichlorobromomethane	601	0.5	2										
28.	1,1-Dichloroethane	601	0.5	1										
29.	1,2-Dichloroethane	601	0.5	2										
30.	1,1-Dichloroethylene or 1,1-Dichloroethene	601	0.5	2										
31.	1,2-Dichloropropane	601	0.5	1										
32.	1,3-Dichloropropylene or 1,3-Dichloropropene	601	0.5	2										
34.	Methyl Bromide or Bromomethane	601	1.0	2										
35.	Methyl Chloride or Chloromethane	601	0.5	2										
36.	Methylene Chloride or Dichlorormethane	601	0.5	2										
37.	1,1,2,2-Tetrachloroethane	601	0.5	1										
38.	Tetrachloroethylene	601	0.5	2										
40.	1,2-Trans-Dichloroethylene	601	0.5	1										
41.	1,1,1-Trichloroethane	601	0.5	2										
42.	1,1,2-Trichloroethane	601	0.5	2										
43.	Trichloroethene	601	0.5	2										
44.	Vinyl Chloride	601	0.5	2										
45.	2-Chlorophenol	604	2	5										
46.	2,4-Dichlorophenol	604	1	5										
47.	2,4-Dimethylphenol	604	1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	604	10	5										
49.	2,4-Dinitrophenol	604	5	5										
50.	2-Nitrophenol	604		10										
51.	4-Nitrophenol	604	5	10										
52.	3-Methyl-4-Chlorophenol	604	5	1										
53.	Pentachlorophenol	604	1	5										
54.	Phenol	604	1	1		50								
55.	2,4,6-Trichlorophenol	604	10	10										
56.	Acenaphthene	610 HPLC	1	1	0.5									
57.	Acenaphthylene	610 HPLC		10	0.2									
58.	Anthracene	610 HPLC		10	2									
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	610 HPLC	10	5										
61.	Benzo(a)Pyrene	610 HPLC		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene	610 HPLC		10	10									
63.	Benzo(ghi)Perylene	610 HPLC		5	0.1									
64.	Benzo(k)Fluoranthene	610 HPLC		10	2									
74.	Dibenzo(a,h)Anthracene	610 HPLC		10	0.1									
86.	Fluoranthene	610 HPLC	10	1	0.05									
87.	Fluorene	610 HPLC		10	0.1									
92.	Indeno(1,2,3-cd) Pyrene	610 HPLC		10	0.05									
100.	Pyrene	610 HPLC		10	0.05									

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
68.	Bis(2-Ethylhexyl)Phthalate	606 or 625	10	5										
70.	Butylbenzyl Phthalate	606 or 625	10	10										
79.	Diethyl Phthalate	606 or 625	10	2										
80.	Dimethyl Phthalate	606 or 625	10	2										
81.	Di-n-Butyl Phthalate	606 or 625		10										
84.	Di-n-Octyl Phthalate	606 or 625		10										
59.	Benzidine	625		5										
65.	Bis(2-Chloroethoxy)Methane	625		5										
66.	Bis(2-Chloroethyl)Ether	625	10	1										
67.	Bis(2-Chloroisopropyl)Ether	625	10	2										
69.	4-Bromophenyl Phenyl Ether	625	10	5										
71.	2-Chloronaphthalene	625		10										
72.	4-Chlorophenyl Phenyl Ether	625		5										
73.	Chrysene	625		10	5									
78.	3,3'-Dichlorobenzidine	625		5										
82.	2,4-Dinitrotoluene	625	10	5										
83.	2,6-Dinitrotoluene	625		5										
85.	1,2-Diphenylhydrazine (note)[7]	625		1										
88.	Hexachlorobenzene	625	5	1										
89.	Hexachlorobutadiene	625	5	1										
90.	Hexachlorocyclopentadiene	625	5	5										
91.	Hexachloroethane	625	5	1										
93.	Isophorone	625	10	1										
94.	Naphthalene	625	10	1	0.2									
95.	Nitrobenzene	625	10	1										
96.	N-Nitrosodimethylamine	625	10	5										
97.	N-Nitrosodi-n-Propylamine	625	10	5										
98.	N-Nitrosodiphenylamine	625	10	1										
99.	Phenanthrene	625		5	0.05									
101.	1,2,4-Trichlorobenzene	625	1	5										
102.	Aldrin	608	0.005											
103.	α-BHC	608	0.01											
104.	β-BHC	608	0.005											
105.	γ-BHC (Lindane)	608	0.02											
106.	δ-BHC	608	0.005											
107.	Chlordane	608	0.1											
108.	4,4'-DDT	608	0.01											
109.	4,4'-DDE	608	0.05											
110.	4,4'-DDD	608	0.05											
111.	Dieldrin	608	0.01											
112.	Endosulfan (alpha)	608	0.02											
113.	Endosulfan (beta)	608	0.01											
114.	Endosulfan Sulfate	608	0.05											
115.	Endrin	608	0.01											
116.	Endrin Aldehyde	608	0.01											
117.	Heptachlor	608	0.01											

[7] Measurement for 1,2-Diphenylhydrazine may use azobenzene as a screen: if azobenzene is measured at >1 ug/l, then the Discharger shall analyze for 1,2-Diphenylhydrazine.

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
118.	Heptachlor Epoxide	608	0.01											
119-125	PCBs: Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	608	0.5											
126.	Toxaphene	608	0.5											

ATTACHMENT H – PRETREATMENT REQUIREMENTS

CALIFORNIA REGIONAL WATER QUALITY CONTROL
BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT H
PRETREATMENT PROGRAM PROVISIONS

For

NPDES POTW WASTEWATER DISCHARGE PERMITS

March 2011
(Corrected May 2011)

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Attachment H: Pretreatment Program Provisions

A. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 CFR 403, including any regulatory revisions to Part 403. Where a Part 403 revision is promulgated after the effective date of the Discharger's permit and places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within six months from the issuance date of this permit or six months from the effective date of the Part 403 revisions, whichever comes later.

(If the Discharger cannot complete the required actions within the above six-month period due to the need to process local adoption of sewer use ordinance modifications or other substantial pretreatment program modifications, the Discharger shall notify the Executive Officer in writing at least 60 days prior to the six-month deadline. The written notification shall include a summary of completed required actions, an explanation for why the six month deadline cannot be met, and a proposed timeframe to complete the rest of the required actions as soon as practical but not later than within twelve months of the issuance date of this permit or twelve months of the effective date of the Part 403 revisions, whichever comes later. The Executive Officer will notify the Discharger in writing within 30 days of receiving the request if the extension is not approved.)

The United States Environmental Protection Agency (U.S. EPA), the State and/or other appropriate parties may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the Clean Water Act (Act).

B. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d) and 402(b) of the Act with timely, appropriate and effective enforcement actions. The Discharger shall cause nondomestic users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.

C. The Discharger shall perform the pretreatment functions as required in 40 CFR 403 and amendments or modifications thereto including, but not limited to:

1. Implement the necessary legal authorities to fully implement the pretreatment regulations as provided in 40 CFR 403.8(f)(1);

2. Implement the programmatic functions as provided in 40 CFR 403.8(f)(2);

3. Publish an annual list of nondomestic users in significant noncompliance as provided per 40 CFR 403.8(f)(2)(viii);

4. Provide for the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3); and

5. Enforce the national pretreatment standards for prohibited discharges and categorical standards as provided in 40 CFR 403.5 and 403.6, respectively.

D. The Discharger shall submit annually a report to U.S. EPA Region 9, the State Water Board and the Regional Water Board describing its pretreatment program activities over the previous calendar year. In the event that the Discharger is not in compliance with any conditions or requirements of the Pretreatment Program, the Discharger shall also include the reasons for noncompliance and a plan and schedule for achieving compliance. The report shall contain, but is not limited to, the information specified in Appendix H-1 entitled, "Requirements for Pretreatment Annual Reports." The annual report is due each year on February 28.

E. The Discharger shall submit a pretreatment semiannual report to U.S. EPA Region 9, the State Water Board and the Regional Water Board describing the status of its significant industrial users (SIUs). The report shall contain, but is not limited to, information specified in Appendix H-2 entitled, "Requirements for Pretreatment Semiannual Reports." The semiannual report is due July 31 for the period January through June. The information for the period July through December of each year shall be included in the Annual Report identified in Appendix H-1. The Executive Officer may exempt the Discharger from the semiannual reporting requirements on a case by case basis subject to State Water Board and U.S. EPA's comment and approval.

F. The Discharger shall conduct the monitoring of its treatment plant's influent, effluent, and sludge (biosolids) as described in Appendix H-4 entitled, "Requirements for Influent, Effluent and Sludge (Biosolids) Monitoring." (The term "biosolids," as used in this Attachment, shall have the same meaning as wastewater treatment plant "sludge" and will be used from this point forward.) The Discharger shall evaluate the results of the sampling and analysis during the preparation of the semiannual and annual reports to identify any trends. Signing the certification statement used to transmit the reports shall be deemed to certify the Discharger has completed this data evaluation. A tabulation of the data shall be included in the pretreatment annual report as specified in Appendix H-4. The Executive Officer may require more or less frequent monitoring on a case by case basis.

APPENDIX H-1

REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS

The Pretreatment Annual Report is due each year on February 28 and shall contain activities conducted during the previous calendar year. The purpose of the Annual Report is to:

- Describe the status of the Discharger's pretreatment program; and
- Report on the effectiveness of the program, as determined by comparing the results of the preceding year's program implementation.

The report shall contain, at a minimum, the following information:

A. Cover Sheet

The cover sheet shall include:

1. The name(s) and National Pollutant Discharge Elimination Discharge System (NPDES) permit number(s) of the Discharger(s) that is part of the Pretreatment Program;

2. The name, address and telephone number of a pretreatment contact person;

3. The period covered in the report;

4. A statement of truthfulness; and

5. The dated signature of a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for overall operation of the Publicly Owned Treatment Works (POTW) (40 CFR 403.12(m)).

B. Introduction

This section shall include:

1. Any pertinent background information related to the Discharger and/or the nondomestic user base of the area;

2. List of applicable interagency agreements used to implement the Discharger's pretreatment program (e.g., Memoranda of Understanding (MOU) with satellite sanitary sewer collection systems); and

3. A status summary of the tasks required by a Pretreatment Compliance Inspection (PCI), Pretreatment Compliance Audit (PCA), Cleanup and Abatement Order (CAO), or other pretreatment-related enforcement actions required by the Regional Water Board or the U.S. EPA. A more detailed discussion can be referenced and included in the section entitled, "Program Changes," if needed.

C. Definitions

This section shall include a list of key terms and their definitions that the Discharger uses to describe or characterize elements of its pretreatment program, or the Discharger may provide a reference to its website if the applicable definitions are available on-line.

D. Discussion of Upset, Interference and Pass Through

This section shall include a discussion of Upset, Interference or Pass Through incidents, if any, at the Discharger's treatment plant(s) that the Discharger knows of or suspects were caused by nondomestic user discharges. Each incident shall be described, at a minimum, consisting of the following information:

1. A description of what occurred;
2. A description of what was done to identify the source;
3. The name and address of the nondomestic user responsible;
4. The reason(s) why the incident occurred;
5. A description of the corrective actions taken; and
6. An examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing requirements may be necessary to prevent other Upset, Interference or Pass Through incidents.

E. Influent, Effluent and Biosolids Monitoring Results

The Discharger shall evaluate the influent, effluent and biosolids monitoring results as specified in Appendix H-4 in preparation of this report. The Discharger shall retain the analytical laboratory reports with the Quality Assurance and Quality Control (QA/QC) data validation and make these reports available upon request.

This section shall include:

1. Description of the sampling procedures and an analysis of the results (see Appendix H-4 for specific requirements);
2. Tabular summary of the compounds detected (compounds measured above the detection limit for the analytical method used) for the monitoring data generated during the reporting year as specified in Appendix H-4;
3. Discussion of the investigation findings into any contributing sources of the compounds that exceed NPDES limits; and
4. Graphical representation of the influent and effluent metal monitoring data for the past five years with a discussion of any trends.

F. Inspection, Sampling and Enforcement Programs

This section shall include at a minimum the following information:

1. Inspections: Summary of the inspection program (e.g., criteria for determining the frequency of inspections and inspection procedures);

2. Sampling Events: Summary of the sampling program (e.g., criteria for determining the frequency of sampling and chain of custody procedures); and

3. Enforcement: Summary of Enforcement Response Plan (ERP) implementation including dates for adoption, last revision and submission to the Regional Water Board.

G. Updated List of Regulated SIUs

This section shall contain a list of all of the federal categories that apply to SIUs regulated by the Discharger. The specific categories shall be listed including the applicable 40 CFR subpart and section, and pretreatment standards (both maximum and average limits). Local limits developed by the Discharger shall be presented in a table including the applicability of the local limits to SIUs. If local limits do not apply uniformly to SIUs, specify the applicability in the tables listing the categorical industrial users (CIUs) and non-categorical SIUs. Tables developed in Sections 7A and 7B can be used to present or reference this information.

1. CIUs - Include a table that alphabetically lists the CIUs regulated by the Discharger as of the end of the reporting period. This list shall include:

   a. Name;

   b. Address;

   c. Applicable federal category(ies);

   d. Reference to the location where the applicable Federal Categorical Standards are presented in the report;

   e. Identify all deletions and additions keyed to the list submitted in the previous annual report. All deletions shall be briefly explained (e.g., closure, name change, ownership change, reclassification, declassification); and

   f. Information, calculations and data used to determine the limits for those CIUs for which a combined waste stream formula is applied.

2. Non-categorical SIUs - Include a table that alphabetically lists the SIUs not subject to any federal categorical standards that were regulated by the Discharger as of the end of the reporting period. This list shall include:

   a. Name;

b. Address;

c. A brief description of the type of business;

d. Identify all deletions and additions keyed to the list submitted in the previous annual report. All deletions shall be briefly explained (e.g., closure, name change, ownership change, reclassification, declassification); and

e. Indicate the applicable discharge limits (e.g., different from local limits) to which the SIUs are subject and reference to the location where the applicable limits (e.g., local discharge limits) are presented in the report.

H. SIU (categorical and non-categorical) Compliance Activities

The information required in this section may be combined in the table developed in Section 7 above.

1. **Inspection and Sampling Summary:** This section shall contain a summary of all the SIU inspections and sampling activities conducted by the Discharger and sampling activities conducted by the SIU over the reporting year to gather information and data regarding SIU compliance. The summary shall include:

   a. The number of inspections and sampling events conducted for each SIU by the Discharger;

   b. The number of sampling events conducted by the SIU. Identify SIUs that are operating under an approved Total Toxic Organic Management Plan;

   c. The quarters in which the above activities were conducted; and

   d. The compliance status of each SIU, delineated by quarter, and characterized using all applicable descriptions as given below:

      (1) Consistent compliance;

      (2) Inconsistent compliance;

      (3) Significant noncompliance;

      (4) On a compliance schedule to achieve compliance (include the date final compliance is required);

      (5) Not in compliance and not on a compliance schedule; and

      (6) Compliance status unknown, and why not.

2. **Enforcement Summary:** This section shall contain a summary of SIU compliance and enforcement activities during the reporting year. The summary may be included in the summary

table developed in section 8A and shall include the names and addresses of all SIUs affected by the actions identified below. For each notice specified in enforcement action "i" through "iv," indicate whether it was for an infraction of a federal or local standard/limit or requirement.

a. Warning letters or notices of violations regarding SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

b. Administrative Orders regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

c. Civil actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

d. Criminal actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements;

e. Assessment of monetary penalties. Identify the amount of penalty in each case and reason for assessing the penalty;

f. Order to restrict/suspend discharge to the Discharger; and

g. Order to disconnect the discharge from entering the Discharger.

3. **July-December Semiannual Data:** For SIU violations/noncompliance during the semiannual reporting period from July 1 through December 31, provide the following information:

   a. Name and facility address of the SIU;

   b. Indicate if the SIU is subject to Federal Categorical Standards; if so, specify the category including the subpart that applies;

   c. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard;

   d. Indicate the compliance status of the SIU for the two quarters of the reporting period; and

   e. For violations/noncompliance identified in the reporting period, provide:

      (1) The date(s) of violation(s);

      (2) The parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters; and

(3) A brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

I. Baseline Monitoring Report Update

This section shall provide a list of CIUs added to the pretreatment program since the last annual report. This list of new CIUs shall summarize the status of the respective Baseline Monitoring Reports (BMR). The BMR must contain the information specified in 40 CFR 403.12(b). For each new CIU, the summary shall indicate when the BMR was due; when the CIU was notified by the Discharger of this requirement; when the CIU submitted the report; and/or when the report is due.

J. Pretreatment Program Changes

This section shall contain a description of any significant changes in the Pretreatment Program during the past year including, but not limited to:

1. Legal authority;
2. Local limits;
3. Monitoring/ inspection program and frequency;
4. Enforcement protocol;
5. Program's administrative structure;
6. Staffing level;
7. Resource requirements;
8. Funding mechanism;
9. If the manager of the Discharger's pretreatment program changed, a revised organizational chart shall be included; and
10. If any element(s) of the program is in the process of being modified, this intention shall also be indicated.

K. Pretreatment Program Budget

This section shall present the budget spent on the Pretreatment Program. The budget, either by the calendar or fiscal year, shall show the total expenses required to implement the pretreatment program. A brief discussion of the source(s) of funding shall be provided. In addition, the Discharger shall make available upon request specific details on its pretreatment program expense amounts such as for personnel, equipment, and chemical analyses.

L. Public Participation Summary

This section shall include a copy of the public notice as required in 40 CFR 403.8(f)(2)(viii). If a notice was not published, the reason shall be stated.

M. Biosolids Storage and Disposal Practice

This section shall describe how treated biosolids are stored and ultimately disposed. If a biosolids storage area is used, it shall be described in detail including its location, containment features and biosolids handling procedures.

N. Other Pollutant Reduction Activities

This section shall include a brief description of any programs the Discharger implements to reduce pollutants from nondomestic users that are not classified as SIUs. If the Discharger submits any of this program information in an Annual Pollution Prevention Report, reference to this other report shall satisfy this reporting requirement.

O. Other Subjects

Other information related to the Pretreatment Program that does not fit into any of the above categories should be included in this section.

P. Permit Compliance System (PCS) Data Entry Form

The annual report shall include the PCS Data Entry Form. This form shall summarize the enforcement actions taken against SIUs in the past year. This form shall include the following information:

1. Discharger's name,

2. NPDES Permit number,

3. Period covered by the report,

4. Number of SIUs in significant noncompliance (SNC) that are on a pretreatment compliance schedule,

5. Number of notices of violation and administrative orders issued against SIUs,

6. Number of civil and criminal judicial actions against SIUs,

7. Number of SIUs that have been published as a result of being in SNC, and

8. Number of SIUs from which penalties have been collected.

APPENDIX H-2

REQUIREMENTS FOR JANUARY-JUNE PRETREATMENT SEMIANNUAL REPORT

The pretreatment semiannual report is due on July 31 for pretreatment program activities conducted from January through June unless an exception has been granted by the Regional Water Board's Executive Officer (e.g., pretreatment programs without any SIUs may qualify for an exception to the pretreatment semiannual report). Pretreatment activities conducted from July through December of each year shall be included in the Pretreatment Annual Report as specified in Appendix H-1. The pretreatment semiannual report shall contain, at a minimum the following information:

A. Influent, Effluent and Biosolids Monitoring

The influent, effluent and biosolids monitoring results shall be evaluated in preparation of this report. The Discharger shall retain analytical laboratory reports with the QA/QC data validation and make these reports available upon request. The Discharger shall also make available upon request a description of its influent, effluent and biosolids sampling procedures. Violations of any parameter that exceed NPDES limits shall be identified and reported. The contributing source(s) of the parameters that exceed NPDES limits shall be investigated and discussed.

B. Significant Industrial User Compliance Status

This section shall contain a list of all SIUs that were not in consistent compliance with all pretreatment standards/limits or requirements for the reporting period. For the reported SIUs, the compliance status for the previous semiannual reporting period shall be included. Once the SIU has determined to be out of compliance, the SIU shall be included in subsequent reports until consistent compliance has been achieved. A brief description detailing the actions that the SIU undertook to come back into compliance shall be provided.

For each SIU on the list, the following information shall be provided:

1. Name and facility address of the SIU;

2. Indicate if the SIU is subject to Federal Categorical Standards; if so, specify the category including the subpart that applies;

3. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard;

4. Indicate the compliance status of the SIU for the two quarters of the reporting period; and

5. For violations/noncompliance identified in the reporting period, provide:

    a. The date(s) of violation(s);

    b. The parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters; and

c. A brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

C. Discharger's Compliance with Pretreatment Program Requirements

This section shall contain a discussion of the Discharger's compliance status with the Pretreatment Program Requirements as indicated in the latest Pretreatment Compliance Audit (PCA) Report or Pretreatment Compliance Inspection (PCI) Report. It shall contain a summary of the following information:

1. Date of latest PCA or PCI report;

2. Date of the Discharger's response;

3. List of unresolved issues; and

4. Plan(s) and schedule for resolving the remaining issues.

APPENDIX H-3

SIGNATURE REQUIREMENTS FOR PRETREATMENT ANNUAL AND SEMIANNUAL REPORTS

The pretreatment annual and semiannual reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Discharger [POTW - 40 CFR 403.12(m)]. Signed copies of the reports shall be submitted to the U.S. EPA, the State Water Board, and the Regional Water Board at the following addresses unless the Discharger is instructed by any of these agencies to submit electronic copies of the required reports:

Pretreatment Program Reports
Clean Water Act Compliance Office (WTR-7)
Water Division
Pacific Southwest Region
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105-3901

Submit electronic copies only to State and Regional Water Boards:
Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality-15th Floor
1001 I Street
Sacramento, CA 95814
DMR@waterboards.ca.gov
NPDES_Wastewater@waterboards.ca.gov

Pretreatment Coordinator
NPDES Wastewater Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
(Submit the report as a single Portable Document Format (PDF) file to the Pretreatment Coordinator's folder in the Regional Water Board's File Transfer Protocol (FTP) site. The instructions for using the FTP site can be found at the following internet address:
http://www.waterboards.ca.gov/sanfranciscobay/publications_forms/documents/FTP_Discharger_Guide-12-2010.pdf.)

APPENDIX H-4

REQUIREMENTS FOR INFLUENT, EFFLUENT AND BIOSOLIDS MONITORING

The Discharger shall conduct sampling of its treatment plant's influent, effluent and biosolids at the frequency shown in **the pretreatment requirements table** of the Monitoring and Reporting Program (MRP, Attachment E). When sampling periods coincide, one set of test results, reported separately, may be used for those parameters that are required to be monitored by both the influent and effluent monitoring requirements of the MRP and the Pretreatment Program. The Pretreatment Program monitoring reports as required in Appendices H-1 and H-2 shall be transmitted to the Pretreatment Program Coordinator.

A. Reduction of Monitoring Frequency

The minimum frequency of Pretreatment Program influent, effluent, and biosolids monitoring shall be dependent on the number of SIUs identified in the Discharger's Pretreatment Program as indicated in Table H-1.

Table H-1: Minimum Frequency of Pretreatment Program Monitoring

Number of SIUs	Minimum Frequency
< 5	Once every five years
> 5 and < 50	Once every year
> 50	Twice per year

If the Discharger's required monitoring frequency is greater than the minimum specified in Table H-1, the Discharger may request a reduced monitoring frequency for that constituent(s) as part of its application for permit reissuance if it meets the following criteria:

The monitoring data for the constituent(s) consistently show non-detect (ND) levels for the effluent monitoring and very low (i.e., near ND) levels for influent and biosolids monitoring for a minimum of eight previous years' worth of data.

The Discharger's request shall include tabular summaries of the data and a description of the trends in the industrial, commercial, and residential customers in the Discharger's service area that demonstrate control over the sources of the constituent(s). The Regional Water Board may grant a reduced monitoring frequency in the reissued permit after considering the information provided by the Discharger and any other relevant information.

B. Influent and Effluent Monitoring

The Discharger shall monitor for the parameters using the required sampling and test methods listed in **the pretreatment table** of the MRP. Any test method substitutions must have received prior written Executive Officer approval. Influent and effluent sampling locations shall be the same as those sites specified in the MRP.

The influent and effluent samples should be taken at staggered times to account for treatment plant detention time. Appropriately staggered sampling is considered consistent with the requirement for

collection of effluent samples coincident with influent samples in Section III.A.3.a(2) of Attachment G. All samples must be representative of daily operations. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR 136 and amendments thereto. For effluent monitoring, the reporting limits for the individual parameters shall be at or below the minimum levels (MLs) as stated in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) [also known as the State Implementation Policy (SIP)]; any revisions to the MLs shall be adhered to. If a parameter does not have a stated ML, then the Discharger shall conduct the analysis using the lowest commercially available and reasonably achievable detection levels.

The following report elements should be used to submit the influent and effluent monitoring results. A similarly structured format may be used but will be subject to Regional Water Board approval. The monitoring reports shall be submitted with the Pretreatment Annual Report identified in Appendix H-1.

1. Sampling Procedures, Sample Dechlorination, Sample Compositing, and Data Validation (applicable quality assurance/quality control) shall be performed in accordance with the techniques prescribed in 40 CFR 136 and amendments thereto. The Discharger shall make available upon request its sampling procedures including methods of dechlorination, compositing, and data validation.

2. A tabulation of the test results for the detected parameters shall be provided.

3. Discussion of Results – The report shall include a complete discussion of the test results for the detected parameters. If any pollutants are detected in sufficient concentration to upset, interfere or pass through plant operations, the type of pollutant(s) and potential source(s) shall be noted, along with a plan of action to control, eliminate, and/or monitor the pollutant(s). Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

C. Biosolids Monitoring

Biosolids should be sampled in a manner that will be representative of the biosolids generated from the influent and effluent monitoring events except as noted in (3. below. The same parameters required for influent and effluent analysis shall be included in the biosolids analysis. The biosolids analyzed shall be a composite sample of the biosolids for final disposal consisting of:

1. Biosolids lagoons – 20 grab samples collected at representative equidistant intervals (grid pattern) and composited as a single grab, or

2. Dried stockpile – 20 grab samples collected at various representative locations and depths and composited as a single grab, or

3. Dewatered biosolids - daily composite of 4 representative grab samples each day for 5 days taken at equal intervals during the daily operating shift taken from a) the dewatering units or b) each truckload, and shall be combined into a single 5- day composite.

The U.S. EPA manual, POTW Sludge Sampling and Analysis Guidance Document, August 1989, containing detailed sampling protocols specific to biosolids is recommended as a guidance for sampling procedures. The U.S. EPA manual Analytical Methods of the National Sewage Sludge Survey, September 1990, containing detailed analytical protocols specific to biosolids, is recommended as a guidance for analytical methods.

In determining if the biosolids are a hazardous waste, the Discharger shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3, "Characteristics of Hazardous Waste," of Title 22, California Code of Regulations, sections 66261.10 to 66261.24 and all amendments thereto.

The following report elements should be used to submit the biosolids monitoring results. A similarly structured form may be used but will be subject to Regional Water Board approval. The results shall be submitted with the Pretreatment Annual Report identified in Appendix H-1.

- Sampling Procedures and Data Validation (applicable quality assurance/quality control) shall be performed in accordance with the techniques prescribed in 40 CFR 136 and amendments thereto. The Discharger shall make available upon request its biosolids sampling procedures and data validation methods.

- Test Results – Tabulate the test results for the detected parameters and include the percent solids.

- Discussion of Results – Include a complete discussion of test results for the detected parameters. If the detected pollutant(s) is reasonably deemed to have an adverse effect on biosolids disposal, a plan of action to control, eliminate, and/or monitor the pollutant(s) and the known or potential source(s) shall be included. Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

The Discharger shall also provide a summary table presenting any influent, effluent or biosolids monitoring data for non-priority pollutants that the Discharger believes may be causing or contributing to interference, pass through or adversely impacting biosolids quality.

EXHIBIT 7

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

OCT 0 2 2019

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Harlan Kelly, Jr.
General Manager
San Francisco Public Utilities Commission
525 Golden Gate Avenue
San Francisco, CA 94102

Re: Notice of Violation of National Pollutant Discharge Elimination System permits

Dear Mr. Kelly:

This letter serves to notify you that the EPA has identified Clean Water Act (CWA) violations of the City and County of San Francisco's (City's) National Pollutant Discharge Elimination System (NPDES) permits regulating discharges from the City's wastewater treatment plants, 36 combined sewer discharge (CSD) facilities and its combined sewer system. The permits in question are: (1) Waste Discharge Requirements for the City and County of San Francisco Oceanside Water Pollution Control Plant (Southwest Ocean Outfall) and Collection System, Including the Westside Wet Weather Facilities Order No. R2-2009-0062/NPDES No. CA0037681 (Oceanside Permit); and (2) Waste Discharge Requirements for the City and County of San Francisco Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities, and Wastewater Collection System Order No. R2-2013-0029/NPDES No. CA0037664 (Southeast Permit).

Historically, the City's data, which we also note are materially incomplete in numerous ways that likely masks the true nature and scope of certain violations, show it is discharging approximately one and a half billion gallons of combined sewage annually onto beaches and other sensitive areas, including areas where recreation takes place. Recent data show that the annual combined sewer discharges are closer to two billion gallons. The failure to properly operate and maintain the City's sewage collection and treatment facilities creates public health risks. For example, lack of proper operation and maintenance has caused force main and pump station failures that have diverted substantial volumes of raw and partially-treated sewage to flow across beaches and into the San Francisco Bay and the Pacific Ocean. There have been instances of sewage flowing in the streets and entering people's homes. Moreover, the City's data also show other pollutants of significant concern such as copper, zinc, lead, cyanide and ammonia that can threaten the water quality of the Bay and the ocean.

The City has violated and in many cases continues to violate the terms of its NPDES permits, including but not limited to the following:

1. Failure to properly operate and maintain its facilities including the associated collection systems as required by sections VI.C.4.c, VI.C.5.b.i.b, and Attachment D.I.D. of the

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Southeast Permit and sections VI.C.4.a.1, VI.C.6.b.1.ii, and Attachment D.I.D. of the Oceanside Permit. For example, the City has not cleaned, repaired and replaced sewer pipes on a schedule to ensure they remain in proper working order, the City does not inspect all accessible CSD outfalls every year, and the City has not provided adequate back-up power at critical facilities. Also, Attachment G.I.I.2 of the Southeast and Oceanside Permits requires that "[c]ollection, treatment, storage, and disposal systems shall be operated in a manner that precludes public contact with wastewater, except in cases where excluding the public is infeasible, such as private property," and EPA has documented several incidents when public contact with wastewater occurred, evidencing that the systems are not being properly operated and maintained.

2. Failure to comply with wet weather operational requirements to maximize use of the collection system for storage and to maximize flows to treatment plants pursuant to sections VI.C.5.b.ii, VI.C.5.b.iv, and VI.C.5.c.iii of the Southeast Permit and sections VI.C.6.b.(2), VI.C.6.b.(4), and VI.C.6.c.(3) of the Oceanside Permit. For example, critical pumps were not activated in order to maximize storage and treatment that could have avoided or reduced sewage discharges, and which resulted in unpermitted discharges.

3. Failure to post warning signs when public contact with wastewater could reasonably occur as required by Attachment G.I.I.2 of both the Southeast and Oceanside permits. For example, the City has failed to post warning signs when excursions have occurred on public property.

4. Failure to comply with reporting and recordkeeping requirements related to releases or diversions of untreated or partially-treated sewage from the combined sewer system pursuant to sections VI.C.4.c.ii.(a), VI.C.4.c.ii.(b), and VI.C.4.c.ii.(c) of the Southeast Permit. For example, the City has not collected or provided all required information about such releases or diversions in the Excursion Annual Report and has not reported all applicable releases and diversions that have occurred. The City has also failed to report all applicable releases and diversions greater than 1,000 gallons to the Regional Water Board and Department of Public Health.

5. Failure to comply with CSD monitoring and reporting as required by section VI.B of both the Southeast and Oceanside permits. For example, the City failed to monitor for all required parameters, did not monitor at the required frequency and failed to use a data-driven analysis of the pollutant removal efficacy of CSD structures.

6. Failure to notify the public of CSDs as required by section VI.C.5.b.viii of the Southeast Permit and section VI.C.6.b.(8) of the Oceanside Permit. For example, signs have been obscured, posted in inconspicuous areas, or unreadable from a reasonable distance, and warning signs have not been posted as required.

7. Failure to comply with water quality standards as required by section V.C of the Southeast Permit. For example, combined sewer discharges have exceeded water quality standards for pH, heavy metals, and bacteria

The City must operate in full compliance with the requirements of the CWA, including its NPDES permits. The violations identified in this letter may result in liability for appropriate

injunctive relief pursuant to CWA Section 309(b), 33 U.S.C. § 1319(b), and statutory civil penalties under CWA Section 309(d), 33 U.S.C. § 1319(d), as modified by 40 C.F.R. Part 19. Please note that the EPA is coordinating with the California Regional Water Quality Control Board, San Francisco Bay Region, to ensure that timely and appropriate enforcement action is taken and compliance with the permits is achieved.

The EPA takes CWA violations at municipal treatment plants very seriously and has pursued vigorous enforcement actions against other municipalities within California as well as elsewhere in the nation. The EPA expects the City to share its concern for the protection of public health and surface water resources and expects the City to address its ongoing CWA violations with significant and meaningful measures to ensure a prompt return to full compliance.

The notice provided in this letter is not an election by the EPA to forgo any remedies available to it under the law, including without limit any administrative, civil or criminal action to seek penalties, fines, or other appropriate injunctive relief under the CWA, and specifically any authority under CWA sections 309 and 504, 33 U.S.C. §§ 1319 and 1364. The EPA reserves all available legal and equitable rights and remedies to enforce any violations identified in this letter, as well as any other violations not specifically identified herein.

Sincerely,

Michael Stoker
Regional Administrator

cc: Michael Montgomery
Executive Officer SFRWQCB

EXHIBIT 8

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 21 2019

Harlan L. Kelly, Jr.
General Manager
San Francisco Public Utilities Commission
525 Golden Gate Avenue, 13th Floor
San Francisco, California 94102

Dear Mr. Kelly:

Your Deputy General Manager, Michael Carlin, copied the U.S. Environmental Protection Agency's Office of Water on his September 9, 2019 letter to Michael Stoker, Region 9 Regional Administrator, on behalf of the San Francisco Public Utilities Commission (SFPUC) regarding the reissuance of the SFPUC Oceanside NPDES permit. The Oceanside permit was issued on October 1, 2009 and expired on September 30, 2014. It has been continued administratively since that date. In his letter, Mr. Carlin requested a delay in the adoption of the renewed permit to allow a path forward "that is consistent with the intent of the Combined Sewer Overflow (CSO) Policy, protects receiving water quality, and creates improved regulatory certainty for the benefit of all parties." Given the national policy and consistency issues raised in his letter, we are responding on behalf of Mr. Stoker. EPA Administrator Andrew Wheeler also has asked us to respond on his behalf to the October 1, 2019, letter that you sent to him. The analysis set forth below applies not only to the Oceanside Publicly Owned Treatment Plant (POTW), but also to the Southeast (Bayside) POTW, which similarly is operating under an expired permit that has been continued administratively.

In summary, the interpretation of the CSO Policy set forth in the SFPUC letters, as well as the objection to permit terms that require compliance with water quality standards (WQS), have been reviewed by the EPA at the Headquarters level because they raise national issues. As articulated below, your asserted positions are inconsistent with the approach taken with respect to CSO and water quality issues across the country. If adopted, the EPA would be holding the City and County of San Francisco to a different and much lower standard than other communities that are addressing CSO issues.

In the September 9 letter, the SFPUC objects to permit conditions that require compliance with WQS and states that such permit conditions would impose "unlimited liability risk." According to that letter, the SFPUC does not need to comply with WQS because, following implementation of a Long-Term Control Plan (LTCP), "all parties should be assured that water quality standards and beneficial uses are being protected." Such an assertion is a complete misstatement of the CSO Policy, which was incorporated by reference into the Clean Water Act (CWA) in 2000. *See* 59 Fed. Reg. 18,688 (Apr. 19, 1994); CWA section 402(q), 33 U.S.C. 1342(q).

The CSO Policy does not waive any CWA requirements. Rather, the CSO Policy provides guidance on the planning, selection, and implementation of CSO controls "that meet the requirements of the CWA." 59 Fed. Reg. at 18,688. The Policy establishes nine minimum controls that are the minimum technology-based requirements for CSO discharges. 59 Fed Reg. at 18,695. Water quality-based requirements "are to be established based on applicable water quality standards." *Id.*

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To develop a LTCP to meet WQS, the Policy lays out two alternative approaches to evaluate CSO controls: the "presumption" approach and the "demonstration" approach. The City and County of San Francisco began constructing CSO controls before the issuance of the CSO Policy and completed those controls in 1997. However, the CSO Policy still applies. As stated in the Policy, "[i]f, after monitoring, it is determined that WQS are not being attained, the permittee should be required to submit a revised CSO control plan that, once implemented, will attain WQS." *Id.* at 18,690. Moreover, the Policy specifically states that preexisting CSO controls "should be reviewed and modified to be consistent with the sensitive area, financial capability, and post-construction monitoring provisions of this Policy." *Id.* For example, far from waiving WQS, the CSO Policy specifies that a permit must include a post-construction monitoring program that is sufficient "to demonstrate compliance with WQS and protection of designated uses as well as to determine the effectiveness of CSO controls." *Id.* at 18,696. Permits also must include "[a] reopener clause authorizing the NPDES authority to reopen and modify the permit upon determination that the CSO controls fail to meet WQS or protect designated uses." *Id.* The Policy also specifies that "[t]he selected controls should be designed to allow cost effective expansion or cost-effective retrofitting if additional controls are subsequently determined to be necessary to meet WQS, including existing and designated uses." 59 Fed. Reg. at 18,691.

The SFPUC's September 9 letter states that the collection system exceeds its "design objectives" and that SFPUC believes that the discharges are "consistent with applicable water quality standards." "Consistent with" standards is not the same as meeting standards and the CWA requires compliance with WQS. WQS, their applicability, and policies generally affecting their application and implementation (such as mixing zones) are all established by state law, subject to EPA approval. The EPA is well aware that since 1979, California has provided San Francisco with a variance from the bacteria standards applicable to the Oceanside POTW and even allows "floatables" (i.e., fecal matter and other organic and inorganic substances) in the water that can directly impact beaches with recreation impacts. The CWA requires that states review applicable WQS, including variances, at least every three years. 33 U.S.C. 1313(c)(1); 40 CFR 131.20(a). The EPA's WQS regulations also require that a variance longer than five years be reevaluated at least every five years. *See* 40 CFR 131.14(b)(v). EPA Headquarters' review of the history of the variance seems to indicate that there have been no attempts to update this variance since its initial implementation in 1979. The EPA notified California in writing on August 14, 2017 and again on August 12, 2019 that the variance must be reviewed to ensure compliance with the CWA and the EPA's WQS regulations. That review must take place and if California cannot demonstrate that this variance meets the requirements set forth in 40 CFR 131.14, it should remove the variance.

The September 9 letter also argues that the Pacific Ocean is not impaired, including for bacteria, and that the Basin Plan and the San Francisco Bay Bacteria Total Maximum Daily Load (TMDL) found that combined sewer discharges are not a significant source of bacteria to the receiving waters. The attainment status of the receiving water does not obviate the need for a CSO discharge to meet WQS. The CWA is designed to protect receiving waters that already meet WQS, as well as to restore waters that are impaired. Further, reliance on the San Francisco Bay Bacteria TMDL to create a presumption that the Oceanside plant is not a significant source of bacteria is inapposite. First, the Oceanside plant discharges were not analyzed under the San Francisco Bay Bacteria TMDL. Second, the State of California has given the Oceanside POTW a variance from bacteria and must comply with other WQS to the extent practical. Third, the prior Oceanside permits had even given SFPUC an exemption from monitoring for bacteria in effluent so the utility has no factual basis for quantifying its bacteria loading. Finally, as applied to the Southeast plant, the TMDL assumes compliance with the existing permit. That assumption has been seriously called into question by the October 2, 2019 Notice of Violation issued to the SFPUC by EPA Region 9.

In addition to requiring discharges to meet WQS, the CSO Policy requires that permits must include "[a] requirement to reassess overflows to sensitive areas in those cases where elimination or relocation of the overflows is not physically possible and economically achievable. The reassessment should be based on consideration of new or improved techniques to eliminate or relocate overflows or changed circumstances that influence economic achievability." 59 Fed. Reg. at 18,696. The SFPUC has combined sewer overflow outfalls that discharge into the Pacific Ocean at Ocean Beach (Discharge Point Nos. CSD-001, CSD-002, and CSD-003), China Beach (Discharge Point No. CSD-005), and Baker Beach (Discharge Point Nos. CSD-006 and CSD-007). These are popular recreation areas used by the community and tourists throughout the year. As noted in Region 9's comments on the draft Oceanside permit, SFPUC has conducted a study that suggests that elimination of CSOs in the typical year at Baker Beach and China Beach is achievable. *See Westside Drainage Basin Urban Watershed Technical Opportunities Technical Memorandum* (Feb. 2015). However, the SFPUC's permit would continue to authorize those outfalls as well as other outfalls that are near other beaches. Like most beaches, these sites are used for primary contact recreation and thus are considered sensitive areas under the CSO Policy. 59 Fed. Reg. at 18,692. To comply with the CSO Policy, the physical possibility and economic achievability of the elimination or relocation of CSOs that discharge to primary contact recreation beaches must be addressed. The fact that Baker Beach was formerly impaired and may now be meeting WQS, as noted in your October 1, 2019 letter, does not obviate the need to determine if these combined sewer discharges can be eliminated or relocated. The revised Oceanside permit appropriately requires SFPUC to evaluate that elimination or relocation. Further, the beaches on the Bayside remain impaired.

The October 1, 2019 SFPUC letter argues in favor of continuing to use the same controls developed in the 1970s to addressing combined sewer discharges. Upgrading publicly owned treatment works from primary to secondary treatment was a significant impetus for the 1972 amendments to the CWA. Since that time, the vast majority of cities have made enormous investments to meet the secondary treatment standard. While secondary treatment standards do not apply to CSOs, the CSO Policy, technology-based limits based on best available technology economically achievable and best conventional technology, and WQS do.[1] We all might agree that in 1994 San Francisco was ahead of the curve in addressing CSOs. However, after 25 years of implementing the CSO Policy, San Francisco is now far behind.

As discussed above, the CSO Policy requires compliance with water quality standards. The EPA's concerns regarding WQS exceedances are clearly identified in the October 2, 2019 Notice of Violation. The EPA is also concerned that the approach adopted by San Francisco in the 1970s, with its continued reliance on primary treatment, does not even meet the "presumption" approach under the CSO Policy.[2] Under the presumption approach a city may initially presume compliance with WQS by either reducing the number of CSO overflows each year to no more than four to six, by eliminating or capturing for treatment no less than 85% of the volume of the combined sewage collected, or by eliminating or removing the mass of pollutants causing water quality impairments. 59 Fed. Reg. at 18,692-93. SFPUC's system is designed to route 100% of the sewage that does not receive treatment at a POTW to storage/transport and diversion structures that are intended to provide equivalent to primary treatment before sending the sewage to the combined sewer discharge outfalls. These structures are equipped with baffles that are intended to retain "floatables" instead of flowing through the outfall. However, if the structures fill with water it is unclear whether they operate as designed. Further, after a rainfall event, it

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[1] *Montgomery Environmental Coalition v. Costle*, 646 F.2d 568, 592 (D.C. Cir. 1980).

[2] Under CSO Control Policy I.C.1 and 2, communities such as San Francisco that were already constructing or operating controls as of the date of the policy are not subject to the initial planning and construction provisions in the policy. "Such programs, however, should be reviewed and modified to be consistent with the sensitive area, financial capability, and post-construction monitoring provisions of this Policy." 59 Fed. Reg. at 18,690.

is unclear whether SFPUC cleans out the storage/transport structures to prevent "floatables" from the last storm from being discharged during the next storm. These operation and maintenance issues are among the subjects raised by the October 2, 2019 Notice of Violation.

Even if operated as designed, these structures do not constitute 85% "capture for treatment" that the CSO Policy identifies as an option for initially presuming WQS are met. Under the CSO Policy, capture for treatment means capture for *secondary* treatment. This is clear from the text of the Policy that requires that any combined sewer overflows *remaining after 85% is captured for treatment* receive at least *primary* clarification, i.e., treatment. 59 Fed. Reg. at 18,693. If "capture for treatment" meant primary treatment, this additional condition would have no meaning. Thus, the SFPUC's design for CSO treatment does not even warrant a presumption that WQS are met because it only achieves primary treatment. Of course, even if applicable, any presumption may be rebutted and the October 2, 2019 Notice of Violation rebuts that presumption.

The October 1, 2019 letter further argues that the SFPUC's combined sewer outfalls each discharge between one and 10 times a year. According to SFPUC's September 2017 Bayside System Efficacy Report, CSOs have occurred from discharge points CSD 009-043 an average of 17.6 times per year between 2012 and 2017, and according to SFPUC's September 2013 Monitoring Study to Effectively Characterize Overflow Impacts and Efficacy of CSD Controls for Oceanside, CSOs occurred from discharge points CSD 001-007 25 times in 2012-2013. SFPUC's own data show that the design and actual performance of San Francisco's combined sewer system exceed the four to six overflow events per year contemplated under the approach for presuming an adequate level of control to meet WQS under the CSO Policy. 59 Fed. Reg. at 18,692.

Finally, we need to address the claim in your October 1, 2019 letter that operational deficiencies by SFPUC "do not result in routine exposure to raw sewage." We would certainly hope that even when flooding occurs, basement backups are not "routine" for the residents of San Francisco. However, the fact that they exist may well be an indication that the City is not properly operating and maintaining its system. This issue also is a subject of the October 2, 2019 Notice of Violation.

These issues do not preclude reissuance of the Oceanside permit. However, they may prevent the SFPUC from being able to demonstrate compliance with the terms of both the Oceanside and Southeast permits immediately. Indeed, the October 2, 2019 Notice of Violation issued to the SFPUC by EPA Region 9 alleges that you are currently in violation of the terms of your expired 2009 Oceanside permit. The CSO Policy states that "[i]f compliance with the Phase II permit is not possible, an enforceable schedule, consistent with the Enforcement and Compliance Section of this policy, should be issued in conjunction with the Phase II permit which specifies the schedule and implementation of the long-term CSO control plan." *Id.* at 18,696. At present, we do not see how SFPUC can demonstrate compliance with WQS, its NPDES permits, or the CSO Policy in the near term. Accordingly, we strongly urge you to enter into such an enforceable agreement with the EPA.

Sincerely,

David P. Ross
Assistant Administrator
Office of Water

Susan Parker Bodine
Assistant Administrator
Office of Enforcement and Compliance Assurance

cc: John Roddy, Office of the San Francisco City Attorney
Tom Boehr, Hunton, Andrews, Kurth LLP
Sam Brown, Hunton, Andrews, Kurth LLP

EXHIBIT 9

Exhibit 9

SUMMARY OF RECENT CITY OF SAN FRANCISCO NPDES PERMIT VIOLATIONS

1. SOUTHEAST - Current Permit # ORDER No. R2-2013-0029

NPDES No. CA0037664

A	B	C	D
Date of Violation	**Description of Violation**	**Permit Term Violated**	**Date and Type of Document / Exhibit #**
2/8/14	Discharging un-dechlorinated treated water from southeast WPCP (Violation #1)	Section 3. a & c	2/13/14 5D (Ex. 1) 4/9/14 5DSup (Ex. 2) 4/15/14 CCSF (Ex. 2A) 6/10/14 VN (Ex. 3) 6/30/14 CCSF (Ex. 4) 10/22/14 CCSF (Ex. 5) 1 - Folder 001
2/8/14	Discharging untreated wastewater (Violation #2)	Section 3. a & c	2/13/14 5D (Ex. 1) 4/9/14 5DSup (Ex. 2) 6/10/14 VN (Ex. 3 above) 6/30/14 CCSF (Ex. 4 above) 10/22/14 CCSF (Ex. 5) 1 - Folder 001
2/28/14	Discharge of un-dechlorinated treated wastewater at discharge point No. 003 through No. 006	Section 3. a & c	3/5/14 5D (Ex. 6) 4/9/14 5DSup (Ex. 7) 6/10/14 VN (Ex. 3 above) 6/30/14 CCSF (Ex. 4 above) 2 - Folder 002
3/10/14	Discharge primary treated wastewater at discharge point No.001	Section 3. a & c	3/14/14 5D (Ex. 8) 4/09/14 5D (Ex. 8A) 6/10/14 VN (Ex. 3 above) 6/30/14 CCSF (Ex. 4 above) 3 - Folder 003
4/28/14	Unauthorized discharge due to grease blocking manhole water way		5/06/15 5D (Ex. 9) 5/06/15 CCSF (Ex. 10) 4 - Folder 004

EXHIBIT 9

5/14/14	Discharge secondary treated wastewater during dry weather to Islais creek discharge point.	Section 3. a & d	5/19/145D (Ex. 11) 5/15/14 CCSF (Ex. 11A) 6/10/14 VN (Ex. 3 above) 6/30/14 CCSF (Ex. 4 above) 5 - Folder 005
7/19/14	Unauthorized discharge with a positive chlorine residual	Section IV. A. 1. Table 6	7/24/14 5D (Ex. 12) 6 - Folder 027
10/17/14	Coliform bacterial counts not calculated as required. 1 permit violation since the last inspection. Not sufficiently dechlorinating discharge water		10/17/14 CEI (Ex. 13) 7 - Folder 006

2. SOUTHEAST - Previous Permit # ORDER No. R2-2002-0073 and

ORDER No. R2-2008-0007

NPDES No. CA0037664

Date of Violation	**Description of Violation**	**Permit Term Violated**	**Date and Type of Document / Exhibit #**
8/10/04	Unauthorized dry weather discharge due to power outage, insecure back-up power source, refrigeration of effluent not right temp	ORDER NO. R2-2002-0073 NPDES PERMIT NO. CAOO37664 Condition 10.e	9/14/04 CEI (Ex. 14) 1/14/05 CCSF (Ex. 15) 1 - Folder 009
12/6/14 and 12/7/14	Numerous deficiencies in CCSF's POTW pre-treatment program	Various Pretreatment Compliance Inspection Summary Report, see Sections 5.1, 5.2, 5.3, 6, 7,.1, 7.3, 7.4, 7.5, 8, 9, pp.	2/16/05 PCI (Ex. 16) 3/04/05 CCSF (Ex. 17) 2 - Folder 033

11/17/05	CCSF facility using incorrect BOD (biochemical oxygen demand) values in their reporting. Three prohibited dry weather discharges to Islais creek noted since last inspection.		1/30/06 CEI (Ex. 18) 3/14/06 CCSF (Ex. 19) 3 - Folder 034
8/09/07	CCSF was not regulating SIU's and inspecting private companies before reissuing them a permit, not citing SIU's if they did violate their permit, many instances of non compliance	40 CFR 403.8(f)(l)(iii)(B)(4) 40 CFR 403.8(f)(2)(v) 40 CFR 403.8(f)(2)(iv)	8/09/07 PCA (Ex. 20) 9/20/07 CCSF (Ex. 21) 4 - Folder 014
5/8/08	Effluent exceedance of chlorine residual in the effluent reported since the last inspection.	Part B of Order No. R2-2002-0073	7/29/08 CEI (Ex. 22) 5 - Folder 035
6/26/2008	PCI report conducted indicates in the cover letter that the CCSF was not compliant. Water board specifically asks CCSF for a response regarding how they "plan to achieve compliance".		6/26/08 PCI cover (Ex. 23) 7/24/08 CCSF (Ex. 24) 6 - Folder 015
7/11/08	Discharge spill into Islais Creek as a result of PG&E power outage		7/14/08 5D (Ex. 25) 7/14/08 CCSF (Ex. 26) 7/14/08 CCSF H (Ex. 27) 7 - Folder 013
9/11/2008	Fecal coliform concentration exceedance caused five permit violations		1/28/09 AR (Ex. 28) 8 - Folder 037

12/16/08	Bacterial concentrations in the effluent was higher than the permit allowed.	Order No. R2-2008-0007, Provision IV.B.1.c,	11/5/2009 IP (Ex. 29) 1/28/09 AR (Ex. 28 above) 9 - Folder 012
1/15/09	The southeast WPCP was not adequately recording and reporting their data to the water board. The plant also discharged effluent that exceeded the permits concentration of fecal coliform bacteria. Lab work was not performed adequately with permit standards.	Order No. R2-2008-0007. Section 3a Section 3c. Section 2.d. Section 4g. Section 5a. Section 7.i. 40 CFR Part 136.	2/23/09 IP (Ex. 30) 4/8/09 CCSF (Ex. 31) 4/9/09 CCSF (Ex. 32) 10 - Folder 011
2/02/09	PCI cover letter from 2009 indicates CCSF no compliance due to inadequately regulating SIU's – 18 out of 30 SIU's were not inspected at all by CCSF.		7/29/09 PCI cover (Ex. 33) 11 - Folder 016
2/23/09	High copper concentrations in the influent to southeast WPCP	Section 8 Special Provisions Copper Action Plan	6/23/09 CCSF (Ex. 34) 12 - Folder 008
9/21/09	Enterococcus bacterial concentration exceedance in the effluent at discharge point 002.	Order No. R2-2008-0007, Provision IV.B.1.c,	11/05/09 CEI (Ex. 35) 13 - Folder 036
2/26/10	SIU's significant noncompliance on page 46 of 2009 AR. Summary of report also indicates 5 notices of violations against SUI's and 1 SUI with published noncompliance		3/26/10 AR (Ex. 36) 14 - Folder 038

10/13/10	CCSF not correctly reporting all overflow events or reporting them at all, not maintaining overflow structures as required by their permit and not keeping-up with general plant maintenance, not removing solids and floating materials prior to discharge	Order No. R2-2008-0007, Attachment D, Section D Order No. R2-2008-0007, Section V-Receiving Water Limitations, Item 7, (I) No. R2-2008-0007, V. Receiving Water	10/13/10 CEI (Ex. 37) 6/6/11 CCSF (Ex. 38) 12/20/11 CCSF (Ex. 39) 15 - Folder 017
12/14/11	The effluent from southeast WPCP did not pass the fish/organism test of 90 percent or more survival	No. R2-2008-0007, Section IV.A.1.f	2/8/12 CEI (Ex. 40) 16 - Folder 010
11/16/12	Enterococcus violation		5/30/14 CEI (Ex. 41) 17 - Folder 031
12/08 thru 12/12	Ten counts of Enterococcus bacterial concentration exceedances in the effluent at southeast WPCP between 2008-2012	Sections 13385(h) and 13385(i)	1/25/10 AR (Ex. 42) 1/31/11 AR (Ex. 43) 6/18/13 CCSF (Ex. 44) 7/23/13VN (Ex. 45) 7/23/13 W (Ex. 46) 18 - Folder 007

3. OCEANSIDE - Current Permit # ORDER No. R2-2009-0062

NPDES No. CA0037681

Date of Violation	Description of Violation	Permit Term Violated	Date and Type of Document / Exhibit #
7/21/14	Unauthorized discharge and operator error on 2 hour reporting requirement		7/30/14 5D (Ex. 47) 9/23/14 PP (Ex. 48) 1 - Folder 024
8/27/14	Unauthorized discharge		9/4/14 5D (Ex. 49) 9/23/14 PP (Ex. 50) 2- Folder 025
12/11/14	Unauthorized discharge		1/26/13 CCSF (Ex. 51) 12/11/14 2HR (Ex. 52) 12/18/14 5D (Ex. 53) 1/7/15 CCSF (Ex. 54) 1/13/15 CCSF (Ex. 55) 1/23/15 5D Sup (Ex. 56) 1/26/15 CCSF (Ex. 57) 1/28/15 CCSF (Ex. 58) 2/24/15 PP (Ex. 59) 3/30/15 CCSF (Ex. 60) 4/27/15 CCSF (Ex. 61) PP (Ex. 62) 3 - Folder 026
12/11/14	Manhole covers found displaced – possible resulting unauthorized discharge to Lake Merced		12/15/14 5D (Ex. 63) 12/23/ 14 CCSF (Ex. 64) 4 - Folder 030
6/10/15	Discharge of untreated sewage at Seacliff #1		6/11/15 CCSF (Ex. 65) 6/15/15 5D (Ex. 66) 5 - Folder 029

4. OCEANSIDE - Previous Permit # ORDER No. R2-2003-0073

NPDES No. CA 0037681

Date of Violation	Description of Violation	Permit Term Violated	Date and Type of Document / Exhibit #
12/06/04	Many deficiencies relate to CCSF regulation of SIU's and inadequate reporting and self-monitoring.	40 CFR 403.18 40 CFR 403.8(0(2) 40 CFR 403.8(0(1)(iii) 40 CFR 403.S(0(2)(v) 40 CFR 403.3(0(5)	2/16/05 PCI (Ex. 67) 3/4/15 CCSF (Ex. 68) 1 - Folder 019
11/13/06	Massive volume of untreated sewage and untreated storm water spilled onto the great highway and ocean beach over two days.	Section 13385(a) (2), Section 13385(a) (4) and Section 13323.	11/16/06 Email (Ex. 69) 11/20/06 CCSF (Ex. 70) 11/22/06 24H (Ex. 71) 12/22/06 CCSF (Ex. 72) 3/26/07 CCSF (Ex. 73) 3/26/07 VN (Ex. 74) 4/27/07 CCSF (Ex. 75) 6/20/07 W (Ex. 76) 7/11/07 Fine (Ex. 77) 3/24/11 CCSF (Ex. 78) 2 - Folder 018
2/5/08	2008 PCI cover letter indicates CCSF noncompliance.		2/26/08 PCI (Ex. 79) 3 - Folder 022

3/04/08	The CCSF was noncompliant due to inadequate reporting of CSO control efficacy study and overflow impacts data. Records of monitoring information deficient in multiple fields. Laboratory procedures to record maximum holding times for samples deficient and therefore noncompliant.	No. R2-2003-0073, Section F.4.i., 40 CFR §122.41 (j)(3), 40 CFR §136.3, Table II,	3/04/08 CEI (Ex. 80) 4 - Folder 021
1/14/09	Final report of the overflow impacts and CSO control efficacy study were not submitted to water board. Regulatory manager was absent on day of inspection, signature required. Influent and effluent data that was submitted was wrong.	Order No. R2-2003-0073, Section F.4.i.(C), Order No. R2-2003-0073, Provision F.13, 40CFR Part 122.41(j)(1)	2/23/09 IP (Ex. 81) 4/09/09 CCSF (Ex. 82) 5 - Folder 020
2/02/09	Annual Pretreatment report on page 39. Lists all instances of non compliance by SIU's in the 2008 year		2/02/09 APR (Ex. 83) 6 - Folder 038
3/16/12	Discharge spill during rainstorm due to PG&E power outage		3/23/12 CCSF (Ex. 84) 3/30/15 CCSF (Ex. 85) 7 - Folder 026
4/12/12	Storm water over flow		5/21/12 CCSF (Ex. 86) 5/21/12 CCSF (Ex. 87) 8 - Folder 028
11/21/12	Discharge due to manhole covering dislodging		11/26/12 CCSF (Ex. 88) 9 - Folder 023

Legend:

Abbreviations	Description
CEI	Compliant Evaluation Inspection Report
PCI	Pretreatment Inspection Report
IP	Inspection Report
VN	Violation Notices
AR	Annual Report
APR	Annual Pretreatment Report
5D	5-Day Incident Reports
5DSup	5-Day Supplemental Report
CCSF	City Response Correspondence
24H	24-Hour Reports
PP	Power Point
SIU’s	Significant Industrial Users
W	Waiver of Right to a Hearing
CSO	Combined Sewer Overflows

EXHIBIT 10

Exhibit 10

All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
01/05/2016	Fort Funston Beach not posted or sampled following a CSD	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0001 OSP0013, 21 OSP0070, 71
01/18/2016	Fort Funston not posted or sampled following a CSD	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0001 OSP0013, 21 OSP0070, 71
01/18/2016	Baker Beach not posted or sampled following a CSD	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0001 OSP0013, 21 OSP0070, 71
01/18/2016	Ocean beach posted 1-2 hours later than required	Section VI.C.6.b.(8)	OSP0001 OSP0013, 21 OSP0070, 71

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
01/19/2016	Fort Funston Beach was posted and the public notified 4-5 hours later than required	Section VI.C.6.b.(8)	OSP0001 OSP0013, 21 OSP0070, 71
02/06/2016	Effluent on Ocean Beach SF CA Strong odor of sewage on Ocean Beach at an old sewer pipe at Vicente – emergency services were not available, meanwhile children are playing on the beach. Sewage overflowing into the street at Wawona and 46th for a week and complaints have been made but nothing has been done.	Section III.A. Order Conditions	OSP0002 OSP0009
03/09/2016	Chronic Toxicity Test invalidated due to poor control development	Section VI.B.MRP Section V.C.	OSP0029
03/12/2016	Illicit discharge from a private sewer lateral to a storm drain system "thought to be NPDES violation but later retracted" Reported in the MS4 Annual Report	Section III.A. Order Conditions	OSP0024 OSP0029 OSP0070, 71

Exhibit 10

All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
10/17/2016 **Violation**	Unauthorized Discharge of 8011 gallons of combined stormwater & wastewater from CSD-007 **Violation ID#1022988**	Section III.A. Order Conditions **Corrective Action: None**	OSP0044 OSP0042 OSP0045 OSP0070, 71
12/11/2016	Following a CSD event, Lincoln was de-posted and not sampled due to a miscommunication about the CSD location and confusion about whether a discharge had occurred at Lincoln	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0056 OSP0057, 67 OSP0070, 71
12/11/2016	Vicente posted and sampled one day late due to a miscommunication about the CSD location and confusion about whether a discharge had occurred at Lincoln	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0056 OSP0057, 67 OSP0070, 71
12/23/2016	No beach posting or sampling occurred following a CSD at Vicente and Lincoln on 12/23/16 due to overflow sensor calibration issues.	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0056 OSP0057, 67 OSP0070, 71

Exhibit 10

All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
01/08/2017	Power interruption caused five lift pumps to be inactivated for 11 hours, causing 8.275MG discharged as CSDs through the Westside Transport system rather than through the SWOO	Section III.A. Order Conditions	OSP0092, 100 OSP0140, 141
01/10/2017	Beach posting for a discharge at the Seacliff 2 Pump Station occurred late due to miscommunication	Section VI.C.6.b.(8)	OSP0140, 141
02/07/2017	Sampling for CSD discharges at Vicente did not result in usable data due to unsterilized sample bottles	Section VI.B.MRP Section IV.B	OSP0140, 141
02/07/2017	Sampling for CSD discharges at Lincoln did not result in usable data due to unsterilized sample bottles	Section VI.B.MRP Section IV.B	OSP0140, 141
02/07/2017	Sampling for CSD discharges at Seacliff Pump Station did not result in usable data due to unsterilized sample bottles	Section VI.B.MRP Section IV.B	OSP0140, 141

Exhibit 10

All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
03/23/2017 **Violation**	Unauthorized dry weather discharge occurred due to loss of power to the pump station at CSD-005 China Beach. Station was posted and sampled the next day, but not on the 23rd. Discharge occurred at 9:44PM. **Violation#1030362**	Section III.A. Order Conditions **Corrective Action: None**	OSP0104 OSP0106-8 OSP0140, 141
06/21/2017 **Violation**	Exceedance of weekly average BOD_5 @ 20 C° at 49mg/L. Possible presence of nitrifiers in the sample bottle and on the sampling tube biofilm. Limit in permit is 45 mg/L weekly average. Category 1 Pollutant (Effluent Violation for Group 1 Pollutant) **Violation#1030360**	Section IV.A.1.a. **Corrective Action:** Actions were taken to address the potential presence of nitrifiers in the sample bottle and on the sampling tube	OSP0121-2 OSP0140, 141
09/27/2017	Sample for this day for Table B pollutants in the ocean plan results not available for September SMR	Section VI.B. MRP Section XI.B.	OSP0131

Exhibit 10

All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
01/08/2018	Valve (V3) between the East and West Transport Storage boxes did not respond to the Distributed Control System and was stuck in the open position. This allowed water to flow between the boxes, during which there were CSDs.	Section III.A. Order Conditions	OSP0161
01/22/2018	No access to China Beach site due to locked gate, no sampling or posting conducted	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0139
03/17/2018 **Violation**	Exceedance of weekly TSS average. Total Suspended Solids (TSS) Weekly Average limit is 45 mg/L and reported value was 67 mg/L at EFF-001A. **Violation#1043973**	Section IV.A.1.a. **Corrective Action: None**	OSP0173-4 OSP0212, 213
04/06/2018	An AT&T communications interruptions with Sea Cliff 2 pump station (CSD-007) occurred prior to the rain event of April 6th. As a result, CSDs occurred on April 6th and April 7th: the staff could not record CSD end times, resulting in preventions of duration and volume estimations.	Section VI.B.MRP Section IV.B.2.	OSP0179 OSP0212, 213

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
04/06/2018	During the 4/6/18 CSD event, staff collected CSD samples at Monitoring Point EFF-CSD (located at Westside Pump Station). Sample volume was insufficient to perform all required analyses. Unable to analyze for oil & grease, pesticide & PCBs, and PAHs as identified in the NPDES permit.	Section VI.B. MRP Section IV.B.1.	OSP0179
04/17/2018 – 04/20/2018	Flow rate data for the final effluent not collected continuously due to data communication lines being relocated for the construction of the Westside Enhanced Water Recycling Project.	5/25/18 mSMR Folder 025	OSP0179
04/30/2018	Shoreline bacteriological report for this day was inadvertently omitted from the April 2019 SMR	Section VI.B.MRP Section XI.B.2.	OSP0184-5
09/12/2018	Final effluent (EFF-001A) sample for 5-day biochemical oxygen demand (BOD_5) did not meet quality assurance/quality control (QA/QC) specifications	Section VI.B.MRP Section V.C.	OSP0189 OSP0212, 213
10/03/2018	Plant shutdown prevented the collection of 24-hour representative composite samples for total suspended solids (TSS) for INF-001A and EFF-001	Section VI.B.MRP Section III. & Section VI.B.MRP Section IV.	OSP0194

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
10/05/2018	Plant shutdown prevented the collection of 24-hour representative composite samples for total suspended solids (TSS) for INF-001A and EFF-001	Section VI.B.MRP Section III. & Section VI.B.MRP Section IV.	OSP0194
10/06/2018	Plant shutdown prevented the collection of 24-hour representative composite samples for total suspended solids (TSS) for INF-001A and EFF-001	Section VI.B.MRP Section III. & Section VI.B.MRP Section IV.	OSP0194
10/24/2018	Final effluent (EFF-001A) sample for 5-day biochemical oxygen demand (BOD_5) did not meet quality assurance/quality control (QA/QC) specifications	Section VI.B.MRP Section V.C.	OSP0194
11/21/2018	Failure to notify on-call biologist after a 14 minute CSD at CSD-001 (Fort Funston). As a result, required beach sampling and public notification did not occur	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0200, 201 OSP0212, 213

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
11/22/2018	Sample at EFF-CSD was not analyzed for BOD because the hold time for BOD analysis was exceeded due to Thanksgiving holiday.	Section VI.B.MRP Section IV.B.	OSP0200, 201 OSP0212, 214
11/24/2018 **Violation**	Exceedance of weekly average TSS of 55mg/L at EFF-001A. Total Suspended Solids (TSS) Weekly Average limit is 45 mg/L Category 1 Pollutant (Effluent Violation for Group 1 Pollutant) **Violation #1054392**	Section IV.A.1.a. **Corrective Action: None**	OSP0199 OSP0200 OSP0212, 213 OSP0228
11/29/2018	Sample volume from EFF-CSD was insufficient for analyses other than BOD_5, pH, and inorganic Table 1 pollutants due to the short CSD	Section VI.B. MRP Section IV.B.	OSP0200, 201
12/24/2018 – 12/31/2018	Shoreline monitoring and posting not conducted at China Beach because it was not accessible due to a locked fate due to partial government shutdown.	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0206-7, 206, 208 OSP0212, 214

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
01/01/2019 – 01/22/2019	Lack of shoreline monitoring and posting at SRF-17 (China Beach) and SRF-22 (Fort Funston) due to inaccessibility from partial government shutdown (locked gate).	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0223 OSP0240, 242 OSP0288, 291
01/06/2019	Lack of CSD sample. Insufficient sample volume was collected during the 1/6/19 CSD event due to issues with sampler programming	Section.VI. B.MRP Section IV.B	OSP0240, 242 OSP0288, 291
01/16/2019	Power outage causing inconsistent flows from the watershed to the Richmond Transport/Storage Tunnel. This caused a larger volume CSD at Seacliff #2 and less discharge to ongoing CSDs to Ocean beach	Section III.A. & Section VI.C.6.b.(4)	OSP0240, 241
01/23/2019	Final effluent sample from EFF-001A for BOD_5 did not meet QA/QC specifications.	Section VI.B. MRP Section V.C.3.	OSP0240 OSP0288, 291

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
01/25/2019 **Violation**	Unauthorized discharge of untreated wastewater combined with secondary treated effluent were discharged at EFF-001 due to equipment failure **Violation #1064928**	Section III.A. Order conditions **Corrective Action:** Secondary bypass drain valve was closed. Dewatering pump returned to service to prevent high sump level. Updated standing orders and procedures to ensure valve remains closed during dewatering	OSP0222 OSP0224 OSP0235 OSP0240 OSP0288, 290
01/29/2019	Unauthorized discharge of untreated wastewater combined with secondary treated effluent were discharged at EFF-001 due to equipment failure	Section III.A. Order conditions	OSP0224 OSP0235 OSP0240 OSP0288, 290
02/02/2019	Beach postings delayed a few hours at Baker Beach.	Section VI.C.6.b.(8)	OSP0234

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
03/13/2019	BOD_5 results for INF-001A and EFF-001A samples did not meet the BOD method SM5210B specification of a minimum dissolved oxygen depletion of 2.0 mg/L for the seed banks. This violation is 1 of 2 QA/QC specifications that were not met for these samples on this day	Section VI.B. MRP Section V.C.3.	OSP0246 OSP0288, 291
03/13/2019	BOD_5 results for INF-001A and EFF-001A samples did not meet the BOD method SM5210B specification of a maximum dissolved oxygen depletion of .20 mg/L for the dilution water blanks. This violation is 2 of 2 QA/QC specifications that were not met for these samples on this day	Section VI.B. MRP Section V.C.3.	OSP0246 OSP0288, 291
07/07/2019 – 07/13/2019	BOD_5 results for INF-001 and EFF-001A samples did not meet the BOD method SM5210B specification of a maximum dissolved oxygen depletion of .20 mg/L for the dilution water blanks.	Section VI.B. MRP Section III. & Section VI.B. MRP Section IV.	OSP0253 OSP0288, 291
07/28/2019 – 08/03/2019	Only four INF-001 samples were collected this week for pH due to unplanned plant shutdown on July 29-30, necessitated by a PG&E issue, prevented the collection of grab samples on those days. The permit requires 5/week minimum monitoring	Section VI.B. MRP Section III.	OSP0253, 254 OSP0288, 291

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
07/28/2019 – 08/03/2019	Only four INF-001 samples were collected this week for TSS due to unplanned plant shutdown on July 29-30, necessitated by a PG&E issue, prevented the collection of composite samples on those days, and a sampler setup issue prevented collection of a sample on July 31st. The permit requires 5/week minimum monitoring frequency.	Section VI.B. MRP Section III.	OSP0253, 254 OSP0288, 291
08/02/2019	For dry weather compliance monitoring, incomplete composite samples were collected for monitoring locations INF-001A and EFF-001Adue to plant shutdowns. Only TSS could be calculated.	Section IV.A. & Section VI.B. MRP Section III	OSP0258
08/17/2019	Unauthorized discharge of an estimate 1.8 MG of primary treated wastewater bypassed secondary treatment facilities and discharged through Discharge Point 001 for 13 hours due to equipment and programming failure.	Section III.A. Order conditions	OSP0251 OSP0258, 259 OSP0288, 290
08/17/2019	For dry weather compliance monitoring, incomplete composite samples were collected for monitoring locations INF-001A and EFF-001Adue to plant shutdowns. Only TSS could be calculated.	Section IV.A. & Section VI.B. MRP Section III	OSP0258

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
08/18/2019	For dry weather compliance monitoring, incomplete composite samples were collected for monitoring locations INF-001A and EFF-001Adue to plant shutdowns. Only TSS could be calculated.	Section IV.A. & Section VI.B. MRP Section III	OSP0258
08/18/2019 – 08/24/2019	Results for BOD_5 during this week are not available because the samples collected on 8/21/19 from INF-001 and EFF-001A did not meet a QA/QC specification for method SM5210B	Section VI.B. MRP Section III	OSP0258 OSP0288, 291
08/30/2019	For dry weather compliance monitoring, incomplete composite samples were collected for monitoring locations INF-001A and EFF-001Adue to plant shutdowns. Only TSS could be calculated.	Section 4.A.1.a. MRP Section 3 & Section 4.A.	OSP0258
09/06/2019	Dry weather compliance monitoring was not completed as required as incomplete composite samples were taken from locations INF-001A and EFF-001A due to plant shutdowns	Section IV.A. & Section VI.B. MRP Section III	OSP0263

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
09/11/2019	Dry weather compliance monitoring was not completed as required as incomplete composite samples were taken from locations INF-001A and EFF-001A due to plant shutdowns	Section IV.A. & Section VI.B. MRP Section III	OSP0263
09/14/2019	Dry weather compliance monitoring was not completed as required as incomplete composite samples were taken from locations INF-001A and EFF-001A due to plant shutdowns	Section IV.A. & Section VI.B. MRP Section III	OSP0263
09/15/2019	Dry weather compliance monitoring was not completed as required as incomplete composite samples were taken from locations INF-001A and EFF-001A due to plant shutdowns	Section IV.A. & Section VI.B. MRP Section III	OSP0263
10/13/2019 – 10/19/2019	Weekly BOD_5 results not available for this week due to test result not meeting QA/QC specification due to laboratory analyst error.	Section VI.B. MRP Section IV.A.	OSP0269 OSP0288, 291

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
10/21/2019	24 hour composite collection for location INF-001A and EFF-001A were incomplete due to plant shutdown	Section VI.B. MRP Section III & Section VI.B. MRP Section IV	OSP0268 OSP0269
11/26/2019 **Violation**	Did not meet wet weather plant requirements as EFF-001 only reached 134 MGD before discharging at CED-002 & CSD-003 due to an electrical issue. The requirement is 165 MGD flow rate before discharging at these locations **Violation#1068871**	Section VI.C.6.c.(3).(ii). **Corrective Action:** Investigation revealed an issue with two main disconnect switches left in "neutral" position--fixed issue and added routine maintenance check to prevent this issue from occurring again	OSP0274 OSP0276, 277

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
11/27/2019	Shoreline sampling did not occur at SRF-22 (Fort Funston) because of heavy surf..	Section VI.B.MRP Section VIII	OSP0275-6, 275, 277 OSP0288, 291
11/28/2019	Shoreline sampling and posting did not occur at SFR-21 (OB @ Vicente) because preliminary results from 11/27/19 indicated low concentrations for all three fecal indicator bacteria. Because of testing times (18-24 hours), the SFPUC found out later (afternoon of 11/28) that the 11/27 sample final result did indeed have an exceedance of enterococcus. In the end, this location should have been posted and sampled on 11/28/19 but it was not.	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0275-6, 275, 277 OSP0288, 291
12/18/2019	Shoreline monitoring and posting were not conducted after a CSD at CSD-005 (Seacliff 1/China Beach) because the on-call biologist were not notified due to the CSD not being detected and therefore a lack of notification. The water elevation trigger was slightly greater than the actual surveyed level.	Section VI.C.6.b.(8) & Section VI.B.MRP Section VIII	OSP0282-3, 282, 284 OSP0288, 291

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Previous Permit # CA0037681 (R2-2009-0062)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
12/07/2019	China Beach, Ocean Beach and Ft. Funston (7 different sampling locations) were not sampled due to safety reasons being listed as too dark to continue sampling Not mentioned in mSMR	Section VI.B.MRP Section VIII	OSP0282
12/29/2019	Very high bacterial exceedances for all three criterion at SRF – 22 (Ft. Funston), which was not posted due to a locked gate.	Section VI.B.MRP Section VIII	OSP0282

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All Instances of Non-Compliance of the Relevant NPDES Permits for the OSP

Current Permit # CA0037681 (R2-2019-0028)

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 13
04/06/2020 **Violation**	Did not comply with wet weather plant operational requirements, as described in Provision VI.C.5.c.iv(b). INF-001 did not reach 60 MGD prior to initiating discharge from the Westside Transport/Storage Structure to Discharge Point No. 001. **Violation ID#1076485**	Section VI.C.5.c.iv.(b) **Corrective Action:** Follow-up training with staff is planned.	OSP0308-9, 308, 310
05/24/2020 – 05/30/2020	The BOD_5 results during this week are not available due to samples not meeting multiple QC specifications. 5/26 sample did not meet a maximum DO depletion of 0.20 mg/L for the dilution water blanks.	Section IV.A.1. & Section IV.A.1. MRP Section IV. A. 1.	OSP0315
05/24/2020 – 05/30/2020	The BOD_5 results during this week are not available due to samples not meeting multiple QC specifications. 5/27 sample did not meet a maximum DO depletion of 0.20 mg/L for the dilution water blanks and did not meet an average standard recovery of 72% outside of the acceptable QC range of	Section IV.A.1. & Section IV.A.1. MRP Section IV. A. 1.	OSP0315
06/24/2020	Incomplete 24-hr composite sample taken due to plant shutdown	Section IV.A.1. MRP Section IV. A. 1.	OSP0320

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EXHIBIT 11

Exhibit 11

All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
01/06/2016	Public notification and sampling did not occur at Crissy Field and Aquatic Park beach following a CSD at DP 009	Section VI.B. MRP Section VI.B & Section VI.c.5.b.viii	SEP0006a, 6b SEP0032, 33
01/18/2016	Public notification and sampling did not occur at Crissy Field and Aquatic Park beach following a CSD at DP 009, 010, & 015	Section VI.B. MRP Section VI.B & Section VI.c.5.b.viii	SEP0006a, 6b SEP0032, 33
01/18/2016	Public notification did not occur at Jackrabbit Beach following a CSD at DP 041	Section VI.B. MRP Section VI.B & Section VI.c.5.b.viii	SEP0006a, 6b SEP0032, 33

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
01/2016 - 07/2016 Every month	Effluent did not meet acute toxicity 11-sample 90th percentile requirement during January 2016 due to the test result of 60% reported during the November 2015 test. Test result in February 2016 of 65% caused average to continue to be lower than the requirement in March, April, May, June, and July 2016	Section IV.A.4. b.	SEP0032, 33
02/08/2016 **Violation**	Violation type: Acute Toxicity Description: Acute Toxicity 11 sample 90th percentile limit is 70% survival and reported value was 45% survival at EFF-001A **Violation #1006953**	Section IV.A.4.b. **Corrective Action: None**	SEP0001 SEP0005 SEP0010
02/08/2016 **Violation**	Violation type: Acute Toxicity Description: Acute Toxicity 11 sample median limit is 90% effluent and reported value was 85% effluent at EFF-001A **Violation #1006955**	Section IV.A.4.a. **Corrective Action: None**	SEP0001 SEP0005 SEP0010
02/22/2016 **Violation**	Violation type: Acute Toxicity Description: Acute Toxicity 11 sample median limit is 90% effluent and reported value was 85% effluent at EFF-001A **Violation #1006956**	Section IV.A.4.a. **Corrective Action: None**	SEP0001-5 SEP0010

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
03/05/2016 **Violation**	Unauthorized Discharge at DP 029 due to equipment failure **Violation #1013155**	Section III.D. **Corrective Action: None**	SEP0007 SEP0011 SEP0015 SEP0032, 34
03/15/2016	Elevated or exceeding mercury levels in the effluent	Attachment F Section II.C.	SEP0015 SEP0032, 34
03/22/2016	Invalid bioassay acute toxicity test due to wet weather	Section IV.A.4.a.	SEP0015 SEP0032
04/04/2016 & 04/19/2016 04/30/2016 (month)	Issues with acute toxicity testing – one acute toxicity flow through bioassay test was 90% final survival, two additional tests were invalid due to wet weather, A non-compliance chronic kelp sporophyll test conducted 4/19 - 4/21 which was invalidated b/c did not meet acceptability criteria. Whole month of April did not meet 11-sample 90th percentile requirement	Section IV.A.4.b.	SEP0012-14 SEP0017 SEP0032
05/20/2016 (month)	Did not meet 11-sample 90th percentile and 11-sample median acute toxicity requirement	Section IV.A.4.b.	SEP0032

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
06/20/2016 **Violation**	Discharge pipeline leak at DP 001 did not meet a dilution of at least 231:1 **Violation ID#1013159**	Section III.B. **Corrective Action: None**	SEP0018 SEP0021 SEP0023 SEP0032, 34
06/30/22016 (month)	Did not meet 11-sample 90th percentile and 11-sample median acute toxicity requirement	Section IV.A.4.b.	SEP0032
07/31/2016 (month) **Violation**	Monthly TSS (total suspended solids) exceedance in effluent **Violation ID#1013158**	Section IV.A.1 **Corrective Action: None**	SEP0022 SEP0024 SEP0032, 34
07/30/2016 Month)	Did not meet 11-sample 90th percentile and 11-sample median acute toxicity requirement	Section IV.A.4.b.	SEP0032, 34
10/17/2016	Bypass at SEP	Section III.C.	SEP0026 SEP0032, 34
10/20/2016	Category 3 SSO due to broken sever line	Section III.F. & Section VI.C.4.c.i.	SEP0026 SEP0032, 34

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
11/23/2016	Plant unable to maintain secondary treatment due to power outage at plant during a wet weather event	Section III.A. Order Conditions	SEP0028 SEP0031-2, 31, 34
01/08/2017	Public notification and sampling did not occur following CSDs in the North Shore area	Section VI.B. MRP Section VI.B. & Section VI.c.5.b.viii.	SEP0095, 96 SEP0006c, 6d
01/10/2017	Unauthorized discharge due to power outage at plant CSD – 029	Section III.D.	SEP0095, 96
01/20/2017	Insufficient influent flow levels due to equipment failure at North Point	Section VI.C.5.b.iv.	SEP0095, 96
01/20/2017	Insufficient influent flow levels due to equipment failure at Griffith pump station	Section VI.C.5.b.iv.	SEP0095, 97
01/30/2017 (month)	Exceedance of oil & grease average monthly limit in the effluent	Section IV.A.1.	SEP0095, 97

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
January 2017	January mSMR missing in CIWQS database	Section VI.B. MRP Section VIII.B.	Not in CIWQS database No Evidence File Folder
02/21/2017 **Violation**	Unauthorized discharge due to equipment failure **Violation ID#1043568**	Section III.A. Order Conditions **Corrective Action: None**	SEP0054 SEP0060 SEP0095, 97
03/31/2017 **Violation**	Exceedance of oil & grease average monthly limit in the effluent. Monthly average should be 10 mg/L and reported value was 14 mg/L Violation type: Category 1 Pollutant (Effluent Violation for Group 1 Pollutant **Violation ID#1033302**	Section IV.A.1. **Corrective Action:** In its cover letter, the Discharger stated that it would increase sampling frequency; however, it only collected the one required monthly sample in the following	SEP0061 SEP0070 SEP0095, 97
04/04/2017	Unauthorized discharge due to equipment failure	Section III.A. Order Conditions	SEP0066 SEP0073 SEP0095, 97

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
04/12/2017 **Violation**	Unauthorized discharge due to equipment failure (EFF 001) Violation Type: Order Conditions **Violation #1043584**	Section III.A. Order Conditions **Corrective Action: None**	SEP0068 SEP0071 SEP0073 SEP0095, 97
04/30/2017 (month)	Acute Toxicity flow-through bioassay test results in 50% final survival	Section IV.A.4.	SEP0063-5 SEP0073
05/31/2017 (month)	Effluent did not meet acute toxicity limitation	Section IV.A.4.b.	SEP0072 SEP0074 SEP0095, 98
September 2017	September mSMR missing in CIWQS database	Section VI.B. MRP Section VIII.B.	Not in CIWQS database No Evidence File Folder

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
10/11/2017 **Violation**	Power outage causing unauthorized un-dechlorinated discharge at (EFF 002) **Violation #1043955**	Section III.A. Order Conditions **Corrective Action:** Bisulfite dosing was increased immediately. SFPUC reported that it will install a backup power generator to increase power reliability within 60 days.	SEP0075 SEP0082 SEP0086 SEP0095, 97
10/20/2017 **Violation**	Power outage causing fully treated chlorinated and dechlorinated effluent unauthorized discharge 5 -day report not conducted within 5 days **Violation# 1043956**	Section III.A. Order Conditions **Corrective action:** In 2020, SFPUC plans to install a backup power generator to power the valve (V-20) that will prevent discharge should the Booster Pump Station lose power again in the future.	SEP0079 SEP0082 SEP0086 SEP0095, 98
11/27/2017 **Violation**	Effluent did not meet acute toxicity limitation. Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported value was 50 % survival at EFF-001A. Violation type: acute toxicity **Violation # 1043827**	Section IV.A.4.b **Corrective Action:** **None**	SEP00083-5 SEP0087 SEP0089 SEP0095, 98

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
12/04/2017 **Violation**	Effluent did not meet acute toxicity limitation: 11-sample 90th percentile limit is 70% survival – reported was 50% at EFF-001A **Violation #1043828**	Section IV.A.4.b **Corrective Action: None**	SEP0088 SEP0094 SEP0094-5, 94, 98
01/31/2018 (month)	11-sample 90th percentile for January 2018 was not met due to results from May, November, December 2017.	Section IV.A.4.b	SEP0092-3 SEP0112
02/12/2018 **Violation**	Effluent did not meet acute toxicity limitation: 11 Sample 90th Percentile limit is 70 % survival and reported value was 45 % survival at EFF-001A. **Violation ID#1043959** Acute Toxicity 11-Sample Median limit is 90 % survival and reported value was 85 % survival at EFF-001A. **Violation ID#1043958**	Section IV.A.4.b **Corrective Action: None**	SEP0091 SEP0110-1 SEP0124 SEP0214, 216
03/05/2018	Effluent did not meet acute toxicity limitation. 11 sample median and 90th percentile permit requirements not met in March 2018 due to acute flow through test results from August, November & December 2017 and February and March 2018.	Section IV.A.4.b	SEP0119 SEP0132-3 SEP0214, 216

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
03/13/2018	Unauthorized discharge due to personnel failure at EFF-002	Section III.A.	SEP0120 SEP 0133 SEP0214, 217
04/06/2018	Lack of field effluent sampling due to equipment failure	Section IV.A.1.	SEP0142 SEP0214, 217
04/07/2018	Delayed shoreline sampling due to flooded roads	Section VI.B. MRP Section VI.B.	SEP 0142 SEP0214, 217
04/30/2018 (month)	The 11-sample median and 90th percentile permit requirements for SEP were not met in April 2018 due to the acute flowthrough test results from November and December 2017; and February and March 2018.	Section IV.A.4.b	SEP0142
05/07/2018 **Violation**	Effluent did not meet the 11-sample median and 90th percentile acute toxicity limitations due to the acute flow-through test results from December 2017, and February & March 2018 **Violation ID#1048822** **&** **Violation ID#1048824**	Section IV.A.4.b **Corrective Action: None**	SEP0141 SEP0150 SEP0152 SEP0159 SEP0214, 216

Exhibit 11

All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
06/18/2018	Effluent did not meet acute toxicity limitation	Section IV.A.4.b	SEP0151 SEP0160 SEP0214, 216
07/25/2018	pH data not taken for 5 days during this week as a result of plant shutdown	Section VI.B. MRP Section IV.A.	SEP0168 SEP0214, 216
10/18/2018 **Violation**	Unauthorized chlorinated and dechlorinated discharge due to equipment failure **Violation ID# 1054349**	Section III.A. Order Conditions **Corrective Action:** A temporary bypass is expected to be completed by February 2019. A rehabilitation and replacement project for both of the force mains is expected to be completed in the long-term. The SMR cover letter states that the project completion date	SEP0175 SEP0179 SEP0182 SEP0214, 217
11/5/2018 **Violation**	Effluent did not meet acute toxicity limitation. Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported value was 45 % survival at EFF-001A. **Violation ID#1066833**	Section IV.A.4.b **Corrective Action: None**	SEP0180-1 SEP0190 SEP0192 SEP0214, 216

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
11/22/2018	Lack of field effluent sampling due to staff on vacation	Section IV.B.	SEP0192 SEP0214
11/30/2018	Failure to conduct shoreline sampling after a CSD event due to faulty data collection	Section IV.B.	SEP0192, 194 SEP0214, 217
12/10/2018 **Violation**	Effluent did not meet acute toxicity limitation. 11-sample 90th percentile limit is 70%, reported 55% **Violation ID#1066834**	Section IV.A.4.b **Corrective Action: None**	SEP0191 SEP0202 SEP0204 SEP0214, 216
12/16/2018	During a storm event, Griffith Pump Station (GFS) did not maintain peak flow rate due to staff manually controlling flow rate rather than automation	Section VI.C.5.b.iv.	SEP0204, 206
12/24/2018 – 12/31/2018	Failure to conduct shoreline sampling and posting at E-210.1 due to partial government shutdown	Section VI.B. MRP Section VI.B & Section VI.c.5.b.viii	SEP0203-4, 203, 207 SEP0214, 218

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
12/30/2018 – 01/5/2019	Faulty QA/QC of BOD_5 analysis due to laboratory analyst error	Section VI.B. MRP Section IV.B.1.	SEP0229, 230 SEP0325, 329
01/01/2019 – 01/28/2019	Shoreline monitoring and posting not conducted at E-210.1 due to government shutdown	Section VI.B. MRP Section VI.B & Section VI.c.5.b.viii	SEP0227 SEP0229, 232 SEP0325, 329
01/06/2019	Faulty sampling during a CSD event due to battery failure of the sampler at CSD – 010	Section VI.B. MRP Section IV.B.1.	SEP0229, 231 SEP0325, 329
01/07/2019	Faulty wet-weather monitoring and lack of sampling during wet weather due to operations staff error No sampling at EFF-001B, only fecal coliform at EFF-002, and no sampling at EFF-003	Section VI.B. MRP Section IV.B.1.	SEP0229, 231 SEP0325, 329
01/16/2019	Faulty field sampling during a CSD event due to field staff error No sample results for CSD-025	Section VI.B. MRP Section IV.B.1.	SEP0229, 231 SEP0325, 329

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
01/17/2019	Faulty sampling due to (many) staff errors Single grab samples were taken rather than the required composite samples at CSD-025 and CSD-031A	Section VI.B. MRP Section IV.B.1.	SEP0229, 232 SEP0325, 329
01/31/2019 (Month)	Failure to conduct dry weather acute toxicity test at EFF-001A for the month of January due to wet weather and plant shutdowns	Section VI.B. MRP Section V.A.1.	SEP0229 SEP0325, 329
02/13/2019	A single manual grab sample rather than a composite sample taken after CSD event due to equipment failure Location: CSD - 010	Section VI.B. MRP Section IV.B.1.	SEP0229, 231 SEP0325, 329
02/13/2019	Failure to sample after CSD event due to equipment failure Location: CSD -025	Section VI.B. MRP Section IV.B.1.	SEP0229, 231 SEP0325, 329
02/20/2019	Exceedance of influent cyanide of 47.8ug/L when permit describes a threshold of 21ug/L for a “significant cyanide discharge”.	Section VI.C.6.b.	SEP0229, 230
03/07/2019	Wet weather samples not collected for enterococcus at EFF-001B, EFF-002, and EFF-003, and fecal coliform at EFF-003 due to staff negligence	Section VI.B. MRP Section IV.B.1.	SEP0240, 241

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
04/08/2019 – 04/12/2019 **Violation**	Effluent did not meet acute toxicity limitation Violation type: Acute Toxicity Violation Description: Acute Toxicity 11 Sample 90th Percentile limit is 70% survival and reported value was 55% survival at EFF-001A **Violation #1066835**	Section IV.A.4.b **Corrective Action: None**	SEP0239 SEP0249 SEP0251 SEP0325, 327
05/18/2019	Major storm event causing exceedance of available capacity. Unanticipated bypass.	Section VI.C.5.b.i - iv	SEP0262, 264
05/19/2019	Lack of CSD sampling due to back-to-back CSD events and staff unavailable to reset the sampler	Section VI.B. MRP Section IV.B.1.	SEP0262, 264
05/19/2019	Shoreline monitoring and posting not conducted due to monitoring location error	Section VI.B. MRP Section VI.B & Section VI.c.5.b.viii	SEP0262, 264 SEP0325, 329

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
05/20/2019	Acute toxicity test shows low survival in document, but is not mentioned in neither the annual nor monthly SMRs	Section IV.A.4.	SEP0250
05/29/2019 **Violation**	Exceedance of total residual chlorine in effluent due to human error Violation type: Category 2 Pollutant (Effluent Violation for Group 2 Pollutant) Description: Chlorine, total Residual Instantaneous Maximum limit is 0.0 mg/L and reported value was 0.2 mg/L at EFF-001A **Violation ID#1066839**	Section IV.A.1. **Corrective action: None**	SEP0260 SEP0262 SEP0325, 328
06/07/2019 **Violation**	Effluent did not meet acute toxicity limitation for an 11-sample median value of not less than 90% survival **Violation ID#1066836**	Section IV.A.4.a **Corrective Action: None**	SEP0261 SEP0272-3 SEP0325, 327
06/07/2019 **Violation**	Effluent did not meet acute toxicity limitation for an 11-sample 90th percentile value of not less than 70% survival **Violation ID#1066837**	Section IV.A.4.b **Corrective Action: None**	SEP0261 SEP0272-3 SEP0325, 327

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
06/15/2019 **Violation**	Violation type: Category 1 Pollutant (Effluent Violation for Group 1 Pollutant) Description: Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C) Weekly Average limit is 45 m **Violation ID#1066841**	Section IV.A.1. **Corrective Action: None**	SEP0272-3, 272, 274 SEP0325, 328
06/15/2019 **Violation**	Violation type: Category 1 Pollutant (Effluent Violation for Group 1 Pollutant) Description: Total Suspended Solids (TSS) Weekly Average limit is 45 mg/L and reported value **Violation ID#1066846**	Section IV.A.1. **Corrective Action: None**	SEP0272-3, 272, 274 SEP0325, 328
06/22/2019 **Violation**	Violation type: Category 1 Pollutant (Effluent Violation for Group 1 Pollutant) Description: Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C) Weekly Average limit is 45 m **Violation ID#1066843**	Section IV.A.1. **Corrective Action: None**	SEP0272-3, 272, 274 SEP0325, 328

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
06/22/2019 **Violation**	Violation type: Category 1 Pollutant (Effluent Violation for Group 1 Pollutant) Description: Total Suspended Solids (TSS) Weekly Average limit is 45 mg/L and reported value **Violation ID#1066847**	Section IV.A.1. **Corrective Action: None**	SEP0272-3, 272, 274 SEP0325, 328
06/30/2019 (month) **Violation**	Violation Type: (Effluent Violation for Group 1 Pollutant) Description: Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C) Monthly Average limit is 30 **Violation ID#1066844**	Section IV.A.1. **Corrective Action: None**	SEP0272-3, 272, 274 SEP0325, 328
06/30/2019 (month) **Violation**	Violation Type: (Effluent Violation for Group 1 Pollutant) Description: BOD5 @ 20 Deg. C, Percent Removal Monthly Average limit is 85 % and reported value is les **Violation ID#1066845**	Section IV.A.2. **Corrective Action: None**	SEP0272-3, 272, 274 SEP0325, 328
06/30/2019 (month) **Violation**	Violation Type: (Effluent Violation for Group 1 Pollutant) Description: Total Suspended Solids (TSS) Monthly Average limit is 30 mg/L and reported value **Violation ID#1066848**	Section IV.A.1. **Corrective Action: None**	SEP0272-3, 272, 274 SEP0325, 328

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
06/30/2019 (Month) **Violation**	Exceedance of 10% of the samples in any calendar month in fecal coliform density equal to or greater than 1100 MPN/100mL after secondary treatment and reported number was 15% **Violation ID#1066850**	Section IV.A.3.b. **Corrective Action: None**	SEP0272-3, 272, 274 SEP0325, 328
06/30/2019 **Violation**	Violation Type: Category 1 Pollutant (Effluent Violation for Group 1 Pollutant) Description: Total Suspended Solids (TSS), Percent Removal Monthly Average limit is 85 % and reported value is 80% at EFF-001A **Violation ID#1066849**	Section IV.A.1. **Corrective Action: None**	SEP0272 SEP0273, 274 SEP0325
06/30/2019 – 07/06/2019	Weekly TSS exceedance in the effluent	Section IV.A.1.	SEP0288, 289 SEP0325, 328
07/17/2019	Lack of dry weather compliance sampling and monitoring for the 24-hour EFF-001A composite sample for BOD, COD, and TSS and 24-hour INF-001 composite sample for TSS due to plant shutdown	Section VI.B.MRP Section IV.A.	SEP0288, 289

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
07/31/2019 **Violation in CIWQS**	Category 1 Pollutant (Effluent Violation for Category 1 pollutant) Oil and Grease Monthly Average limit is 10 mg/L and reported value was 12 mg/L a **Violation ID: 1066998**	Section IV.A.1. **Corrective Action: None**	SEP0272 SEP0286 SEP0288, 289 SEP00325, 328
07/31/2019 (month)	Exceedance of monthly TSS concentration after secondary treatment	Section IV.A.1.	SEP0288, 289 SEP0325, 328
09/20/2019 & 09/25/2019	Incomplete composite samples taken due to plant shutdowns	Section VI.B.MRP Section IV.A.	SEP0291
10/03/2019 & 10/09/2019 & 10/23/2019	Incomplete composite samples taken due to plant shutdowns	Section VI.B.MRP Section IV.A.	SEP0299
11/06/2019 & 11/07/2019	Partial composite sampling taken rather than complete due to plant shut downs at EFF-001A and INF-001	Section VI.B.MRP Section IV.B.	SEP0307
11/22/2019 – 11/26/2019	Lack of sampling due to inaccessibility of sampling site due to inability to communicate with construction contractors during thanksgiving holiday	Section VI.B.MRP Section IV.B.	SEP0307, 308

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
11/24/2019 – 11/30/2019	Effluent monitoring interrupted by wet weather at EFF-001A	Section VI.B.MRP Section IV.B.	SEP0307, 308
11/26/2019	Faulty CSD sampling due to equipment failure	Section VI.B. MRP Section IV.B.1.	SEP0307, 308
12/07/2019	Single grab samples taken rather than composites due to equipment failure at CSD – 025 and CSD – 031A	Section VI.C.5.b.ix	SEP0316, 317 SEP0325, 329
12/22/2019	Failure to maintain peak flow rate during a wet weather event at the Mariposa Pump Station	Section VI.C.5.b.i & Section VI.C.5.b.iv	SEP0316
03/02/2020 **Violation**	Effluent did not meet acute toxicity 11 Sample 90th Percentile limit. The limit is 70 % survival and reported value was 60 % survival at EFF-001A. **Violation ID#1076565**	Section IV.A.4.b. **Corrective Action: None**	SEP0339 SEP0341 SEP0343
03/06/2020 **Violation**	Effluent did not meet acute toxicity 11 Sample 90th Percentile. The limit is 70 % survival and reported value was 50 % survival at EFF-001A. **Violation ID#1076566**	Section IV.A.4.b. **Corrective Action: None**	SEP0340-1 SEP0343

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All Instances of Non-Compliance of the NPDES Permit for the SEP

Current Permit # CA0037664

Date of Violation	Description of Violation	Permit Term Violated	Page Number of Exhibit 14
3/17/20	Shoreline monitoring did not occur at E-210.1 Aquatic park-Hyde street pier due to inaccessibly as a result of covid shelter-in-place order	Section VI.B. MRP Section VI.B & Section VI.c.5.b.viii	SEP0342-3, 342, 345
4/30/20 (month)	Shoreline monitoring did not occur at E-210.1 Aquatic park-Hyde street pier due to inaccessibly as a result of covid shelter-in-place order	Section VI.B. MRP Section VI.B & Section VI.c.5.b.viii	SEP0352-3, 352, 355
5/31/30 (month)	Shoreline monitoring did not occur at E-210.1 Aquatic park-Hyde street pier and location 220 (on 5/4/2020) due to inaccessibly as a result of Covid-19 shelter-in-place order	Section VI.B. MRP Section VI.B & Section VI.c.5.b.viii	SEP0361-2, 361, 363
6/10/20 – 6/12/20	Unauthorized discharge due to a leak caused by construction activities	Section III.B.	SEP0371, 372 SEP0379
6/30/20 (month)	Shoreline monitoring did not occur at E-210.1 Aquatic park-Hyde street pier due to inaccessibly as a result of covid shelter-in-place order	Section VI.B. MRP Section VI.B & Section VI.c.5.b.viii	SEP0370-1, 370, 372

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EXHIBIT 12

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
January 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Mon/11	Tue/12
202_Lagoon								
202.4	97	31	122				161	
202.5	31						75	
210.1	20						345	
211	201						345	< 10
220								
300.1	52						40	
301.1	3873	**11199**	4884	5794	602		246	
301.2	63						< 10	
320	109		**> 24196**	**> 24196**	**> 24196**	3076	683	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Mon/11	Tue/12
202_Lagoon								
202.4	52	20	31				98	
202.5	< 10						31	
210.1	< 10						< 10	
211	31						< 10	< 10
220								
300.1	10						< 10	
301.1	399	**650**	259	85	20		41	
301.2	10						< 10	
320	20		**> 24196**	**> 24196**	**3080**	75	75	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Mon/11	Tue/12
202_Lagoon								
202.4	**262**	**146**	98				52	
202.5	< 10						10	
210.1	< 10						10	
211	10						**292**	< 10
220								
300.1	20						< 10	
301.1	**336**	**2282**	**816**	**110**	< 10		63	
301.2	20						10	
320	10		**24196**	**8164**	**292**	31	20	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202_Lagoon, 202.4, 202.5	01/03 0.02
Aquatic Park	210.1, 211	01/04 0.09
Mission Creek	220	01/05 1.18
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	01/06 1.30 01/07 0.05
Islais Creek	320	01/09 0.20

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
January 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/18	Tue/19	Wed/20	Thu/21	Fri/22	Sat/23	Sun/24	Mon/25	30-day Geometric Mean[2]
202_Lagoon		**> 24196**	830						
202.4		5794	146					41	154
202.5		4352	171					31	140
210.1		3076	836					10	178
211		428	259					20	107
220	**> 24196**	**> 24196**	**24196**	7701	**12033**	8664	754		9783
300.1		6488	5794	317				85	358
301.1		5794	4884	605				717	2162
301.2	**17329**	959	644	341				98	301
320	**> 24196**	**> 24196**	**> 24196**	**> 24196**	6867			98	5489

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/18	Tue/19	Wed/20	Thu/21	Fri/22	Sat/23	Sun/24	Mon/25	30-day Geometric Mean[2]
202_Lagoon		**1043**	86						
202.4		266	20					< 10	40
202.5		**426**	< 10					< 10	27
210.1		**749**	110					< 10	38
211		63	52					< 10	22
220	**17329**	**> 24196**	**2613**	**402**	**833**	**441**	110		1509
300.1		**588**	**1670**	20				31	63
301.1		**697**	231	31				10	109
301.2	384	**414**	158	63				10	55
320	**7270**	**> 24196**	**> 24196**	**> 24196**	368			31	1578

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/18	Tue/19	Wed/20	Thu/21	Fri/22	Sat/23	Sun/24	Mon/25	30-day Geometric Mean[2]
202_Lagoon		**2187**	20						
202.4		**399**	10					20	77
202.5		**495**	< 10					< 10	22
210.1		**148**	52					< 10	24
211		**216**	20					< 10	33
220	**1674**	**> 24196**	**563**	85	**384**	**216**	41		488
300.1		**1467**	**670**	41				20	74
301.1		**882**	**256**	10				10	126
301.2	**448**	**959**	**110**	10				30	60
320	**2187**	**> 24196**	**17329**	**487**	97			< 10	481

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202_Lagoon, 202.4, 202.5	01/13	0.18	01/18	0.23
Aquatic Park	210.1, 211	01/14	0.15	01/19	1.20
Mission Creek	220	01/15	0.17	01/22	0.42
Candlestick Point	300.1, 301.1, 301.2	01/16	0.27	01/23	0.01
State Recreation Area		01/17	1.07	01/29	0.40
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION SAMPLED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed b R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
January 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/03	Wed/04	Thu/05	Sun/08	Mon/09	Tue/10	Tue/10	Wed/11	Thu/12	Fri/13	Sat/14
202.4	41				201	161		2098	882	213	
202.5	275				146			1236			
210.1	148				231			1046	583		
211	187				573	794		**11199**	6294		
300.1	697	410			1198	**24196**		1187	650		
301.1	4352	**19863**	882		4611	6131		**> 24196**	**12033**	3873	
301.2	51				2755	4884		1071			
320	201			**> 24196**	**> 24196**	**19863**	**> 24196 ***	**> 24196**	**> 24196**	**11199**	3873

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/03	Wed/04	Thu/05	Sun/08	Mon/09	Tue/10	Tue/10	Wed/11	Thu/12	Fri/13	Sat/14
202.4	10				20	31		**934**	275	74	
202.5	< 10				31			96			
210.1	86				52			346	74		
211	85				75	122		**6867**	350		
300.1	74	41			85	**1483**		145	52		
301.1	292	**1014**	31		146	**269**		**1439**	145	75	
301.2	20				253	98		168			
320	< 10			**> 24196**	**> 24196**	**959**	**8664 ***	**> 24196**	**8164**	331	108

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/03	Wed/04	Thu/05	Sun/08	Mon/09	Tue/10	Tue/10	Wed/11	Thu/12	Fri/13	Sat/14
202.4	< 10				**121**	63		**1565**	**450**	< 10	
202.5	< 10				20			86			
210.1	< 10				30			**243**	41		
211	10				**414**	**428**		**345**	20		
300.1	**350**	75			**464**	**3441**		**107**	10		
301.1	**1119**	**2282**	63		**546**	**573**		**1201**	98	52	
301.2	10				**399**	**278**		41			
320	< 10			**> 24196**	**3873**	**223**	**789 ***	**24196**	**383**	10	52

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	01/01	0.04	01/08	1.32
Aquatic Park	210.1, 211	01/02	0.09	01/09	0.10
Candlestick Point	300.1, 301.1, 301.2	01/03	0.41	01/10	2.25
State Recreation Area		01/04	0.78	01/11	0.08
Islais Creek	320	01/07	0.72	01/12	0.31

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge (CSD)

* STATION sampled on same day due to another CSD

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

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January 2017 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/17	Wed/18	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Tue/24	Wed/25	Mon/30	30-day Geometric Mean[2]
202.4	213			2359	882 ***	2282 ***	201			160	400
202.5	**> 24196**	1191		1872			504			759	1003
210.1	145			548			336			74	283
211	134			1956			504			135	780
300.1	1153	4352	624	3076**	4352	1500	683			1211	1514
301.1	313						**> 24196**	1576		884	4144
301.2	121			327			609			246	507
320	435		**> 24196**	**> 24196**	**> 24196**	**> 24196**	**> 24196**	**> 24196**	6867	521	9491

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/17	Wed/18	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Tue/24	Wed/25	Mon/30	30-day Geometric Mean[2]
202.4	41			97	10 ***	84 ***	20			20	48
202.5	10	41		52			10			122	31
210.1	< 10			86			41			< 10	50
211	< 10			122			20			10	92
300.1	98	**2359**	110	**546 ** **	275	201	98			< 10	147
301.1	20						**1119**	41		< 10	139
301.2	10			31			52			< 10	44
320	20		**19863**	**> 24196**	**11199**	**> 24196**	**> 24196**	**24196**	211	20	2382

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/17	Wed/18	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Tue/24	Wed/25	Mon/30	30-day Geometric Mean[2]
202.4	< 10			**156**	**109 *** **	63 ***	20			< 10	57
202.5	10	41		< 10			< 10			52	21
210.1	< 10			20			< 10			< 10	22
211	20			20			10			< 10	43
300.1	**350**	**1725**	84	**160 ** **	**109**	31	63			30	148
301.1	30						**556**	20		< 10	178
301.2	41			< 10			30			10	39
320	41		**1860**	**9208**	**909**	**6867**	**1529**	**464**	31	10	484

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)	
01/18	0.76
01/19	0.20
01/20	0.93
01/21	0.35
01/22	0.85
01/23	0.55

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
** STATION sampled this day in error
*** STATION de-posted in error

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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January 2018 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/02	Wed/03	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12	Sat/13
202.4	86		5172	3255	327			
202.5	10		**> 24196**	2247	*	160		
210.1	10		754	1046				
211	213		504					
220	41		**> 24196**	**> 24196**	4106			
300.1	20		12997	364				
301.1	5475	624	**> 24196**	**19863**	**> 24196**	**> 24196**	**24196**	3448
301.2	20		30	573	1137			
320	185		**> 24196**	**> 24196**	**> 24196**	**> 24196**	3448	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/02	Wed/03	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12	Sat/13
202.4	63		**432**	359	41			
202.5	< 10		**794**	295	*	10		
210.1	< 10		243	295				
211	< 10		86					
220	< 10		**> 24196**	**> 24196**	288			
300.1	10		**1850**	52				
301.1	332	86	**2851**	**1145**	**3076**	**959**	**548**	63
301.2	10		10	121	226			
320	10		**24196**	**6488**	**8164**	**554**	213	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/02	Wed/03	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12	Sat/13
202.4	10		**504**	**160**	10			
202.5	< 10		**910**	**121**	*	< 10		
210.1	< 10		**131**	20				
211	10		63					
220	10		**> 24196**	**8164**	41			
300.1	20		**3441**	86				
301.1	**350**	41	**1616**	**4352**	**2723**	**882**	**496**	84
301.2	< 10		30	**395**	52			
320	10		**8664**	**697**	**480**	86	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Mission Creek	220
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)	
01/03	0.16
01/04	0.02
01/05	0.28
01/08	3.31
01/09	0.35
01/10	0.05
01/13	0.01

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station sampled the next day due to late turning bacterial value

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/16	Wed/17	Thu/18	Fri/19	Mon/22	Tue/23	Mon/29	Tue/30	30-day Geometric Mean[2]
202.4	3654 **	3448 **	1291 **	< 10	556		86		571
202.5	185				201		41		279
210.1	20				74		86		100
211	109				63		52		131
220	173				**14136**	31	63		910
300.1	52				231		520	51	226
301.1	616				1187		723	744	4216
301.2	52				< 10		644		78
320	259				1178		63		2527

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/16	Wed/17	Thu/18	Fri/19	Mon/22	Tue/23	Mon/29	Tue/30	30-day Geometric Mean[2]
202.4	**2382 ** **	**3448 ** **	**548 ** **	< 10	31		52		176
202.5	< 10				< 10		10		30
210.1	10				41		31		46
211	20				31		< 10		22
220	30				279	10	< 10		186
300.1	10				86		86	< 10	49
301.1	20				131		63	20	237
301.2	< 10				< 10		341		37
320	< 10				75		20		305

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/16	Wed/17	Thu/18	Fri/19	Mon/22	Tue/23	Mon/29	Tue/30	30-day Geometric Mean[2]
202.4	**4106 ** **	**226 ** **	**1354 ** **	20	20		20		98
202.5	< 10				10		20		30
210.1	< 10				10		< 10		17
211	10				< 10		< 10		14
220	10				**266**	41	10		131
300.1	10				63		**132**	10	65
301.1	< 10				< 10		**169**	61	216
301.2	< 10				< 10		86		34
320	10				10		< 10		66

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	01/18 0.18
Aquatic Park	210.1, 211	01/19 0.03
Mission Creek	220	01/21 0.01
Candlestick Point	300.1, 301.1, 301.2	01/22 0.25
State Recreation Area		01/24 0.22
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
** Station sampled 110 yards east of the established site

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/09	Tue/16	Mon/22	Tue/23	Mon/29	30-day Geometric Mean[2]
202.4	20	10		< 10	20		31	17
202.5	10	30		10	< 10		41	17
210.1	41	10		74	41		226	49
211	134	< 10		74	41		279	65
300.1	41	209		160	41		10	56
301.1	84	3255	110	496	20		1789	285
301.2	20	469		< 10	426	< 10	41	50
320	74	98		231	52		52	85

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/09	Tue/16	Mon/22	Tue/23	Mon/29	30-day Geometric Mean[2]
202.4	20	< 10		< 10	10		10	11
202.5	< 10	10		< 10	< 10		10	10
210.1	10	10		< 10	31		41	17
211	20	< 10		41	31		98	30
300.1	20	20		52	10		< 10	18
301.1	10	**2613**	10	241	< 10		98	63
301.2	10	< 10		< 10	**404**	< 10	20	21
320	20	< 10		41	30		10	19

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/09	Tue/16	Mon/22	Tue/23	Mon/29	30-day Geometric Mean[2]
202.4	< 10	< 10		10	< 10		< 10	10
202.5	10	< 10		< 10	< 10		< 10	10
210.1	10	< 10		< 10	< 10		< 10	10
211	20	< 10		31	< 10		52	20
300.1	10	31		20	30		< 10	18
301.1	< 10	**1187**	< 10	20	10		31	30
301.2	< 10	< 10		< 10	41	10	20	14
320	10	10		20	< 10		< 10	11

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	02/02 0.15
Aquatic Park	210.1, 211	02/17 0.53
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	02/18 0.14 02/19 0.16
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Thu/09	Fri/10	Sat/11	Mon/13	Tue/14
202.4	158	2359	295				**> 24196**	3654
202.5	204	187					886	
210.1	389	733	538				624	
211	120	299					677	
300.1	2909	**> 24196**	6488	4106	4884	1106	1354	
301.1	**12997**	**12033**	**19863**	2143			613	
301.2	563	471					158	
320	565	**> 24196**	**> 24196**	8164	**> 24196**	1515	538	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Thu/09	Fri/10	Sat/11	Mon/13	Tue/14
202.4	41	364	86				301	31
202.5	31	85					31	
210.1	63	171	85				10	
211	20	86					20	
300.1	**1119**	**10462**	**1234**	**1198**	323	211	97	
301.1	393	**1250**	**1421**	246			10	
301.2	145	86					31	
320	52	**> 24196**	**19863**	**563**	**9804**	109	52	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Thu/09	Fri/10	Sat/11	Mon/13	Tue/14
202.4	< 10	**504**	20				74	30
202.5	< 10	10					20	
210.1	< 10	**134**	52				41	
211	< 10	31					20	
300.1	**241**	**6488**	**631**	**435**	**211**	41	74	
301.1	**201**	**723**	**749**	63			< 10	
301.2	**161**	62					< 10	
320	31	**> 24196**	**1309**	**109**	**554**	20	10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	02/02	0.16	02/07	0.77
Aquatic Park	210.1, 211	02/03	0.46	02/08	0.27
Candlestick Point	300.1, 301.1, 301.2	02/04	0.23	02/09	0.67
State Recreation Area		02/05	0.07	02/10	0.02
Islais Creek	320	02/06	0.54		

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sat/18	Sun/19	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Sat/25	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4			988	2143	767				228		1153
202.5			1198	1723					537		578
210.1			< 10	4352	561				278		400
211			613	1850	309				295		425
300.1				3255	776				331		2546
301.1				**12033**	2187				504		3905
301.2				504					233		345
320	**> 24196**	**> 24196**	**> 24196**	**> 24196**	**> 24196**	6131	1063	1935	275	683	5094

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Sat/18	Sun/19	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Sat/25	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4			52	211	31				10		70
202.5			98	216					10		51
210.1			< 10	**464**	74				10		49
211			52	295	75				< 10		45
300.1				305	110				< 10		362
301.1				**712**	75				< 10		176
301.2				85					< 10		51
320	**> 24196**	**1187**	**> 24196**	**> 24196**	**> 24196**	**537**	52	110	10	20	908

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Sat/18	Sun/19	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Sat/25	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4			31	**121**	41				< 10		41
202.5			86	52					10		21
210.1			< 10	74	30				< 10		30
211			52	**109**	30				< 10		27
300.1				**171**	20				< 10		158
301.1				**226**	30				10		91
301.2				30					10		31
320	**2603**	75	**9208**	**4106**	**1236**	52	20	10	31	10	185

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)			
02/16	0.29	02/26	0.09
02/17	1.07	02/27	0.02
02/18	0.13		
02/19	0.06		
02/20	1.86		
02/21	0.13		

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED as a precautionary measure due to minor treated effluent leak under Pier 80

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: A Loveland

City and County of San Francisco
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Tue/13	Tue/20	Mon/26	Tue/27	Wed/28	30-day Geometric Mean[2]
202.4	613	< 10	2851	< 10	< 10	233	20		70
202.5	10		41		10	203			
210.1	41		63		52	< 10			
211	52	20	41		98	512	135		81
220	602		63		52	7701			
300.1	85		10		< 10	201	404	216	73
301.1	457		355		1274	**24196**	97		865
301.2	< 10		< 10		1355	97	132		70
320	8664		63		1585	97			

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Tue/13	Tue/20	Mon/26	Tue/27	Wed/28	30-day Geometric Mean[2]
202.4	20	< 10	**2723**	< 10	< 10	148	10		36
202.5	< 10		10		< 10	< 10			
210.1	31		10		< 10	< 10			
211	20	< 10	20		41	**465**	86		43
220	10		20		< 10	41			
300.1	31		< 10		< 10	63	262	52	37
301.1	41		< 10		31	355	20		39
301.2	< 10		< 10		< 10	31	10		13
320	84		20		31	20			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Tue/13	Tue/20	Mon/26	Tue/27	Wed/28	30-day Geometric Mean[2]
202.4	**131**	< 10	75	< 10	< 10	**323**	10		32
202.5	< 10		< 10		< 10	< 10			
210.1	98		10		20	< 10			
211	**195**	< 10	41		10	**233**	41		44
220	< 10		< 10		30	31			
300.1	10		< 10		< 10	**241**	**110**	**206**	42
301.1	31		< 10		< 10	**216**	< 10		23
301.2	< 10		10		< 10	**359**	10		20
320	< 10		10		< 10	< 10			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	02/26 0.27
Aquatic Park	210.1, 211	02/28 0.16
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sun/06	Mon/07	Tue/08	Wed/09	Thu/10	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Wed/16	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
202.4		602	72						173			10		20	68
202.5		1178	86						169			52		63	141
210.1		512							231			41		20	
211		450							288			61		216	
220		**19863**	1450			**> 24196**	5794	**> 24196**	6867	488					6136
300.1		1722	97						455			1112	52	332	337
301.1		1664							**15531**	309		**12033**	1396	908	2226
301.2		563							341			10		< 10	
320	**> 24196**	**> 24196**	**> 24196**	6131	2909	**> 24196**	> 24196	**> 24196**	**> 24196**	**10462**	712	399		426	7067

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Sun/06	Mon/07	Tue/08	Wed/09	Thu/10	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Wed/16	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
202.4		379	10						31			10		< 10	26
202.5		131	< 10						10			< 10		10	17
210.1		52							20			< 10		< 10	
211		41							63			30		122	
220		**743**	41			**17329**	109	**3873**	384	63					474
300.1		**473**	31						31			384	< 10	63	69
301.1		41							**443**	31		41	10	20	41
301.2		63							31			< 10		< 10	
320	**> 24196**	**7270**	**4106**	**3282**	**798**	**> 24196**	**> 24196**	**> 24196**	**> 24196**	336	51	31		20	1974

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Sun/06	Mon/07	Tue/08	Wed/09	Thu/10	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Wed/16	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
202.4		**435**	< 10						10			< 10		< 10	21
202.5		**158**	< 10						10			< 10		< 10	17
210.1		41							10			10		< 10	
211		41							41			10		31	
220		**120**	< 10			**3448**	41	**1145**	**122**	10					113
300.1		**448**	< 10						52			**173**	< 10	20	45
301.1		52							**389**	< 10		**754**	41	52	83
301.2		63							10			41		10	
320	**12033**	**393**	75	20	20	**17329**	**2187**	**> 24196**	**3873**	31	10	10		< 10	251

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Mission Creek	220
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)			
03/03	0.08	03/11	0.53
03/04	0.38	03/12	1.14
03/05	1.29	03/13	0.59
03/06	0.45	03/20	0.10
03/07	0.53	03/21	0.41
03/09	0.15	03/22	0.08
03/10	1.10		

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
NOTIFICATION sent due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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March 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Wed/01	Thu/02	Fri/03	Sun/05	Mon/06	Tue/07	Wed/08	Mon/13	Fri/17	Sat/18
202.4					195			41		
202.5					4611			134		
210.1					435			41		
211					364			52		
300.1					1539			573		
301.1					789			132		
301.2					712			85		
320	504	512	617	**> 24196**	**> 24196**	4884	1860	457	201	309

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Wed/01	Thu/02	Fri/03	Sun/05	Mon/06	Tue/07	Wed/08	Mon/13	Fri/17	Sat/18
202.4					41			< 10		
202.5					20			< 10		
210.1					52			< 10		
211					31			10		
300.1					169			20		
301.1					52			20		
301.2					145			< 10		
320	31	10	31	**> 24196**	**10462**	426	110	85	10	41

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Wed/01	Thu/02	Fri/03	Sun/05	Mon/06	Tue/07	Wed/08	Mon/13	Fri/17	Sat/18
202.4					31			< 10		
202.5					20			< 10		
210.1					31			10		
211					20			10		
300.1					97			< 10		
301.1					20			10		
301.2					10			< 10		
320	< 10	< 10	< 10	**> 24196**	**1616**	31	10	10	< 10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	03/04 0.68
Aquatic Park	210.1, 211	03/05 0.46
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	03/06 0.11
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED as a precautionary measure due to minor treated effluent leak at pier 80

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
March 2017 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4	20	**> 24196**	1860			96		297
202.5	20	3654				173		379
210.1	52	295				41		102
211	197	441				108		178
300.1	4352	4352	2247			1539	341	1966
301.1	908	7701	275			2382		884
301.2	1236	52				74		196
320	1223	**> 24196**	**> 24196**	9804	3873	960		2303

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4	< 10	269	144			< 10		34
202.5	< 10	52				< 10		16
210.1	< 10	75				< 10		21
211	95	52				30		34
300.1	**620**	**1076**	52			85	20	147
301.1	171	**504**	10			31		55
301.2	231	< 10				10		32
320	75	**> 24196**	**> 24196**	**481**	160	41		264

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4	< 10	**480**	20			41		33
202.5	< 10	41				< 10		15
210.1	< 10	41				< 10		17
211	10	20				20		15
300.1	**259**	**299**	52			**132**	< 10	90
301.1	86	**341**	10			10		29
301.2	**613**	< 10				73		34
320	10	**12033**	**2489**	10	20	< 10		55

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)	
03/20	0.68
03/21	0.72
03/22	0.09
03/23	0.19
03/24	0.58
03/26	0.02

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED due to sampling error

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Thu/01	Fri/02	Mon/05	Mon/12	Tue/13	Wed/14	Mon/19	Mon/26	Tue/27	30-day Geometric Mean[2]
202.4			41	41			10	< 10		
202.5			31	10			20	< 10		
210.1			31	97			52	52		
211			41	145			135	691	98	140
220			110	41			31	20		
300.1	1935	428	85	62			213	487	75	230
301.1			833	1616			441	521		
301.2			31	52			< 10	< 10	85	27
320			318	41	3654	1137	1236	1187		656

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Thu/01	Fri/02	Mon/05	Mon/12	Tue/13	Wed/14	Mon/19	Mon/26	Tue/27	30-day Geometric Mean[2]
202.4			20	31			< 10	< 10		
202.5			< 10	< 10			< 10	< 10		
210.1			20	< 10			20	31		
211			10	41			41	**657**	10	41
220			31	< 10			< 10	10		
300.1	**414**	31	20	< 10			41	**441**	31	55
301.1			< 10	52			31	20		
301.2			< 10	31			< 10	< 10	< 10	13
320			10	10	52	20	171	31		29

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Thu/01	Fri/02	Mon/05	Mon/12	Tue/13	Wed/14	Mon/19	Mon/26	Tue/27	30-day Geometric Mean[2]
202.4			20	< 10			< 10	10		
202.5			< 10	< 10			< 10	< 10		
210.1			< 10	< 10			< 10	< 10		
211			< 10	< 10			10	< 10	< 10	10
220			< 10	< 10			< 10	10		
300.1	**1664**	41	31	< 10			41	10	< 10	37
301.1			74	31			52	< 10		
301.2			10	< 10			< 10	**187**	< 10	18
320			< 10	< 10	**213**	10	73	20		26

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Mission Creek	220
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)

03/01	1.08	03/15	0.17
03/02	0.16	03/16	0.33
03/03	0.08	03/17	0.01
03/04	0.01	03/20	0.68
03/07	0.01	03/21	0.32
03/08	0.08	03/22	0.35
03/12	0.21	03/24	0.06
03/13	0.42	03/25	0.06
03/14	0.20		

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED due to an unauthorized discharge; 5-day report submitted to Regional Board

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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April 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/05	Mon/11	Tue/12	Mon/18	Mon/25	30-day Geometric Mean[2]
202.4	20		52		< 10	10	
202.5	< 10		41		10	10	
210.1	160		41		108	10	
211	684		63		41	31	
300.1	187		3255	1789	96	428	537
301.1	3873	171	8664	3282	298	145	966
301.2	< 10		63		20	< 10	
320	197		9804		20	573	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/04	Tue/05	Mon/11	Tue/12	Mon/18	Mon/25	30-day Geometric Mean[2]
202.4	< 10		10		< 10	< 10	
202.5	< 10		< 10		< 10	< 10	
210.1	10		< 10		30	< 10	
211	336		20		30	20	
300.1	10		379	20	< 10	20	27
301.1	**2909**	30	134	10	31	10	58
301.2	< 10		41		< 10	< 10	
320	41		31		< 10	20	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Tue/05	Mon/11	Tue/12	Mon/18	Mon/25	30-day Geometric Mean[2]
202.4	< 10		20		< 10	< 10	
202.5	< 10		< 10		< 10	< 10	
210.1	10		< 10		< 10	< 10	
211	30		< 10		< 10	< 10	
300.1	< 10		**223**	< 10	< 10	< 10	19
301.1	**1607**	< 10	**226**	< 10	10	10	39
301.2	< 10		< 10		< 10	< 10	
320	< 10		63		< 10	10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	04/08 0.17
Aquatic Park	210.1, 211	04/09 0.45
Candlestick Point	300.1, 301.1, 301.2	04/10 0.05
State Recreation Area		04/14 0.14
Islais Creek	320	04/22 0.52
		04/27 0.13

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Wed/05	Thu/06	Fri/07	Sat/08	Sun/09	Mon/10	Tue/11	Wed/12	Thu/13	Fri/14	Sat/15	Sun/16	Mon/17
202.4	75			181			98							520
202.5	< 10			85			161							313
210.1	148			211			145							197
211	85			1720	262		359							262
300.1	135						**< 24196**	3255	**11199**	3873	341	706		85
301.1	2595						1274							1918
301.2	279						4352	213						218
320	313	435	160	**> 24196**	**> 24196**	2098	4106	1145	1048	393	2046	20	565	605

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/03	Wed/05	Thu/06	Fri/07	Sat/08	Sun/09	Mon/10	Tue/11	Wed/12	Thu/13	Fri/14	Sat/15	Sun/16	Mon/17
202.4	< 10			20			10							62
202.5	< 10			< 10			20							< 10
210.1	20			52			< 10							20
211	52			175	20		146							41
300.1	10						**4611**	109	**857**	185	30	10		20
301.1	41						31							109
301.2	41						**987**	51						< 10
320	41	109	20	**> 24196**	**6131**	135	146	199	104	20	231	< 10	52	52

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/03	Wed/05	Thu/06	Fri/07	Sat/08	Sun/09	Mon/10	Tue/11	Wed/12	Thu/13	Fri/14	Sat/15	Sun/16	Mon/17
202.4	< 10			41			< 10							< 10
202.5	< 10			< 10			< 10							< 10
210.1	10			10			10							10
211	< 10			**323**	10		< 10							10
300.1	10						**8164**	**246**	**1259**	**187**	**201**	< 10		< 10
301.1	41						20							10
301.2	< 10						**759**	41						31
320	< 10	< 10	< 10	**19863**	**142**	< 10	20	20	< 20	10	10	< 10	20	63

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)	
Crissy Field	202.4, 202.5	04/06 0.92	04/12 0.15
Aquatic Park	210.1, 211	04/07 0.18	04/13 0.04
Candlestick Point	300.1, 301.1, 301.2	04/08 0.12	04/16 0.20
State Recreation Area		04/11 0.16	04/17 0.27
Islais Creek	320		

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED as a precautionary measure due to minor treated effluent leak at Pier 80

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/18	Wed/19	Thu/20	Fri/21	Sat/22	Sun/23	Mon/24	Tue/25	Wed/26	Thu/27	Fri/28	Sat/29	Sun/30	30-day Geometric Mean[2]
202.4							52							129
202.5							31							67
210.1							85							150
211							41							230
300.1							384							1154
301.1							121							
301.2							< 10							224
320	272	213	327	175	272	85	122	146	122	52	1153	448	455	471

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/18	Wed/19	Thu/20	Fri/21	Sat/22	Sun/23	Mon/24	Tue/25	Wed/26	Thu/27	Fri/28	Sat/29	Sun/30	30-day Geometric Mean[2]
202.4							< 10							17
202.5							< 10							11
210.1							10							18
211							< 10							47
300.1							52							86
301.1							< 10							
301.2							< 10							46
320	31	31	31	41	10	10	20	< 10	20	< 10	85	< 10	52	56

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/18	Wed/19	Thu/20	Fri/21	Sat/22	Sun/23	Mon/24	Tue/25	Wed/26	Thu/27	Fri/28	Sat/29	Sun/30	30-day Geometric Mean[2]
202.4							< 10							13
202.5							< 10							10
210.1							< 10							10
211							10							18
300.1							< 10							99
301.1							30							
301.2							< 10							40
320	10	< 10	< 10	< 10	< 10	< 10	20	< 10	10	< 10	< 10	10	< 10	18

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	04/18 0.03
Aquatic Park	210.1, 211	04/19 0.14
Candlestick Point	300.1, 301.1, 301.2	04/20 0.01
State Recreation Area		04/26 0.03
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED as a precautionary measure due to minor treated effluent leak at Pier 80

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Fri/06	Sat/07	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12
202.4	< 10		**11199**	121	97			
202.5	31		3654	309	243			
210.1	72		3076		158			
211	41		4611		148			
220	86	**> 24196**	**> 24196**	3448	2613			
300.1	63		3255	1793	31			
301.1	1872		**> 24196**	**> 24196**	**> 24196**	**15531**	**> 24196**	**> 24196**
301.2	< 10		*	97	63			
320	109		**> 24196**	**> 24196**	1850			

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/02	Fri/06	Sat/07	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12
202.4	< 10		**663**	10	10			
202.5	< 10		**712**	10	< 10			
210.1	< 10		389		10			
211	41		309		41			
220	20	**> 24196**	**> 24196**	118	169			
300.1	< 10		148	41	< 10			
301.1	10		**1086**	**763**	**683**	41	187	41
301.2	< 10		*	10	< 10			
320	20		**15531**	**3873**	110			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Fri/06	Sat/07	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12
202.4	< 10		**211**	10	< 10			
202.5	< 10		63	< 10	< 10			
210.1	10		< 10		10			
211	20		20		10			
220	< 10	**> 24196**	**2142**	10	10			
300.1	10		**285**	10	10			
301.1	< 10		**4106**	**537**	**1624**	31	**17329**	82
301.2	10		*	< 10	< 10			
320	< 10		**1515**	63	10			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Mission Creek	220
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)	
04/05	0.12
04/06	2.02
04/07	1.02
04/11	0.12

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station sampled the next day due to flooded roads

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Fri/13	Sat/14	Sun/15	Mon/16	Tue/17	Mon/23	Tue/24	30-day Geometric Mean[2]
202.4				905		20		170
202.5				5794	< 10	31		205
210.1				< 10		132		136
211				20		98		141
220				776		175		1802
300.1				1050		495		425
301.1	**24196**	**14136**	**> 24196**	**24196**	1515	1607	185	8967
301.2				20		20		30
320				4106	< 10	98		899

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Fri/13	Sat/14	Sun/15	Mon/16	Tue/17	Mon/23	Tue/24	30-day Geometric Mean[2]
202.4				52		10		26
202.5				282	< 10	10		30
210.1				< 10		10		21
211				10		20		40
220				121		20		344
300.1				30		218		40
301.1	74	10	10	41	10	161	< 10	60
301.2				< 10		< 10		10
320				**816**	< 10	10		195

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Fri/13	Sat/14	Sun/15	Mon/16	Tue/17	Mon/23	Tue/24	30-day Geometric Mean[2]
202.4				98		< 10		24
202.5				**171**	< 10	< 10		20
210.1				< 10		< 10		10
211				31		< 10		17
220				63		< 10		85
300.1				< 10		41		22
301.1	< 10	< 10	**108**	**175**	10	**161**	31	121
301.2				10		< 10		10
320				10	< 10	< 10		27

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	04/15 0.07
Aquatic Park	210.1, 211	04/16 0.27
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station sampled the next day due to flooded roads

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
May 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Mon/09	Mon/10	Mon/16	Mon/23	Tue/31	30-day Geometric Mean[2]
202.4	< 10	120	30	< 10	110	10	27
202.5	51	161		< 10	31	20	35
210.1	75	< 10		75	< 10	20	26
211	282	< 10		10	833	86	73
300.1	10	218		31	631	262	102
301.1	1918	171		3076	135	2359	797
301.2	10	10		10	< 10	209	18
320	74	63		74	203	41	78

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/02	Mon/09	Mon/10	Mon/16	Mon/23	Tue/31	30-day Geometric Mean[2]
202.4	< 10	41	10	< 10	86	10	18
202.5	< 10	63		< 10	10	10	14
210.1	10	< 10		< 10	< 10	10	10
211	20	< 10		< 10	228	< 10	21
300.1	< 10	63		< 10	135	63	35
301.1	183	41		< 10	10	41	31
301.2	10	< 10		< 10	< 10	209	18
320	10	20		41	52	10	21

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Mon/09	Mon/10	Mon/16	Mon/23	Tue/31	30-day Geometric Mean[2]
202.4	10	**1198**	63	10	20	20	38
202.5	< 10	20		< 10	10	< 10	11
210.1	< 10	< 10		< 10	< 10	< 10	10
211	31	< 10		< 10	< 10	< 10	13
300.1	< 10	41		< 10	< 10	< 10	13
301.1	< 10	10		10	< 10	41	13
301.2	10	10		< 10	< 10	20	11
320	10	< 10		20	< 10	< 10	11

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	05/06 0.08
Aquatic Park	210.1, 211	05/07 0.07
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: RDuggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
May 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Mon/08	Mon/15	Mon/22	Tue/23	Tue/30	30-day Geometric Mean[2]
202.4	10	10	20	187		31	26
202.5	52	< 10	31	52		52	34
210.1	41	52	< 10	233		10	35
211	161	10	10	41		41	31
300.1	369	175	169	554		201	261
301.1	31	1198	1793	**> 24196**	399	3255	1131
301.2	63	110	63	41		10	45
320	97	233	504	52		435	192

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/01	Mon/08	Mon/15	Mon/22	Tue/23	Tue/30	30-day Geometric Mean[2]
202.4	< 10	< 10	10	10		10	10
202.5	< 10	< 10	< 10	10		< 10	10
210.1	10	< 10	< 10	52		10	14
211	20	< 10	< 10	20		10	13
300.1	52	110	52	< 10		20	36
301.1	10	20	10	10	63	52	20
301.2	< 10	< 10	10	10		10	10
320	20	< 10	52	< 10		30	20

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Mon/08	Mon/15	Mon/22	Tue/23	Tue/30	30-day Geometric Mean[2]
202.4	< 10	< 10	10	10		10	10
202.5	< 10	< 10	< 10	< 10		< 10	10
210.1	< 10	< 10	< 10	10		< 10	10
211	10	< 10	< 10	< 10		< 10	10
300.1	10	< 10	< 10	20		31	14
301.1	< 10	10	< 10	10	10	< 10	10
301.2	< 10	< 10	< 10	< 10		20	11
320	< 10	10	10	< 10		20	11

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R. Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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June 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Sat/25	Sun/26	Mon/27	Tue/28	Wed/29	Thu/30	30-day Geometric Mean[2]
202.4	< 10	< 10	86							< 10				
202.5	< 10	1956	20							20				
210.1	< 10	85	10							110				
211	171	31	4611							63				
300.1	288	52	63							52				
301.1	131	298	187							2755				
301.2	< 10	121	< 10							187				
320	10	368	135	31	20	98	121	262	171	197	30	96	62	80

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Sat/25	Sun/26	Mon/27	Tue/28	Wed/29	Thu/30	30-day Geometric Mean[2]
202.4	< 10	< 10	41							< 10				
202.5	< 10	10	< 10							< 10				
210.1	< 10	41	< 10							< 10				
211	84	10	31							< 10				
300.1	108	10	20							10				
301.1	20	63	10							31				
301.2	< 10	< 10	< 10							20				
320	10	52	10	10	10	< 10	10	10	< 10	10	< 10	20	20	13

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Sat/25	Sun/26	Mon/27	Tue/28	Wed/29	Thu/30	30-day Geometric Mean[2]
202.4	< 10	41	20							< 10				
202.5	< 10	< 10	10							10				
210.1	< 10	10	< 10							< 10				
211	< 10	< 10	< 10							< 10				
300.1	10	< 10	< 10							20				
301.1	20	10	10							52				
301.2	10	< 10	< 10							< 10				
320	< 10	< 10	10	< 10	< 10	< 10	< 10	< 10	10	< 10	< 10	< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED as a precautionary measure due to minor treated effluent leak under Pier 80

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
June 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
202.4	20		31	41	1198	
202.5	20		31	41	41	
210.1	41		41	63	97	
211	20		31	63	110	
300.1	146		620	10	10	
301.1	733		98	185	41	
301.2	1314	< 10	< 10	41	10	35
320	10		359	20	10	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
202.4	10		< 10	< 10	86	
202.5	< 10		< 10	< 10	< 10	
210.1	< 10		< 10	41	75	
211	10		< 10	20	63	
300.1	< 10		10	< 10	< 10	
301.1	171		< 10	41	10	
301.2	**1314**	< 10	< 10	10	< 10	27
320	< 10		63	< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
202.4	< 10		< 10	< 10	< 10	
202.5	< 10		< 10	< 10	10	
210.1	10		< 10	10	10	
211	< 10		< 10	20	20	
300.1	< 10		20	< 10	< 10	
301.1	< 10		< 10	10	< 10	
301.2	< 10	< 10	< 10	< 10	< 10	10
320	< 10		< 10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)
06/08 0.1

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
July 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Fri/01	Sat/02	Sun/03	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Sun/10	Mon/11
202.4					52						20
202.5					< 10						< 10
210.1					< 10						201
211					< 10						86
300.1					173						134
301.1					52						84
301.2					86						41
320	10	< 10	31	30	52	20	134	63	75	52	857

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Fri/01	Sat/02	Sun/03	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Sun/10	Mon/11
202.4					20						< 10
202.5					< 10						< 10
210.1					< 10						< 10
211					< 10						< 10
300.1					122						31
301.1					< 10						10
301.2					31						10
320	< 10	< 10	< 10	< 10	10	10	20	< 10	< 10	10	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Fri/01	Sat/02	Sun/03	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Sun/10	Mon/11
202.4					41						< 10
202.5					< 10						< 10
210.1					< 10						< 10
211					< 10						< 10
300.1					< 10						30
301.1					< 10						< 10
301.2					10						< 10
320	< 10	< 10	< 10	< 10	< 10	< 10	< 10	10	< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	07/08 0.02
Aquatic Park	210.1, 211	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED as a precautionary measure due to minor treated effluent leak under Pier 80

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
July 2016 (Cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/12	Wed/13	Thu/14	Fri/15	Sat/16	Sun/17	Mon/18	Tue/19	Mon/25	30-day Geometric Mean[2]
202.4							31		10	
202.5							20		< 10	
210.1							< 10		20	
211							20		75	
300.1							120		75	
301.1							52		336	
301.2							10		161	
320	110	41	374	75	31	20	10	199	364	52

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/12	Wed/13	Thu/14	Fri/15	Sat/16	Sun/17	Mon/18	Tue/19	Mon/25	30-day Geometric Mean[2]
202.4							< 10		10	
202.5							< 10		< 10	
210.1							< 10		10	
211							10		< 10	
300.1							30		31	
301.1							< 10		10	
301.2							10		52	
320	41	31	< 10	31	10	< 10	< 10	< 10	41	13

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/12	Wed/13	Thu/14	Fri/15	Sat/16	Sun/17	Mon/18	Tue/19	Mon/25	30-day Geometric Mean[2]
202.4							< 10		< 10	
202.5							< 10		< 10	
210.1							< 10		< 10	
211							< 10		< 10	
300.1							< 10		52	
301.1							10		< 10	
301.2							< 10		20	
320	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED as a precautionary measure due to minor treated effluent leak under Pier 80

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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July 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Wed/05	Mon/10	Mon/17	Mon/24	Mon/31	30-day Geometric Mean[2]
202.4	30	41	63	173	20	48
202.5	86	41	10	119	122	55
210.1	< 10	10	86	20	109	28
211	41	31	41	233	121	68
300.1	160	292	146	85	98	142
301.1	10	10	31	110	110	33
301.2	749	10	20	41	41	48
320	121	528	132	74	145	155

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Wed/05	Mon/10	Mon/17	Mon/24	Mon/31	30-day Geometric Mean[2]
202.4	10	< 10	10	31	< 10	13
202.5	20	< 10	< 10	< 10	63	17
210.1	< 10	< 10	10	10	41	13
211	10	< 10	< 10	189	85	28
300.1	98	199	41	31	31	60
301.1	< 10	< 10	10	31	63	18
301.2	175	10	< 10	10	10	18
320	31	20	10	< 10	10	14

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Wed/05	Mon/10	Mon/17	Mon/24	Mon/31	30-day Geometric Mean[2]
202.4	< 10	< 10	10	20	< 10	11
202.5	31	< 10	< 10	< 10	< 10	13
210.1	< 10	< 10	< 10	10	30	12
211	20	< 10	< 10	10	< 10	11
300.1	< 10	52	< 10	10	10	14
301.1	< 10	< 10	< 10	< 10	10	10
301.2	20	< 10	10	10	< 10	11
320	< 10	< 10	< 10	< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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August 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Tue/02	Mon/08	Mon/15	Tue/16	Mon/22	Mon/29	30-day Geometric Mean[2]
202.4	< 10		20	160		74	84	46
202.5	< 10		2489	204		52	10	77
210.1	10		10	< 10		30	20	14
211	259		663	663	73	20	161	173
300.1	959	132	171	836		213	663	370
301.1	2755		1198	1203		336	158	732
301.2	243		221	41		121	30	96
320	75		631	20		243	488	162

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/01	Tue/02	Mon/08	Mon/15	Tue/16	Mon/22	Mon/29	30-day Geometric Mean[2]
202.4	< 10		< 10	30		10	41	17
202.5	< 10		< 10	< 10		41	< 10	13
210.1	< 10		10	< 10		10	10	10
211	110		20	**548**	< 10	< 10	122	49
300.1	**538**	20	30	262		31	285	95
301.1	52		41	63		10	20	31
301.2	109		144	20		121	20	60
320	< 10		10	< 10		31	119	21

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Tue/02	Mon/08	Mon/15	Tue/16	Mon/22	Mon/29	30-day Geometric Mean[2]
202.4	< 10		< 10	52		10	41	18
202.5	< 10		< 10	< 10		< 10	10	10
210.1	< 10		< 10	< 10		< 10	< 10	10
211	10		10	**471**	10	< 10	20	21
300.1	**680**	10	10	74		< 10	< 10	28
301.1	< 10		10	31		10	20	14
301.2	20		10	< 10		30	10	14
320	< 10		10	< 10		< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	08/05 0.02
Aquatic Park	210.1, 211	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
August 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/07	Mon/14	Mon/21	Mon/28	30-day Geometric Mean[2]
202.4	41	146	10	63	
202.5	20	41	282	10	
210.1	331	520	767	120	
211	20	256	809	275	
300.1	52	31	733	41	
301.1	199	98	86	30	
301.2	31	10	31	20	
320	75	437	20	134	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/07	Mon/14	Mon/21	Mon/28	30-day Geometric Mean[2]
202.4	20	85	< 10	10	
202.5	20	10	122	< 10	
210.1	122	63	122	41	
211	< 10	75	345	75	
300.1	< 10	20	374	< 10	
301.1	41	75	31	10	
301.2	31	10	10	10	
320	< 10	108	10	10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/07	Mon/14	Mon/21	Mon/28	30-day Geometric Mean[2]
202.4	10	10	20	< 10	
202.5	< 10	10	< 10	< 10	
210.1	10	< 10	31	< 10	
211	< 10	52	20	10	
300.1	20	10	85	< 10	
301.1	31	10	86	< 10	
301.2	< 10	20	20	10	
320	< 10	< 10	10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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September 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/06	Mon/12	Mon/19	Tue/20	Wed/21	Thu/22	Mon/26	Tue/27	30-day Geometric Mean[2]
202.4	20	< 10	< 10				31		
202.5	< 10	20	< 10				20		
210.1	20	< 10	20				10		
211	10	52	160				10		
300.1	432	259	4611				336		
301.1	3448	121	**10462**	**14136**	**19863**	1095	**> 24196**	2987	4201
301.2	< 10	63	109	10			146		40
320	683	156	31				20		

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/06	Mon/12	Mon/19	Tue/20	Wed/21	Thu/22	Mon/26	Tue/27	30-day Geometric Mean[2]
202.4	10	< 10	< 10				< 10		
202.5	< 10	10	< 10				20		
210.1	10	< 10	10				< 10		
211	< 10	< 10	52				< 10		
300.1	52	85	30				86		
301.1	86	52	52	< 10	295	10	< 10	20	33
301.2	< 10	41	75	10			10		20
320	20	20	10				10		

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/06	Mon/12	Mon/19	Tue/20	Wed/21	Thu/22	Mon/26	Tue/27	30-day Geometric Mean[2]
202.4	< 10	< 10	< 10				30		
202.5	< 10	< 10	< 10				< 10		
210.1	< 10	< 10	< 10				< 10		
211	< 10	< 10	30				< 10		
300.1	< 10	10	10				31		
301.1	75	< 10	10	10	30	< 10	< 10	< 10	15
301.2	10	< 10	**109**	< 10			< 10		16
320	< 10	< 10	< 10				10		

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R. Duggan

City and County of San Francisco
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September 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/05	Mon/11	Thu/14	Mon/18	Mon/25	30-day Geometric Mean[2]
202.4	135	110		86	< 10	
202.5	156	52		52	41	
210.1	108	85		31	199	
211	183	135		122	269	
300.1	63	496		228	294	
301.1	97	199		183	20	
301.2	122	63		75	10	
320	160	211	*	31	41	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/05	Mon/11	Thu/14	Mon/18	Mon/25	30-day Geometric Mean[2]
202.4	86	31		75	< 10	
202.5	63	< 10		< 10	< 10	
210.1	63	10		10	20	
211	74	41		63	63	
300.1	20	132		108	195	
301.1	20	74		110	10	
301.2	86	< 10		31	< 10	
320	20	20	*	< 10	10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/05	Mon/11	Thu/14	Mon/18	Mon/25	30-day Geometric Mean[2]
202.4	< 10	< 10		< 10	< 10	
202.5	41	< 10		10	< 10	
210.1	< 10	< 10		< 10	< 10	
211	20	< 10		20	< 10	
300.1	< 10	41		75	31	
301.1	< 10	< 10		10	< 10	
301.2	20	10		< 10	20	
320	< 10	< 10	*	10	10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)	
09/11	0.13

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* STATION POSTED due to unauthorized treated wastewater discharge from Tulare Park

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
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October 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Tue/11	Sun/16	Mon/17	Tue/18	Wed/19	Thu/20	Mon/24	Tue/25	Wed/26	Fri/28	Sat/29	Sun/30	Mon/31	30-day Geometric Mean[2]
202.4	< 10	< 10		5475	216			< 10						98	70
202.5	10	41		4106				< 10						109	71
210.1	20	< 10		4106				10						31	48
211	10	< 10		3873	488			20						74	81
300.1	74	30		**12997**	2755			512						359	494
301.1	171	2924		7701	987			789	2723	465				384	1048
301.2	20	20		3873				118						480	154
320	63	345	**> 24196**	**> 24196**	**> 24196**	**17329**	1314	432			**> 24196**	**> 24196**	**> 24196**	4884	4937

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/03	Tue/11	Sun/16	Mon/17	Tue/18	Wed/19	Thu/20	Mon/24	Tue/25	Wed/26	Fri/28	Sat/29	Sun/30	Mon/31	30-day Geometric Mean[2]
202.4	< 10	< 10		**464**	10			< 10						41	24
202.5	< 10	< 10		243				< 10						10	19
210.1	< 10	< 10		323				< 10						< 10	20
211	< 10	< 10		246	73			20						10	27
300.1	10	10		**839**	173			197						119	84
301.1	146	98		**627**	86			359	**1467**	63				63	189
301.2	< 10	10		203				51						187	45
320	30	30	**> 24196**	**> 24196**	**> 24196**	**1071**	109	20			**> 24196**	**19863**	**2909**	**435**	1273

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/03	Tue/11	Sun/16	Mon/17	Tue/18	Wed/19	Thu/20	Mon/24	Tue/25	Wed/26	Fri/28	Sat/29	Sun/30	Mon/31	30-day Geometric Mean[2]
202.4	< 10	10		41	< 10			10						31	15
202.5	< 10	10		20				10						10	11
210.1	< 10	10		31				10						< 10	13
211	< 10	10		**160**	10			< 10						< 10	16
300.1	< 10	10		75	31			52						98	33
301.1	20	98		62	31			**243**	**279**	10				63	60
301.2	< 10	< 10		10				84						20	18
320	< 10	< 10	**> 24196**	**8664**	< 10	**148**	< 10	< 10			**> 24196**	**1198**	41	52	155

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	10/02	0.01	10/25	0.04
Aquatic Park	210.1, 211	10/03	0.01	10/27	0.51
Candlestick Point	300.1, 301.1, 301.2	10/14	0.35	10/28	0.28
State Recreation Area		10/15	0.24	10/29	0.01
Islais Creek	320	10/16	0.57	10/30	0.37
		10/24	0.03	10/31	0.01

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: Rduggan

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Tue/03	Tue/10	Mon/16	Tue/17	Fri/20	Sat/21	Mon/23	Mon/30	Tue/31	30-day Geometric Mean[2]
202.4	< 10		10	30				10	110		20
202.5	20		10	20				20	41		20
210.1	63		275	10				135	110		76
211	185		471	31				683	109		182
220								63	109		
300.1	20		10	62				134	1274		73
301.1	20		20	**15531**	620			52	**19863**	1515	482
301.2	4352	10	20	10				< 10	448		58
320	97		571	228		**17329**	717	1178	74		542

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/02	Tue/03	Tue/10	Mon/16	Tue/17	Fri/20	Sat/21	Mon/23	Mon/30	Tue/31	30-day Geometric Mean[2]
202.4	< 10		< 10	< 10				10	52		14
202.5	10		< 10	< 10				< 10	31		13
210.1	20		< 10	< 10				< 10	31		14
211	120		262	20				85	52		77
220								< 10	10		
300.1	20		10	10				85	246		33
301.1	10		< 10	**15531**	295			20	**12033**	**1223**	280
301.2	**3873**	10	10	< 10				< 10	185		44
320	52		52	41		31	41	84	< 10		38

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Tue/03	Tue/10	Mon/16	Tue/17	Fri/20	Sat/21	Mon/23	Mon/30	Tue/31	30-day Geometric Mean[2]
202.4	< 10		< 10	< 10				< 10	20		11
202.5	< 10		10	< 10				< 10	< 10		10
210.1	< 10		10	< 10				< 10	< 10		10
211	63		< 10	< 10				41	10		19
220								< 10	< 10		
300.1	< 10		10	< 10				10	10		10
301.1	10		< 10	**259**	20			10	**2909**	41	48
301.2	**496**	< 10	< 10	< 10				< 10	< 10		19
320	30		< 10	< 10		75	10	20	< 10		17

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	10/19 0.07
Aquatic Park	210.1, 211	10/20 0.12
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED as a precautionary measure due to a power outage at Booster Pump Station that caused discharge of final effluent into Islais creek

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/01	Mon/07	Mon/14	Tue/15	Wed/16	Mon/21	Tue/22	Wed/23	Mon/28	30-day Geometric Mean[2]
202.4		< 10	241	31		96			216	69
202.5		10	85			187			< 10	
210.1		85	20			243			10	
211		161	670			97			20	
300.1		216	313	75		173			161	170
301.1		984	1178	988	52	211			41	283
301.2		20	9804	52		97			85	153
320	1374	228	86			8164	199 *	145 *	809	708

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/01	Mon/07	Mon/14	Tue/15	Wed/16	Mon/21	Tue/22	Wed/23	Mon/28	30-day Geometric Mean[2]
202.4		< 10	20	< 10		< 10			10	11
202.5		< 10	10			41			< 10	
210.1		41	10			84			< 10	
211		75	315			41			< 10	
300.1		86	187	10		52			41	51
301.1		305	201	**487**	20	75			20	98
301.2		< 10	**8664**	31		10			20	56
320	135	52	< 10			**857**	< 10 *	< 10 *	63	82

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/01	Mon/07	Mon/14	Tue/15	Wed/16	Mon/21	Tue/22	Wed/23	Mon/28	30-day Geometric Mean[2]
202.4		< 10	**158**	31		< 10			30	27
202.5		< 10	20			< 10			< 10	
210.1		< 10	10			< 10			< 10	
211		< 10	75			< 10			10	
300.1		86	**135**	10		20			75	44
301.1		84	**108**	**309**	10	41			< 10	48
301.2		10	**4611**	20		10			75	59
320	10	< 10	51			96	31 *	< 10 *	41	29

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	11/19	0.48	11/26	0.42
Aquatic Park	210.1, 211	11/20	0.50	11/27	0.11
Candlestick Point	300.1, 301.1, 301.2	11/22	0.50	11/28	0.09
State Recreation Area		11/23	0.04	11/30	0.07
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED due to potential of discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

* Due to power outage and limited information; station posted because of the potential for a discharge.

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Thu/16	Fri/17	Sat/18	Sun/19	Mon/20	Tue/21	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4	368				109	< 10	160		48
202.5	1376	644			52		20		81
210.1	631				20		228		73
211	594	218			63		1935	282	280
220	**> 24196**	**19863**	**11199**	691	404		2014		1208
300.1					119		146		304
301.1					1046		3654		4230
301.2					41		31		185
320	**> 24196**	**> 24196**	**> 24196**	**24196**	7270		987		3195

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Thu/16	Fri/17	Sat/18	Sun/19	Mon/20	Tue/21	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4	31				< 10	< 10	31		15
202.5	135	20			< 10		10		17
210.1	120				< 10		31		26
211	85	10			31		**1860**	218	101
220	**> 24196**	**1106**	**771**	52	63		63		174
300.1					107		63		149
301.1					31		209		197
301.2					< 10		20		44
320	**> 24196**	**> 24196**	**9804**	383	171		31		430

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Thu/16	Fri/17	Sat/18	Sun/19	Mon/20	Tue/21	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4	41				**364**	< 10	< 10		23
202.5	**120**	20			< 10		10		17
210.1	98				< 10		20		18
211	**121**	< 10			< 10		98	31	27
220	**24196**	**121**	41	10	< 10		41		51
300.1					73		31		52
301.1					31		96		95
301.2					< 10		< 10		42
320	**> 24196**	**19863**	**743**	< 10	72		41		179

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	11/16 1.61
Aquatic Park	210.1, 211	11/26 0.23
Mission Creek	220	11/27 0.16
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	11/28 0.01
Islais Creek	320	

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: H. Peterson

City and County of San Francisco
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Thu/08	Fri/09	Sat/10	Sun/11	Mon/12	Tue/13	Wed/14	Thu/15	Fri/16	Sat/17	Sun/18
202.4	41					369			*	134		
202.5	10					201			*	285		
210.1	20					201			*	399		
211	122					399			*	305		
300.1	20					4106	408		*	1421	5794	3076
301.1	< 10					5794	1467		*	512	771	1483
301.2	63					4106	2064	480	1500	402	432	
320	148	**> 24196**	**> 24196**	**24196**	**> 24196**	**> 24196**	**> 24196**	1789	*	**> 24196**	**14136**	984

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/05	Thu/08	Fri/09	Sat/10	Sun/11	Mon/12	Tue/13	Wed/14	Thu/15	Fri/16	Sat/17	Sun/18
202.4	< 10					262			*	41		
202.5	< 10					10			*	41		
210.1	10					31			*	74		
211	86					74			*	52		
300.1	10					**934**	144		*	**426**	**816**	**683**
301.1	< 10					**563**	86		*	75	84	84
301.2	41					**1187**	233	228	**480**	120	41	
320	31	**24196**	**> 24196**	**627**	**> 24196**	**> 24196**	**7270**	158	*	**> 24196**	**749**	107

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/05	Thu/08	Fri/09	Sat/10	Sun/11	Mon/12	Tue/13	Wed/14	Thu/15	Fri/16	Sat/17	Sun/18
202.4	< 10					85			*	20		
202.5	< 10					31			*	20		
210.1	< 10					< 10			*	20		
211	10					41			*	31		
300.1	< 10					**1259**	63		*	**529**	**1421**	**4611**
301.1	< 10					**842**	52		*	**146**	**148**	86
301.2	< 10					**3654**	**243**	**173**	**2755**	**110**	41	
320	10	**4352**	**24196**	98	**> 24196**	**160**	20	31	*	**15531**	75	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)	
12/07	0.34
12/08	0.76
12/09	0.11
12/10	0.75
12/13	0.04
12/14	0.04
12/15	1.11

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* STATION sampled next day due to safety concerns
STATION POSTED but no CSD occurred

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/19	Tue/20	Wed/21	Fri/23	Sat/24	Sun/25	Tue/27	30-day Geometric Mean[2]
202.4	98			109			10	77
202.5	134			1317			97	146
210.1	98			63			243	116
211	74			31			85	119
300.1	383	373	74				20	422
301.1	2143	749					119	596
301.2	121						97	452
320	1081			**> 24196**	**> 24196**	6488	512	7054

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/19	Tue/20	Wed/21	Fri/23	Sat/24	Sun/25	Tue/27	30-day Geometric Mean[2]
202.4	20			20			10	27
202.5	< 10			41			< 10	16
210.1	10			10			109	25
211	20			< 10			52	39
300.1	109	52	20				< 10	114
301.1	**1789**	86					10	90
301.2	20						< 10	102
320	74			**11199**	**> 24196**	359	10	1546

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/19	Tue/20	Wed/21	Fri/23	Sat/24	Sun/25	Tue/27	30-day Geometric Mean[2]
202.4	< 10			52			< 10	21
202.5	10			41			< 10	17
210.1	< 10			20			20	14
211	< 10			10			10	15
300.1	**231**	**520**	52				< 10	211
301.1	10	20					< 10	49
301.2	< 10						10	107
320	30			**3076**	**4611**	31	< 10	258

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	12/23 0.78
Aquatic Park	210.1, 211	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Mon/11	Mon/18	Tue/26	30-day Geometric Mean[2]
202.4	121	41	10	10	
202.5	63	52	10	30	
210.1	41	85	10	98	
211	31	41	20	86	
220	109	426	20	31	
300.1	62	110	41	30	
301.1	1450	857	98	315	
301.2	62	10	110	20	
320	75	448	63	160	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/04	Mon/11	Mon/18	Tue/26	30-day Geometric Mean[2]
202.4	110	20	< 10	< 10	
202.5	10	< 10	< 10	< 10	
210.1	< 10	10	< 10	< 10	
211	20	< 10	< 10	41	
220	52	31	< 10	< 10	
300.1	10	10	10	10	
301.1	41	97	31	41	
301.2	30	< 10	< 10	10	
320	52	20	< 10	41	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Mon/11	Mon/18	Tue/26	30-day Geometric Mean[2]
202.4	10	< 10	20	< 10	
202.5	< 10	< 10	20	< 10	
210.1	< 10	< 10	< 10	10	
211	< 10	< 10	< 10	< 10	
220	10	10	10	< 10	
300.1	< 10	51	30	< 10	
301.1	< 10	41	20	20	
301.2	< 10	< 10	< 10	< 10	
320	10	20	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	12/02 0.02
Aquatic Park	210.1, 211	12/20 0.05
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sun/06	Mon/07	Tue/08	Wed/09	Thu/10	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Wed/16	Thu/17
202.4		183							31			
202.5		231							63			
210.1		*							*			
211		638							122			
220	**> 24196**	**24196**	1515						216		**> 24196**	**> 24196**
300.1		2247	1607	2382	6867	1058	683	576	279			
301.1		1354	5172	1624	663				1376	3873	3654	2489
301.2		670							146			295
320	**> 24196**	**> 24196**	**> 24196**	**> 24196**	**> 24196**	839			350			**> 24196**

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Sun/06	Mon/07	Tue/08	Wed/09	Thu/10	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Wed/16	Thu/17
202.4		51							10			
202.5		52							< 10			
210.1		*							*			
211		110							63			
220	**> 24196**	**6488**	169						10		**12033**	**> 24196**
300.1		285	233	**450**	**613**	369	187	216	31			
301.1		160	**565**	279	145				189	**1259**	**1043**	246
301.2		63							< 10			31
320	**> 24196**	**> 24196**	**> 24196**	**10462**	**2014**	86			52			**> 24196**

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Sun/06	Mon/07	Tue/08	Wed/09	Thu/10	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Wed/16	Thu/17
202.4		10							10			
202.5		20							< 10			
210.1		*							*			
211		52							31			
220	**> 24196**	**1112**	10						< 10		**3654**	**> 24196**
300.1		**350**	**457**	**813**	**820**	**201**	**118**	96	52			
301.1		**285**	**1725**	**161**	75				**171**	**266**	**728**	**203**
301.2		75							10			10
320	**8164**	**> 24196**	**10462**	**272**	20	10			10			**> 24196**

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	01/05	0.19	01/14	0.01
Aquatic Park	210.1, 211	01/06	1.46	01/15	0.96
Mission Creek	220	01/09	0.19	01/16	1.19
Candlestick Point	300.1, 301.1, 301.2	01/10	0.01	01/17	1.22
State Recreation Area		01/11	0.29		
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to partial federal government shutdown

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Fri/18	Sat/19	Sun/20	Mon/21	Tue/22	Mon/28	Tue/29	Thu/31	30-day Geometric Mean[2]
202.4					31	30			
202.5					98	10			
210.1						**	20		
211					63	1565	86		231
220	**17329**	2481			751	63		**> 24196**	4101
300.1					20	30			577
301.1	**12997**	404			717	63			1450
301.2					10	63			113
320	**> 24196**	**> 24196**	**17329**	3076	3076	75			6769

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Fri/18	Sat/19	Sun/20	Mon/21	Tue/22	Mon/28	Tue/29	Thu/31	30-day Geometric Mean[2]
202.4					10	10			
202.5					< 10	10			
210.1						**	< 10		
211					31	**616**	31		84
220	**2755**	156			52	20		**2187**	791
300.1					< 10	< 10			124
301.1	63	< 10			146	10			156
301.2					< 10	20			21
320	**> 24196**	**2481**	**886**	122	86	10			1449

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Fri/18	Sat/19	Sun/20	Mon/21	Tue/22	Mon/28	Tue/29	Thu/31	30-day Geometric Mean[2]
202.4					20	10			
202.5					< 10	< 10			
210.1						**	< 10		
211					< 10	**359**	< 10		36
220	**457**	75			31	20		**144**	277
300.1					< 10	10			129
301.1	**246**	10			63	< 10			141
301.2					< 10	10			15
320	**15531**	**156**	**171**	75	30	< 10			338

Sampling/Posting issues
Hyde St Pier (210.1) not accessible due to partial govt. shutdown; sampled next day on 1/29 due to gate still locked

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	01/20 0.20
Aquatic Park	210.1, 211	01/30 0.10
Mission Creek	220	01/31 0.57
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
** Station sampled the next day due to locked gate

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Wed/01	Mon/06	Tue/07	Wed/08	Mon/13	Thu/16	Fri/17	Sat/18
202.4		41			110	5794	712	85
202.5		86			52	3873	216	
210.1		74			20	63		
211		121			41	148		
220		75			359	**> 24196**	**24196**	**24196**
300.1	373	8164	2909	110	132			
301.1		298			51			
301.2		31			20			
320		1421			31	**> 24196**	**> 24196**	**> 24196**

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Wed/01	Mon/06	Tue/07	Wed/08	Mon/13	Thu/16	Fri/17	Sat/18
202.4		31			31	**414**	75	20
202.5		52			20	52	63	
210.1		10			10	< 10		
211		10			30	10		
220		< 10			< 10	**> 24196**	**1679**	**404**
300.1	10	10	63	< 10	20			
301.1		< 10			< 10			
301.2		< 10			< 10			
320		85			10	**> 24196**	**> 24196**	**19863**

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Wed/01	Mon/06	Tue/07	Wed/08	Mon/13	Thu/16	Fri/17	Sat/18
202.4		52			41	**794**	**882**	20
202.5		< 10			< 10	**158**	20	
210.1		20			< 10	10		
211		10			< 10	41		
220		10			10	**17329**	**169**	63
300.1	85	**571**	**203**	10	< 10			
301.1		84			< 10			
301.2		< 10			< 10			
320		52			< 10	**> 24196**	**10462**	**3609**

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	01/07	0.01	01/12	0.01
Aquatic Park	210.1, 211	01/08	0.01	01/13	0.13
Mission Creek	220	01/09	0.25	01/14	0.02
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	01/11	0.17	01/16	1.21
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sun/19	Mon/20	Tue/21	Wed/22	Thu/23	Mon/27	Tue/28
202.4			504	345	31	< 10	52
202.5			30			31	
210.1			52			52	
211			96			41	
220	**> 24196**	4611	1565			144	
300.1			488			298	
301.1			145			84	
301.2			355			960	
320	**> 24196**	5172	5475	594		2613	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Sun/19	Mon/20	Tue/21	Wed/22	Thu/23	Mon/27	Tue/28
202.4			97	109	10	< 10	< 10
202.5			< 10			< 10	
210.1			< 10			20	
211			31			< 10	
220	**521**	315	216			63	
300.1			63			< 10	
301.1			52			10	
301.2			10			86	
320	**6131**	148	75	31		31	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Sun/19	Mon/20	Tue/21	Wed/22	Thu/23	Mon/27	Tue/28
202.4			**309**	**134**	10	**131**	< 10
202.5			< 10			< 10	
210.1			< 10			< 10	
211			20			10	
220	97	75	51			10	
300.1			52			10	
301.1			20			< 10	
301.2			31			10	
320	**228**	41	**199**	10		10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	01/21 0.11
Aquatic Park	210.1, 211	01/26 0.21
Mission Creek	220	01/28 0.05
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Fri/01	Mon/04	Tue/05	Mon/11	Wed/13	Thu/14	Fri/15	Sat/16
202.4		134		< 10	**24196**	**14136**	512	
202.5		2359		63	**24196**	2909	546	
210.1		122		109	327			
211		161		109	414			
220	1234	6867	31	121	**> 24196**	**> 24196**	**> 24196**	**> 24196**
300.1		323		97	**> 24196**	**> 24196**	2143	313
301.1		1236		20	1842	**> 24196**	2143	480
301.2		**10462**	63	30	1374	1725		
320		**> 24196**	1421	882	**> 24196**	**> 24196**	**> 24196**	**> 24196**

Sampling/Posting issues
Station 301.2 de-posted one day early in error (2/14)

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Fri/01	Mon/04	Tue/05	Mon/11	Wed/13	Thu/14	Fri/15	Sat/16
202.4		10		< 10	**990**	**677**	41	
202.5		63		10	**1500**	**428**	41	
210.1		10		10	97			
211		10		41	169			
220	144	**529**	< 10	20	**> 24196**	**> 24196**	**17329**	**2014**
300.1		20		41	**24196**	**4106**	256	52
301.1		10		10	327	**4611**	**464**	31
301.2		74	< 10	< 10	75	332		
320		74	135	10	**> 24196**	**> 24196**	**> 24196**	**1725**

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Fri/01	Mon/04	Tue/05	Mon/11	Wed/13	Thu/14	Fri/15	Sat/16
202.4		< 10		< 10	**441**	**1565**	20	
202.5		52		< 10	**1850**	**187**	30	
210.1		10		< 10	75			
211		41		< 10	96			
220	30	**262**	< 10	< 10	**> 24196**	**> 24196**	**1153**	63
300.1		< 10		31	**5475**	**3448**	**148**	20
301.1		52		< 10	**292**	**1374**	75	31
301.2		**784**	< 10	20	**279**	74		
320		63	10	20	**> 24196**	**12997**	**3130**	**185**

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Mission Creek	220
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)			
02/01	0.14	02/10	0.13
02/02	0.57	02/12	0.30
02/03	0.25	02/13	2.53
02/04	0.69	02/14	1.18
02/05	0.07	02/15	0.29
02/08	0.25	02/16	0.14
02/09	0.63		

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sun/17	Mon/18	Tue/19	Wed/20	Mon/25	Tue/26	Wed/27	Thu/28
202.4			96		31			
202.5			145		199			
210.1			98		275			
211			148		41			
220	5172	1314	908		185			
300.1			292		3448	1354	1785	309
301.1			880		644			
301.2			201		63			
320	6488		1785	384	2359	1918	**12997**	**> 24196**

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Sun/17	Mon/18	Tue/19	Wed/20	Mon/25	Tue/26	Wed/27	Thu/28
202.4			20		10			
202.5			10		10			
210.1			< 10		216			
211			10		< 10			
220	**670**	97	52		10			
300.1			31		**697**	146	309	63
301.1			20		173			
301.2			20		20			
320	199		**435**	41	74	173	**905**	**4611**

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Sun/17	Mon/18	Tue/19	Wed/20	Mon/25	Tue/26	Wed/27	Thu/28
202.4			10		75			
202.5			10		< 10			
210.1			< 10		10			
211			< 10		< 10			
220	52	30	20		20			
300.1			41		**305**	**201**	**285**	20
301.1			41		85			
301.2			10		52			
320	86		**231**	10	**108**	**189**	**272**	**546**

Sampling/Posting issues
None

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	02/17 0.12
Aquatic Park	210.1, 211	02/25 0.04
Mission Creek	220	02/26 0.70
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	02/27 0.64
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

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[2]Geometric means calculated for 5 or more samples per 30-day period.

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Tue/04	Mon/10	Tue/18	Mon/24	Tue/25
202.4	31	20	< 10	< 10	135	
202.5	< 10		10	85	< 10	
210.1	63		75	135	< 10	
211	31		52	86	75	
220	109		10	41	63	
300.1	10		10	31	41	
301.1	201		10	10	41	
301.2	10		10	< 10	175	
320	399		199	181	**14136**	414

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/03	Tue/04	Mon/10	Tue/18	Mon/24	Tue/25
202.4	10	10	< 10	< 10	31	
202.5	< 10		< 10	10	< 10	
210.1	20		41	75	< 10	
211	20		41	52	31	
220	52		< 10	< 10	< 10	
300.1	< 10		< 10	< 10	31	
301.1	121		< 10	< 10	< 10	
301.2	< 10		< 10	< 10	20	
320	52		10	62	74	223

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/03	Tue/04	Mon/10	Tue/18	Mon/24	Tue/25
202.4	**1515**	< 10	< 10	< 10	< 10	
202.5	< 10		< 10	< 10	< 10	
210.1	10		< 10	20	< 10	
211	10		< 10	< 10	20	
220	31		10	< 10	< 10	
300.1	< 10		< 10	52	< 10	
301.1	< 10		< 10	51	20	
301.2	10		< 10	< 10	10	
320	20		< 10	10	< 10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Fri/01	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Mon/11
202.4		213						134
202.5		262						109
210.1		160						75
211		213						74
220		1860		**> 24196**	5475	1616		160
300.1		1785	373					313
301.1		2142						1376
301.2		120						63
320	2909	471		**> 24196**	**> 24196**	**17329**	1515	1334

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Fri/01	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Mon/11
202.4		74						63
202.5		20						31
210.1		20						31
211		41						20
220		63		**> 24196**	**1956**	216		20
300.1		318	41					63
301.1		383						364
301.2		41						10
320	109	110		**> 24196**	**> 24196**	**987**	145	384

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Fri/01	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Mon/11
202.4		84						20
202.5		20						20
210.1		< 10						20
211		31						10
220		86		**> 24196**	**279**	< 10		10
300.1		**175**	31					< 10
301.1		52						10
301.2		20						< 10
320	41	20		**> 24196**	**9208**	52	20	52

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	03/01	0.02	03/06	0.80
Aquatic Park	210.1, 211	03/02	0.92	03/09	0.25
Mission Creek	220	03/04	0.07	03/10	0.25
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	03/05	0.40		
Islais Creek	320				

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/18	Tue/19	Wed/20	Thu/21	Mon/25	Tue/26	Wed/27	Thu/28
202.4	504				10			
202.5	41				173			
210.1	1314				86			
211	820				121			
220	218		**> 24196**	218	231			
300.1	520				767	631	3873	512
301.1	**24196**	504			1376	512		
301.2	749	134			41			
320	450				5475			

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/18	Tue/19	Wed/20	Thu/21	Mon/25	Tue/26	Wed/27	Thu/28
202.4	359				< 10			
202.5	< 10				31			
210.1	197				20			
211	272				41			
220	41		**> 24196**	63	41			
300.1	158				146	155	**1396**	51
301.1	**24196**	97			233	20		
301.2	110	63			10			
320	41				292			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/18	Tue/19	Wed/20	Thu/21	Mon/25	Tue/26	Wed/27	Thu/28
202.4	30				10			
202.5	10				10			
210.1	20				10			
211	< 10				20			
220	< 10		**24196**	10	20			
300.1	20				**108**	**148**	**743**	10
301.1	**984**	63			**2909**	85		
301.2	**457**	10			< 10			
320	< 10				31			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	03/20	0.86	03/26	0.13
Aquatic Park	210.1, 211	03/22	0.57	03/27	0.02
Mission Creek	220	03/23	0.13	03/28	0.02
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	03/25	0.33	03/29	0.01
Islais Creek	320				

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
March 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Tue/03	Mon/09	Tue/10	Wed/11	Mon/16	Tue/17	Mon/23	Mon/30
202.4	< 10		30			74		63	41
202.5	20		10			86		31	< 10
210.1	369		85			122		*	*
211	135		171			63		155	96
220	529		683			613		1354	771
300.1	426		3448			2495		4786	1541
301.1	3448		3282	359	3255	1510		4106	6131
301.2	530		591	3130		933	520	160	703
320	2755	448	457			**24196**	3076	4352	504

Sampling/Posting issues
Hyde St Pier (210.1) not accessible due to Covid-19 social distancing restrictions

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/02	Tue/03	Mon/09	Tue/10	Wed/11	Mon/16	Tue/17	Mon/23	Mon/30
202.4	< 10		10			10		< 10	10
202.5	< 10		< 10			20		10	< 10
210.1	20		20			10		*	*
211	20		145			10		120	41
220	< 10		< 10			10		41	< 10
300.1	20		121			41		41	51
301.1	10		185	< 10	< 10	86		< 10	20
301.2	10		< 10	10		20	< 10	10	51
320	97	20	< 10			122	10	30	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Tue/03	Mon/09	Tue/10	Wed/11	Mon/16	Tue/17	Mon/23	Mon/30
202.4	< 10		< 10			10		10	20
202.5	10		< 10			10		< 10	< 10
210.1	< 10		< 10			< 10		*	*
211	< 10		10			10		63	< 10
220	< 10		< 10			10		10	10
300.1	10		97			85		41	41
301.1	< 10		**546**	**213**	< 10	52		20	10
301.2	10		**295**	85		**292**	< 10	< 10	< 10
320	**110**	< 10	< 10			**193**	10	63	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	03/07	0.08	03/24	0.04
Aquatic Park	210.1, 211	03/15	0.27	03/28	0.11
Mission Creek	220	03/16	0.08	03/29	0.03
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	03/18	0.02		
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to Covid-19 restrictions

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
April 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Tue/02	Wed/03	Mon/08	Mon/15	Tue/16	Wed/17	Mon/22	Mon/29	Tue/30
202.4	2359	1421	41	10	86			10	10	
202.5	75			52	52			10	20	
210.1	< 10			262	52			20	10	
211	41			85	98			20	41	
220	98			121	41			41	52	
300.1	309			74	428	414		20	328	697
301.1	1872			41	2489	934	173	10	63	
301.2	30			31	41			< 10	216	75
320	2613	301		373	884			327	86	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/01	Tue/02	Wed/03	Mon/08	Mon/15	Tue/16	Wed/17	Mon/22	Mon/29	Tue/30
202.4	**1607**	**1112**	10	< 10	52			10	10	
202.5	10			< 10	10			< 10	10	
210.1	< 10			85	20			< 10	< 10	
211	10			< 10	75			< 10	10	
220	10			31	< 10			10	< 10	
300.1	< 10			10	292	145		< 10	85	309
301.1	122			10	**1334**	**867**	10	10	< 10	
301.2	< 10			20	< 10			< 10	20	< 10
320	**602**	74		31	108			< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Tue/02	Wed/03	Mon/08	Mon/15	Tue/16	Wed/17	Mon/22	Mon/29	Tue/30
202.4	85	52	< 10	< 10	10			< 10	< 10	
202.5	< 10			< 10	< 10			< 10	< 10	
210.1	< 10			< 10	< 10			< 10	< 10	
211	< 10			< 10	10			10	10	
220	< 10			< 10	< 10			< 10	< 10	
300.1	< 10			< 10	**131**	31		< 10	**171**	20
301.1	63			< 10	52	< 10	< 10	< 10	10	
301.2	< 10			< 10	< 10			< 10	**226**	< 10
320	97	41		< 10	20			31	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	04/01	0.03	04/08	0.06
Aquatic Park	210.1, 211	04/02	0.09	04/15	0.03
Mission Creek	220	04/05	0.13	04/16	0.02
Candlestick Point State Recreation Area	300.1, 301.1, 301.2				
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
April 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Mon/13	Tue/14	Wed/15	Mon/20	Mon/27
202.4	< 10			96			31	30
202.5	< 10			31			< 10	< 10
210.1	*			*			*	*
211	41			63			20	31
220	663			1130			909	727
300.1	241			714			181	1317
301.1	1565	4884	2603	**14136**	**11199**	1401	2187	5475
301.2	75			**10112**	266		487	1624
320	**> 24196**	**19863**	2098	1296			1014	1086

Sampling/Posting issues
Hyde St Pier (210.1) not accessible due to Covid-19 social distancing restrictions

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Mon/13	Tue/14	Wed/15	Mon/20	Mon/27
202.4	< 10			< 10			10	< 10
202.5	< 10			< 10			< 10	< 10
210.1	*			*			*	*
211	< 10			< 10			< 10	10
220	31			< 10			< 10	< 10
300.1	10			10			10	< 10
301.1	52	63	< 10	31	20	20	10	85
301.2	10			20	41		< 10	< 10
320	**984**	75	10	20			20	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Mon/13	Tue/14	Wed/15	Mon/20	Mon/27
202.4	< 10			10			< 10	< 10
202.5	< 10			< 10			< 10	< 10
210.1	*			*			*	*
211	< 10			< 10			31	20
220	< 10			< 10			< 10	< 10
300.1	< 10			< 10			< 10	31
301.1	**134**	**108**	< 10	20	< 10	31	< 10	< 10
301.2	< 10			41	31		10	10
320	**496**	20	< 10	< 10			10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	04/04 0.10
Aquatic Park	210.1, 211	04/05 0.44
Mission Creek	220	04/06 0.30
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to Covid-19 restrictions

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R. Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
April/May 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon 4/30	Mon/07	Mon/14	Tues/15	Wed/16	Mon/21	Tues/29	30-day Geometric Mean[2]
202.4	10	< 10	20			< 10	269	22
202.5	20	< 10	< 10			< 10	10	11
210.1	10	10	109			20	52	26
211	30	31	148			< 10	41	36
220	20	10	20			41	41	23
300.1	373	134	697	749	10	364	10	138
301.1	10	86	31	< 10		31	< 10	21
301.2	85	10	20			< 10	< 10	18
320	85	97	74			41	63	69

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon 4/30	Mon/07	Mon/14	Tues/15	Wed/16	Mon/21	Tues/29	30-day Geometric Mean[2]
202.4	< 10	< 10	< 10			< 10	41	13
202.5	< 10	< 10	< 10			< 10	10	10
210.1	< 10	< 10	85			< 10	< 10	15
211	10	< 10	122			< 10	41	22
220	< 10	10	< 10			< 10	< 10	10
300.1	10	52	**546**	246	< 10	31	< 10	42
301.1	< 10	20	< 10	< 10		< 10	< 10	11
301.2	< 10	10	10			< 10	< 10	10
320	10	< 10	20			< 10	10	11

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon 4/30	Mon/07	Mon/14	Tues/15	Wed/16	Mon/21	Tues/29	30-day Geometric Mean[2]
202.4	10	< 10	< 10			< 10	31	13
202.5	< 10	< 10	< 10			< 10	< 10	10
210.1	< 10	< 10	< 10			< 10	< 10	10
211	10	< 10	10			< 10	< 10	10
220	< 10	< 10	< 10			< 10	< 10	10
300.1	31	10	41	**203**	10	41	< 10	27
301.1	< 10	31	**203**	< 10		10	< 10	20
301.2	< 10	< 10	< 10			< 10	< 10	10
320	< 10	< 10	< 10			< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	05/23 0.03
Aquatic Park	210.1, 211	
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: D O'Donohue

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
May 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Mon/13	Tue/14	Sun/19	Mon/20	Tue/28	Wed/29
202.4	31	< 10			122	< 10	
202.5	20	20			120	75	
210.1	31	241			10	31	
211	75	187			350	10	
220	20	41			135	10	
300.1	670	75			569	373	281
301.1	201	3448		441	336	41	
301.2	< 10	120		*	279	712	
320	471	631	231		1314	86	

Sampling/Posting issues
Incorrect site sampled on 5/19 sampled the next day (5/20)

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/06	Mon/13	Tue/14	Sun/19	Mon/20	Tue/28	Wed/29
202.4	10	< 10			10	< 10	
202.5	10	< 10			10	< 10	
210.1	< 10	20			< 10	< 10	
211	20	20			10	< 10	
220	< 10	< 10			< 10	< 10	
300.1	272	31			30	10	10
301.1	31	52		161	20	< 10	
301.2	< 10	< 10		*	20	20	
320	20	**548**	10		20	31	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/06	Mon/13	Tue/14	Sun/19	Mon/20	Tue/28	Wed/29
202.4	< 10	< 10			10	< 10	
202.5	10	< 10			< 10	< 10	
210.1	10	10			< 10	< 10	
211	10	< 10			< 10	< 10	
220	< 10	< 10			< 10	< 10	
300.1	63	< 10			52	**155**	31
301.1	< 10	10		**146**	20	< 10	
301.2	10	10		*	< 10	10	
320	< 10	< 10	< 10		< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	05/15 0.45
Aquatic Park	210.1, 211	05/16 0.26
Mission Creek	220	05/18 0.96
Candlestick Point	300.1, 301.1, 301.2	05/19 0.25
State Recreation Area		05/21 0.29
Islais Creek	320	05/26 0.02

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* STATION sampled the next day

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
June 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Mon/11	Tue/12	Mon/18	Mon/25	30-day Geometric Mean[2]
202.4	31	20		20	119	
202.5	< 10	31		20	< 10	
210.1	10	< 10		41	< 10	
211	31	< 10		20	86	
220	20	30		41	41	
300.1	63	< 10		161	199	
301.1	20	< 10		20	31	
301.2	< 10	933	20	75	< 10	43
320	173	52		74	63	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/04	Mon/11	Tue/12	Mon/18	Mon/25	30-day Geometric Mean[2]
202.4	31	10		10	63	
202.5	< 10	< 10		< 10	< 10	
210.1	< 10	< 10		31	< 10	
211	10	< 10		10	< 10	
220	< 10	< 10		30	< 10	
300.1	20	< 10		122	97	
301.1	< 10	< 10		10	31	
301.2	< 10	**884**	10	< 10	< 10	25
320	< 10	10		< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Mon/11	Tue/12	Mon/18	Mon/25	30-day Geometric Mean[2]
202.4	< 10	< 10		10	< 10	
202.5	10	< 10		< 10	< 10	
210.1	< 10	< 10		< 10	< 10	
211	20	< 10		< 10	31	
220	< 10	< 10		< 10	< 10	
300.1	10	< 10		20	< 10	
301.1	< 10	< 10		20	< 10	
301.2	< 10	52	10	< 10	< 10	14
320	< 10	< 10		10	52	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Mission Creek	220
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)
None

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: Rduggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
June 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/11	Mon/17	Mon/24	Tue/25
202.4	110	1439		10	10	
202.5	20	565		10	10	
210.1	10	199		< 10	52	
211	10	305		10	75	
220	75	63		< 10	< 10	10
300.1	373	195		226	156	
301.1	30	384		226	420	
301.2	1515	2014	2909	2481	**> 24196**	51
320	135	1989		30	529	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/11	Mon/17	Mon/24	Tue/25
202.4	20	< 10		< 10	< 10	
202.5	< 10	< 10		< 10	< 10	
210.1	< 10	52		< 10	< 10	
211	10	134		< 10	63	
220	< 10	31		< 10	< 10	< 10
300.1	121	< 10		10	20	
301.1	10	< 10		10	52	
301.2	< 10	**1236**	20	20	**> 24196**	< 10
320	10	52		< 10	10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/11	Mon/17	Mon/24	Tue/25
202.4	< 10	20		< 10	< 10	
202.5	< 10	10		< 10	< 10	
210.1	< 10	20		< 10	< 10	
211	< 10	< 10		< 10	20	
220	< 10	< 10		20	**471**	< 10
300.1	75	10		< 10	10	
301.1	< 10	10		< 10	10	
301.2	10	**246**	< 10	10	**> 24196**	< 10
320	< 10	10		< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
July 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL

Location	Mon/02	Mon/09	Mon/16	Mon/23	Mon/30	30-day Geometric Mean[2]
202.4	52	52	84	41	73	58
202.5	30	< 10	20	10	< 10	14
210.1	20	< 10	10	63	10	17
211	41	< 10	< 10	41	10	18
220	30	< 10	10	10	31	16
300.1	160	< 10	41	110	63	54
301.1	< 10	10	74	< 10	31	19
301.2	52	31	20	30	41	33
320	74	10	695	175	2603	188

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/02	Mon/09	Mon/16	Mon/23	Mon/30	30-day Geometric Mean[2]
202.4	< 10	31	10	10	20	14
202.5	< 10	< 10	< 10	< 10	< 10	10
210.1	20	< 10	10	31	< 10	14
211	10	< 10	< 10	31	< 10	13
220	10	< 10	10	< 10	10	10
300.1	52	< 10	< 10	41	41	24
301.1	< 10	10	41	< 10	10	13
301.2	10	< 10	20	30	20	16
320	< 10	10	20	10	305	23

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Mon/09	Mon/16	Mon/23	Mon/30	30-day Geometric Mean[2]
202.4	20	< 10	10	10	< 10	11
202.5	< 10	< 10	< 10	< 10	< 10	10
210.1	< 10	< 10	< 10	< 10	< 10	10
211	< 10	< 10	< 10	< 10	< 10	10
220	< 10	< 10	10	< 10	< 10	10
300.1	< 10	< 10	< 10	20	< 10	11
301.1	10	< 10	10	< 10	< 10	10
301.2	10	< 10	< 10	< 10	< 10	10
320	< 10	< 10	41	< 10	< 10	13

Sampling/Posting issues
None

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Mission Creek	220
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)
None

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
July 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Tue/02	Wed/03	Mon/08	Tue/09	Mon/15	Mon/22	Mon/29	Wed/31
202.4	52			74		52	148	96	
202.5	< 10			41		52	< 10	20	
210.1	< 10			7270		< 10	41	10	
211	2909	221	31	457	52	31	86	41	41
220	63			265		74	41	20	
300.1	262			624	243	< 10	< 10	1119	
301.1	51			108		10	30	134	
301.2	10			10		< 10	75	41	
320	132			135		759	98	108	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/01	Tue/02	Wed/03	Mon/08	Tue/09	Mon/15	Mon/22	Mon/29	Wed/31
202.4	< 10			< 10		20	41	20	
202.5	< 10			10		41	< 10	10	
210.1	< 10			< 10		< 10	< 10	10	
211	**1172**	73	< 10	52	< 10	31	41	30	20
220	10			31		10	< 10	10	
300.1	41			146	10	< 10	< 10	389	
301.1	10			< 10		10	< 10	52	
301.2	< 10			10		< 10	10	20	
320	< 10			< 10		10	< 10	10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Tue/02	Wed/03	Mon/08	Tue/09	Mon/15	Mon/22	Mon/29	Wed/31
202.4	< 10			< 10		< 10	10	31	
202.5	< 10			< 10		< 10	10	< 10	
210.1	10			10		< 10	< 10	< 10	
211	**359**	**175**	< 10	**109**	< 10	< 10	10	< 10	< 10
220	< 10			< 10		< 10	< 10	< 10	
300.1	10			**657**	20	< 10	20	52	
301.1	86			10		10	< 10	< 10	
301.2	< 10			< 10		< 10	< 10	61	
320	10			10		52	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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August 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Tue/07	Mon/13	Tue/14	Wed/15	Thu/16	Fri/17	Sat/18	Sun/19	Mon/20	Tue/21	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4	10		63							10		63		
202.5	< 10		< 10							20		20		
210.1	20		41							63		< 10		
211	20		97							4611	168	754		258
220	10		20							10		63		
300.1	< 10		272							75		5172	520	223
301.1	**15531**	41	185							108		512		365
301.2	< 10		98	20						269		31		44
320	187		**24196**	7270	5794	**> 24196**	**> 24196**	5794	776	556		754		3406

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/06	Tue/07	Mon/13	Tue/14	Wed/15	Thu/16	Fri/17	Sat/18	Sun/19	Mon/20	Tue/21	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4	< 10		20							< 10		< 10		
202.5	< 10		< 10							< 10		10		
210.1	10		< 10							41		< 10		
211	10		85							**480**	156	122		95
220	< 10		< 10							10		10		
300.1	< 10		98							20		**1989**	187	94
301.1	**3448**	10	20							41		94		77
301.2	< 10		75	20						169		10		30
320	20		**4611**	**1376**	**1334**	**24196**	< 10	**839**	86	145		41		335

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/06	Tue/07	Mon/13	Tue/14	Wed/15	Thu/16	Fri/17	Sat/18	Sun/19	Mon/20	Tue/21	Mon/27	Tue/28	30-day Geometric Mean[2]
202.4	< 10		< 10							10		< 10		
202.5	< 10		< 10							< 10		20		
210.1	< 10		< 10							< 10		< 10		
211	< 10		< 10							**279**	97	31		38
220	< 10		< 10							< 10		< 10		
300.1	< 10		41							< 10		**763**	31	40
301.1	**650**	10	10							10		41		31
301.2	< 10		**313**	< 10						< 10		< 10		20
320	< 10		10	< 10	< 10	< 10	20	< 10	20	41		< 10		13

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

Reviewed by: R Duggan

Sampling/Posting Issues = None

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

City and County of San Francisco
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Mon/19	Mon/26	Tue/27
202.4	414		52	638	< 10	
202.5	63		41	31	10	
210.1	52		10	30	52	
211	20	120	238	52	75	
220	31		< 10	63	< 10	
300.1	10		10	120	120	
301.1	41		41	10	52	
301.2	146		131	52	2359	< 10
320	422		323	3448	193	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Mon/19	Mon/26	Tue/27
202.4	31		20	41	< 10	
202.5	20		< 10	< 10	< 10	
210.1	10		< 10	20	10	
211	20	73	209	31	31	
220	10		< 10	10	< 10	
300.1	< 10		< 10	41	< 10	
301.1	10		< 10	< 10	10	
301.2	85		< 10	< 10	**2359**	< 10
320	30		10	121	10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Mon/19	Mon/26	Tue/27
202.4	< 10		10	20	< 10	
202.5	10		10	75	< 10	
210.1	< 10		< 10	< 10	< 10	
211	< 10	20	10	< 10	31	
220	< 10		< 10	< 10	< 10	
300.1	< 10		< 10	< 10	< 10	
301.1	< 10		10	< 10	< 10	
301.2	< 10		10	20	98	< 10
320	41		< 10	10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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September 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** 30-day Geometric

Location	Tue/04	Mon/10	Mon/17	Mon/24	Mean[2]
202.4	< 10	52	10	< 10	
202.5	31	10	10	20	
210.1	10	< 10	20	20	
211	135	86	455	63	
220	199	20	10	110	
300.1	171	173	187	305	
301.1	52	109	253	213	
301.2	437	169	216	20	
320	85	20	75	31	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL 30-day Geometric

Location	Tue/04	Mon/10	Mon/17	Mon/24	Mean[2]
202.4	< 10	< 10	< 10	< 10	
202.5	< 10	< 10	< 10	< 10	
210.1	< 10	< 10	20	< 10	
211	75	75	187	52	
220	< 10	< 10	< 10	10	
300.1	41	86	10	41	
301.1	20	20	211	171	
301.2	253	< 10	86	10	
320	20	< 10	20	10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/ 30-day Geometric

Location	Tue/04	Mon/10	Mon/17	Mon/24	Mean[2]
202.4	< 10	< 10	20	< 10	
202.5	10	< 10	< 10	< 10	
210.1	< 10	< 10	< 10	< 10	
211	10	52	20	< 10	
220	< 10	< 10	< 10	< 10	
300.1	10	< 10	< 10	10	
301.1	20	20	< 10	52	
301.2	73	< 10	20	< 10	
320	< 10	< 10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/03	Mon/09	Tue/10	Mon/16	Tue/17	Mon/23	Mon/30
202.4	292	41		2046		52	697
202.5	52	31		9208	7270	120	31
210.1	246	712	109	86		52	< 10
211	122	< 10		75		52	464
220	31	131		865		30	75
300.1	132	146		185		185	97
301.1	63	657		373		253	4106
301.2	97	20		< 10		135	63
320	122	683		288		52	318

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/03	Mon/09	Tue/10	Mon/16	Tue/17	Mon/23	Mon/30
202.4	10	10		10		31	**583**
202.5	10	10		31	41	52	< 10
210.1	231	**677**	63	< 10		31	< 10
211	41	< 10		52		20	**464**
220	< 10	10		121		10	20
300.1	52	20		< 10		41	10
301.1	10	< 10		< 10		41	30
301.2	20	< 10		< 10		98	31
320	< 10	161		52		10	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/03	Mon/09	Tue/10	Mon/16	Tue/17	Mon/23	Mon/30
202.4	20	< 10		97		10	< 10
202.5	< 10	< 10		**1565**	< 10	< 10	< 10
210.1	10	10	< 10	10		10	10
211	20	< 10		< 10		< 10	**175**
220	< 10	10		10		10	< 10
300.1	10	10		< 10		< 10	10
301.1	< 10	< 10		< 10		41	10
301.2	10	< 10		< 10		10	10
320	< 10	10		10		< 10	31

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	09/16 0.05
Aquatic Park	210.1, 211	09/18 0.01
Mission Creek	220	09/27 0.03
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: H Peterson

City and County of San Francisco
SFPUC Wastewater Enterprise
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/01	Mon/07	Tue/15	Wed/16	Mon/21	Mon/28	Tue/29	Wed/30	Thu/31
202.4	< 10	10	10		< 10	63			
202.5		10	10		< 10	84			
210.1		86	63		30	41			
211	63	161	3255	< 10	85	52			
220		20	158		75	97			
300.1		130	122		1187	1076	520		
301.1		233	**10462**	317	2143	706	4352	1100	8164
301.2		31	10		146	73			
320		41	183		63	158			

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/01	Mon/07	Tue/15	Wed/16	Mon/21	Mon/28	Tue/29	Wed/30	Thu/31
202.4	< 10	< 10	10		< 10	< 10			
202.5		< 10	< 10		< 10	30			
210.1		31	10		< 10	< 10			
211	31	135	**2187**	< 10	74	10			
220		< 10	10		< 10	30			
300.1		52	20		< 10	**749**	20		
301.1		75	< 10	10	< 10	350	**1022**	**789**	272
301.2		10	< 10		< 10	41			
320		10	20		10	52			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/01	Mon/07	Tue/15	Wed/16	Mon/21	Mon/28	Tue/29	Wed/30	Thu/31
202.4	10	10	< 10		< 10	< 10			
202.5		< 10	< 10		< 10	41			
210.1		< 10	< 10		< 10	10			
211	< 10	10	**272**	52	20	10			
220		< 10	< 10		10	< 10			
300.1		10	10		< 10	**158**	10		
301.1		< 10	< 10	< 10	< 10	**12997**	31	**705**	75
301.2		< 10	10		< 10	10			
320		10	10		< 10	10			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Mission Creek	220
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)
None

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: Rduggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Tue/02	Tue/09	Mon/15	Tue/16	Thu/18	Fri/19	Sat/20	Sun/21
202.4	< 10		30	31					
202.5	20		75	10					
210.1	52		85	52					
211	1178	52	86	20					
220	537	52	10	< 10					
300.1	83		63	61					
301.1	1597	987	160	247					
301.2	161		350	512	161				
320	175		708	97		20	414	199	135

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/01	Tue/02	Tue/09	Mon/15	Tue/16	Thu/18	Fri/19	Sat/20	Sun/21
202.4	< 10		< 10	10					
202.5	10		10	< 10					
210.1	< 10		63	10					
211	**820**	20	63	10					
220	**496**	20	< 10	< 10					
300.1	30		10	20					
301.1	**833**	292	41	85					
301.2	110		< 10	259	75				
320	10		31	10		< 10	20	31	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Tue/02	Tue/09	Mon/15	Tue/16	Thu/18	Fri/19	Sat/20	Sun/21
202.4	10		< 10	< 10					
202.5	< 10		41	< 10					
210.1	10		< 10	20					
211	**109**	< 10	< 10	< 10					
220	10	< 10	< 10	< 10					
300.1	< 10		< 10	31					
301.1	31	97	10	63					
301.2	41		20	**262**	31				
320	10		20	< 10		< 10	< 10	< 10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	10/02 0.05
Aquatic Park	210.1, 211	
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED as a precaution due to fully treated effluent leak in mid-channel

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
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October 2018 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/22	Tue/23	Wed/24	Thu/25	Fri/26	Sat/27	Sun/28	Mon/29	30-day Geometric Mean[2]
202.4	41							< 10	21
202.5	20							30	25
210.1	10							20	34
211	< 10							20	53
220	52							75	47
300.1	52							86	68
301.1	203							110	334
301.2	20							41	125
320	31	228	52	169	259	63	243	122	134

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/22	Tue/23	Wed/24	Thu/25	Fri/26	Sat/27	Sun/28	Mon/29	30-day Geometric Mean[2]
202.4	10							< 10	10
202.5	< 10							10	10
210.1	< 10							10	14
211	< 10							10	32
220	10							63	29
300.1	31							20	21
301.1	98							41	123
301.2	< 10							30	43
320	< 10	63	10	20	< 10	20	171	20	19

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/22	Tue/23	Wed/24	Thu/25	Fri/26	Sat/27	Sun/28	Mon/29	30-day Geometric Mean[2]
202.4	< 10							< 10	10
202.5	< 10							< 10	13
210.1	< 10							10	11
211	10							10	15
220	< 10							< 10	10
300.1	< 10							10	13
301.1	20							10	27
301.2	< 10							10	30
320	< 10	10	10	< 10	10	< 10	< 10	< 10	10

Sampling/Posting issues
None

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED as a precaution due to fully treated effluent leak in mid-channel

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Tue/12	Mon/18	Mon/25	Tue/26	Wed/27	Thu/28	Fri/29	Sat/30
202.4	97	31	10	31	< 10	135					
202.5	10			63	20	52					
210.1	85			20	52	132					
211	341			63	75	855	341				
220	20			52	185	158		**> 24196**	**11199**	**> 24196**	3448
300.1	134			52	1314	8664					
301.1	4884			299	448	798	187				
301.2	63			41	52	< 10					
320	< 10			160	161	250		**> 24196**	**> 24196**	**> 24196**	2909

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Tue/12	Mon/18	Mon/25	Tue/26	Wed/27	Thu/28	Fri/29	Sat/30
202.4	85	10	< 10	< 10	< 10	75					
202.5	10			41	< 10	10					
210.1	< 10			< 10	< 10	10					
211	41			41	41	364	231				
220	< 10			< 10	10	< 10		**6867**	**504**	**691**	121
300.1	< 10			31	41	282					
301.1	51			249	< 10	359	< 10				
301.2	< 10			41	< 10	< 10					
320	< 10			41	20	84		**> 24196**	**19863**	**14136**	173

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Tue/12	Mon/18	Mon/25	Tue/26	Wed/27	Thu/28	Fri/29	Sat/30
202.4	**> 24196**	**110**	< 10	10	< 10	31					
202.5	< 10			20	< 10	41					
210.1	< 10			10	< 10	< 10					
211	< 10			20	10	**882**	10				
220	< 10			< 10	< 10	< 10		**3448**	**218**	**537**	63
300.1	10			10	10	63					
301.1	10			< 10	< 10	**241**	< 10				
301.2	10			31	< 10	10					
320	< 10			< 10	< 10	20		**> 24196**	**3654**	**798**	**120**

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	11/26	0.75	11/28	0.12
Aquatic Park	210.1, 211	11/27	0.03	11/30	0.19
Mission Creek	220				
Candlestick Point State Recreation Area	300.1, 301.1, 301.2				
Islais Creek	320				

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Tue/13	Mon/19	Tue/20	Wed/21	Thu/22	Fri/23	Sat/24
202.4	10	< 10	10	75	6131	160		
202.5	10	10	31		2064	1198	341	243
210.1	52	31	< 10		**> 24196**	285		
211	10	20	10		201			
220	< 10	< 10	20		**> 24196**	**> 24196**	**> 24196**	**19863**
300.1	481	31	10					
301.1	171	160	31					
301.2	31	10	< 10					
320	31	158	457		**> 24196**	**> 24196**	**> 24196**	**> 24196**

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/05	Tue/13	Mon/19	Tue/20	Wed/21	Thu/22	Fri/23	Sat/24
202.4	< 10	< 10	10	52	**985**	52		
202.5	10	10	10		**464**	**657**	75	75
210.1	< 10	< 10	< 10		63	52		
211	< 10	10	< 10		41			
220	< 10	< 10	< 10		**> 24196**	**6867**	**1137**	**448**
300.1	318	< 10	10					
301.1	41	10	10					
301.2	10	10	< 10					
320	< 10	20	97		**> 24196**	**> 24196**	**14136**	**2142**

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/05	Tue/13	Mon/19	Tue/20	Wed/21	Thu/22	Fri/23	Sat/24
202.4	< 10	< 10	**110**	41	**173**	< 10		
202.5	< 10	< 10	10		**122**	**631**	98	31
210.1	52	10	< 10		< 10	20		
211	10	10	< 10		52			
220	< 10	< 10	< 10		**> 24196**	**908**	**414**	63
300.1	20	< 10	< 10					
301.1	84	31	20					
301.2	< 10	< 10	< 10					
320	< 10	10	10		**24196**	**> 24196**	**3448**	31

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	11/21 1.39
Aquatic Park	210.1, 211	11/22 0.66
Mission Creek	220	11/23 0.79
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	11/24 0.03
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION remained posted and resampled due to borderline result

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

R Duggan

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SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
November 2018 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sun/25	Mon/26	Tue/27	Thu/29	Fri/30	30-day Geometric Mean[2]
202.4		216		2481	521	140
202.5		41		1076	*	145
210.1		158		355		180
211		189		602		60
220	1408	1017		**24196**	**12997**	1654
300.1		122				
301.1		855				
301.2		528		1314	538	102
320	**17329**	**17329**	1918	**> 24196**	**> 24196**	5024

Sampling/Posting issues
202.5 sampled the next day

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Sun/25	Mon/26	Tue/27	Thu/29	Fri/30	30-day Geometric Mean[2]
202.4		10		31	31	31
202.5		10		31	*	43
210.1		41		31		24
211		< 10		41		16
220	160	31		**1223**	368	245
300.1		< 10				
301.1		108				
301.2		211		201	63	37
320	**479**	**480**	187	**> 24196**	**4884**	1048

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Sun/25	Mon/26	Tue/27	Thu/29	Fri/30	30-day Geometric Mean[2]
202.4		20		**135**	< 10	30
202.5		10		**107**	*	40
210.1		< 10		31		16
211		< 10		75		18
220	10	10		**488**	**109**	90
300.1		< 10				
301.1		75				
301.2		31		**717**	41	31
320	41	**108**	< 10	**8164**	**578**	220

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	11/27 0.26
Aquatic Park	210.1, 211	11/28 1.04
Mission Creek	220	11/29 0.37
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* STATION sampled the next day

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
December 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sun/01	Mon/02	Tue/03	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12
202.4		135		233	173			
202.5		684		135	146			
210.1		275		1119	336			
211		108		1106	246			
220		3654	120	**> 24196**	**12033**	3873		
300.1		2613	556		627			
301.1		1333	231		1334			
301.2		1081	441		727			
320	2481	4352		**> 24196**	**> 24196**	**> 24196**	**14136**	6488

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Sun/01	Mon/02	Tue/03	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12
202.4		10		75	20			
202.5		10		20	< 10			
210.1		98		**538**	63			
211		20		**414**	41			
220		228	< 10	**5172**	**789**	146		
300.1		231	41		158			
301.1		97	10		52			
301.2		213	20		52			
320	135	134		**> 24196**	**8164**	**4611**	**529**	393

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Sun/01	Mon/02	Tue/03	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12
202.4		31		**173**	< 10			
202.5		84		< 10	10			
210.1		10		**226**	< 10			
211		20		**231**	< 10			
220		**171**	< 10	**1842**	**298**	86		
300.1		**583**	75		31			
301.1		**106**	10		10			
301.2		**602**	41		52			
320	**109**	98		**> 24196**	**638**	**109**	**145**	97

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	12/01	0.18	12/08	0.19
Aquatic Park	210.1, 211	12/02	0.27	12/09	0.01
Mission Creek	220	12/03	0.02	12/10	0.18
Candlestick Point	300.1, 301.1, 301.2	12/04	0.23	12/11	0.17
State Recreation Area		12/06	0.43	12/12	0.04
Islais Creek	320	12/07	0.58		

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

City and County of San Francisco
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December 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/16	Tue/17	Mon/23	Tue/24	Mon/30	Tue/31
202.4	10		75		1414	
202.5	10		20		63	
210.1	31		41		31	
211	10		52		86	
220	161		201		862	
300.1	2282	663	2723	554	1281	3654
301.1	1597		3654	1439	959	
301.2	145		650		31	
320	3448		9804	4352	1396	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/16	Tue/17	Mon/23	Tue/24	Mon/30	Tue/31
202.4	< 10		< 10		52	
202.5	< 10		< 10		< 10	
210.1	10		< 10		10	
211	< 10		< 10		< 10	
220	20		41		135	
300.1	160	31	216	52	41	**2909**
301.1	63		97	20	85	
301.2	10		20		< 10	
320	218		364	63	52	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/16	Tue/17	Mon/23	Tue/24	Mon/30	Tue/31
202.4	< 10		20		52	
202.5	10		10		< 10	
210.1	< 10		20		< 10	
211	< 10		20		10	
220	< 10		10		51	
300.1	**216**	73	**613**	20	**145**	**121**
301.1	41		**173**	52	98	
301.2	31		74		< 10	
320	52		**226**	85	84	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	12/13	0.06	12/22	0.67
Aquatic Park	210.1, 211	12/14	0.03	12/24	0.01
Mission Creek	220	12/17	0.03	12/25	0.30
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	12/18	0.48	12/29	0.53
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED later determined no Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
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December 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sat/01	Sun/02	Mon/03	Tue/04	Mon/10	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
202.4			20		41	359		52		< 10	43
202.5	**17329**	122	10		63	85		109		63	134
210.1			74		20	259		*		*	
211			318	75	10	262		134		135	102
220	**> 24196**	862	1160		395	**> 24196**	364	201		201	1165
300.1			677	504	86	4106	556	120		63	338
301.1			743		404	**14136**	411	3255	332	63	738
301.2			**14136**	906	< 10	2359	317	282		31	363
320	9804	7270	2187		1012	2613		471		75	1466

Sampling/Posting issues: Hyde St pier (210.1) not accessible due to partial govt. shutdown

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Sat/01	Sun/02	Mon/03	Tue/04	Mon/10	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
202.4			< 10		< 10	85		10		< 10	15
202.5	**512**	< 10	< 10		10	20		< 10		10	19
210.1			< 10		< 10	98		*		*	
211			216	10	< 10	10		41		31	25
220	**691**	52	74		20	**> 24196**	10	10		75	100
300.1			355	173	20	**554**	85	10		10	67
301.1			145		20	**4106**	132	134	63	31	122
301.2			**583**	86	< 10	110	31	41		< 10	49
320	**414**	223	75		31	20		< 10		< 10	46

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Sat/01	Sun/02	Mon/03	Tue/04	Mon/10	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
202.4			< 10		< 10	63		< 10		< 10	14
202.5	**383**	< 10	< 10		< 10	41		< 10		< 10	21
210.1			< 10		< 10	31		*		*	
211			**243**	85	< 10	20		< 10		10	27
220	**161**	20	20		< 10	**6131**	10	10		10	38
300.1			**776**	73	10	**448**	41	74		10	69
301.1			20		20	**2489**	41	**173**	85	10	67
301.2			**884**	31	10	**134**	30	41		< 10	46
320	98	75	30		20	75		31		< 10	37

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	12/01	0.31	12/16	0.83
Aquatic Park	210.1, 211	12/04	0.04	12/21	0.06
Mission Creek	220	12/05	0.30	12/24	0.68
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	12/14	0.03		
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to partial government shutdown

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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May 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Tue/26
202.4	< 10				< 10	< 10		20
202.5	< 10				10	74		30
210.1	*				*	*		*
211	20				< 10	41		10
220	*				496	1314		554
300.1	199				4352	554		5938
301.1	7701	8664	**12997**	1515	7701	**10462**	3076	5475
301.2	109				801	161		4106
320	512				624	1246		728

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Tue/26
202.4	< 10				< 10	< 10		< 10
202.5	< 10				< 10	< 10		< 10
210.1	*				*	*		*
211	< 10				< 10	20		10
220	*				20	10		10
300.1	20				253	52		10
301.1	**1670**	**714**	**414**	10	211	305	119	75
301.2	< 10				30	10		20
320	< 10				30	31		20

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Tue/26
202.4	< 10				< 10	< 10		< 10
202.5	10				< 10	10		< 10
210.1	*				*	*		*
211	< 10				< 10	< 10		52
220	*				< 10	< 10		< 10
300.1	< 10				52	10		< 10
301.1	< 10	41	< 10	20	10	10	< 10	< 10
301.2	< 10				10	< 10		< 10
320	< 10				< 10	10		< 10

Sampling/Posting issues
Mission Creek (220) on 5/4/20 and Hyde St Pier (210.1) not accessible due to Covid-19 social distancing restrictions

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	05/12 0.04
Aquatic Park	210.1, 211	05/14 0.02
Mission Creek	220	05/15 0.01
Candlestick Point	300.1, 301.1, 301.2	05/17 0.25
State Recreation Area		05/18 0.03
Islais Creek	320	

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

* Station not accessible due to Covid-19 restrictions

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: Ross Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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June 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/09	Mon/15	Tue/16	Mon/22	Mon/29
202.4	52	41		2187	52	41	31
202.5	20	41		63	10	20	41
210.1	*	*		*		*	*
211	85	52		10		98	41
220	284	435		379		285	231
300.1	4352	1267		1374		326	315
301.1	1334	7701		6488	591	3873	981
301.2	278	**> 24196**	381	97		395	142
320	520	4106		97		794	399

Sampling/Posting issues
Hyde St Pier (210.1) not accessible due to Covid-19 social distancing restrictions

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/09	Mon/15	Tue/16	Mon/22	Mon/29
202.4	< 10	< 10		< 10	< 10	< 10	< 10
202.5	< 10	< 10		< 10	< 10	< 10	10
210.1	*	*		*		*	*
211	75	< 10		< 10		20	10
220	41	< 10		< 10		< 10	< 10
300.1	132	52		41		< 10	52
301.1	41	131		**738**	20	173	41
301.2	10	< 10	171	< 10		10	10
320	20	20		10		96	52

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/09	Mon/15	Tue/16	Mon/22	Mon/29
202.4	< 10	10		**6488**	< 10	10	< 10
202.5	< 10	< 10		**269**	< 10	< 10	< 10
210.1	*	*		*		*	*
211	10	< 10		< 10		< 10	10
220	< 10	< 10		< 10		< 10	< 10
300.1	< 10	< 10		20		< 10	< 10
301.1	< 10	20		10	< 10	< 10	10
301.2	10	< 10	10	< 10		< 10	< 10
320	10	< 10		< 10		30	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	None
Aquatic Park	210.1, 211	
Mission Creek	220	
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to Covid-19 restrictions

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

 Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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January 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Wed/20	Mon/25	30-day Geometric Mean[2]
15	171	9804	842		3784		481		5794	1568
15EAST	74	158	464		52		146		84	123
16	20	155	439		31		110		75	84
17	20				97		173		20	
18	10		1071		41	733	6131	85	41	183
19	51		2755	327	52	960	**> 24196**	109	41	354
21.1	31		233		20	327	**15531**	10	96	132
20			548			410	2481	20		
21			706			489	3448	109		
22			231				**19863**	135		

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Wed/20	Mon/25	30-day Geometric Mean[2]
15	20	241	85		30		10		52	43
15EAST	20	20	109		20		< 10		< 10	21
16	10	51	161		< 10		< 10		31	25
17	10				< 10		20		< 10	
18	10		216		20	98	**2247**	31	10	60
19	< 10		**591**	63	20	135	**24196**	20	< 10	91
21.1	20		20		< 10	52	**4106**	< 10	20	40
20			97			52	336	10		
21			41			41	373	10		
22			20				**1565**	< 10		

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Wed/20	Mon/25	30-day Geometric Mean[2]
15	< 10	**384**	52		10		31		10	29
15EAST	10	52	52		20		10		< 10	19
16	< 10	**379**	41		< 10		20		< 10	26
17	< 10				10		31		< 10	
18	20		52		< 10	20	**520**	10	< 10	27
19	< 10		**173**	52	10	52	**> 24196**	10	< 10	57
21.1	< 10		62		< 10	10	**749**	20	30	31
20			84			41	**109**	< 10		
21			63			20	**146**	10		
22			75				**1529**	< 10		

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)

01/03	0.04	01/10	0.01	01/18	0.17
01/04	0.06	01/13	0.21	01/19	1.02
01/05	1.07	01/14	0.08	01/22	0.12
01/06	1.01	01/15	0.12	01/23	0.04
01/07	0.08	01/16	0.23	01/29	0.30
01/09	0.17	01/17	1.05	01/30	0.01

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
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January 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/03	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12	Fri/13	Tue/17
15	1296		842		4160	1291		2851
15EAST	98		145		644	281		1106
16	31		121		1014	426		480
17	< 10		108					327
18	10	**> 24196**	171		504			20
19	52	**> 24196**	586		594	571	31	31
21.1	10	583	148		504			< 10
20		794	247		404			
21		620	309		318			
22		**> 24196**	135	**> 24196**	1872			

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/03	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12	Fri/13	Tue/17
15	10		31		345	86		10
15EAST	< 10		10		231	52		10
16	< 10		< 10		393	31		10
17	< 10		10					< 10
18	10	**> 24196**	< 10		98			< 10
19	31	**> 24196**	63		171	109	< 10	< 10
21.1	< 10	20	< 10		63			< 10
20		75	< 10		63			
21		75	< 10		62			
22		**> 24196**	10	**1658**	110			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Tue/03	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12	Fri/13	Tue/17
15	10		< 10		**146**	52		20
15EAST	< 10		< 10		**121**	20		10
16	< 10		20		**134**	31		< 10
17	< 10		10					< 10
18	< 10	**5794**	< 10		84			< 10
19	< 10	**> 24196**	31		**134**	**233**	< 10	< 10
21.1	< 10	**195**	10		31			< 10
20		**145**	85		62			
21		**122**	31		31			
22		**19863**	**158**	**7701**	20			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
01/01	0.05	01/08	1.36
01/02	0.04	01/09	0.15
01/03	0.31	01/10	1.62
01/04	0.67	01/11	0.19
01/07	0.75	01/12	0.36

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2017 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Mon/30	30-day Geometric Mean[2]
15	6488	3448		359	1835	206	1481
15EAST	160	243		563	336	132	278
16	169	426		238	743	52	235
17					638	52	103
18					233	31	163
19					420	10	216
21.1		265			256	< 10	86
20		712					487
21		309					370
22		2247	341				2200

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Mon/30	30-day Geometric Mean[2]
15	364	233		< 10	20	< 10	42
15EAST	< 10	20		< 10	< 10	10	17
16	< 10	< 10		10	20	< 10	17
17					41	< 10	13
18					41	10	52
19					63	< 10	73
21.1		20			41	< 10	18
20		75					43
21		20					31
22		**441**	75				337

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Mon/30	30-day Geometric Mean[2]
15	75	< 10		< 10	41	10	23
15EAST	10	20		20	< 10	< 10	16
16	< 10	10		20	20	< 10	18
17					20	< 10	11
18					< 10	10	34
19					31	< 10	58
21.1		20			20	< 10	20
20		20					63
21		20					39
22		75	41				338

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	01/18	0.69	01/21	0.29
China Beach	17	01/19	0.03	01/22	0.74
Ocean Beach	18, 19, 20, 21, 21.1	01/20	0.72	01/23	0.43
Ft. Funston	22				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED but no Combined Sewer Discharge occurred

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2018 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/02	Wed/03	Thu/04	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12
15	816	1334	10	**24196**	4106	3255	4352	52
15EAST	119	< 10	30	175	988	197	86	41
16	97			109	1607			
17	31			1210				
18	< 10			41				
19	< 10			**> 24196**	6488	771		
21.1	31			985	6488	450		
20				3076	691			
21				**> 24196**	**12997**	2755	171	
22				**> 24196**	1565			

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/02	Wed/03	Thu/04	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12
15	135	52	10	**1291**	171	173	158	< 10
15EAST	84	< 10	10	< 10	259	52	41	10
16	63			10	243			
17	10			161				
18	< 10			< 10				
19	< 10			**> 24196**	**1274**	98		
21.1	10			52	**727**	98		
20				**464**	201			
21				**> 24196**	**1607**	**462**	20	
22				**6131**	262			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Tue/02	Wed/03	Thu/04	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12
15	**183**	**836**	20	**2400**	**223**	**256**	**187**	< 10
15EAST	41	10	10	41	52	10	< 10	10
16	10			**110**	52			
17	< 10			52				
18	< 10			< 10				
19	< 10			**> 24196**	**146**	31		
21.1	10			**368**	**199**	< 10		
20				**144**	41			
21				**17329**	**173**	41	< 10	
22				**3609**	52			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	01/03	0.04	01/08	3.67
China Beach	17	01/04	0.02	01/09	0.39
Ocean Beach	18, 19, 20, 21, 21.1	01/05	0.30	01/10	0.01
Ft. Funston	22				

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/16	Mon/22	Tue/23	Wed/24	Thu/25	Mon/29	30-day Geometric Mean[2]
15	288	9804	1607	9208	7701	2755	1598
15EAST	98	85	134	2382	30	52	104
16	173	52		327		41	154
17	10	*	20			< 10	38
18	75	20				52	32
19	31	63				31	257
21.1	135	31				52	212

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/16	Mon/22	Tue/23	Wed/24	Thu/25	Mon/29	30-day Geometric Mean[2]
15	73	98	52	246	10	52	76
15EAST	20	< 10	< 10	63	< 10	10	22
16	10	20		20		< 10	25
17	10	*	10			< 10	17
18	31	< 10				20	14
19	10	10				10	84
21.1	41	20				< 10	44

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Tue/16	Mon/22	Tue/23	Wed/24	Thu/25	Mon/29	30-day Geometric Mean[2]
15	20	**110**	75	**122**	< 10	20	92
15EAST	< 10	10	< 10	20	98	< 10	17
16	74	< 10		20		< 10	26
17	10	*	< 10			< 10	14
18	10	10				< 10	10
19	31	10				20	68
21.1	10	< 10				< 10	26

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	01/18 0.34 01/25 0.04
China Beach	17	01/22 0.23 01/26 0.01
Ocean Beach	18, 19, 20, 21, 21.1	01/24 0.3
Ft. Funston	22	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* No access to site due to locked gate; sample collected the next day

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by R Duggan

City and County of San Francisco
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February 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/16	Thu/18	Mon/22	Tue/23	Mon/29	30-day Geometric Mean[2]
15	3448	131	1374		5172	2755	888	1410
15EAST	52	41	41		< 10	31	< 10	25
16	20	20	10		20		10	15
17	41	932	< 10	41	< 10		< 10	34
18	< 10	41	10		52		< 10	18
19	110	10	< 10		63		1046	59
21.1	98	< 10	10		85		20	28

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/16	Thu/18	Mon/22	Tue/23	Mon/29	30-day Geometric Mean[2]
15	41	< 10	31		**749**	156	< 10	50
15EAST	10	10	10		< 10	10	< 10	10
16	< 10	10	< 10		< 10		10	10
17	< 10	< 10	< 10	10	< 10		< 10	10
18	< 10	10	< 10		< 10		< 10	10
19	< 10	10	< 10		10		**1046**	25
21.1	10	< 10	< 10		31		10	13

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/16	Thu/18	Mon/22	Tue/23	Mon/29	30-day Geometric Mean[2]
15	10	20	31		30	31	< 10	20
15EAST	10	< 10	< 10		< 10	< 10	< 10	10
16	< 10	20	10		< 10		20	13
17	< 10	< 10	< 10	10	10		10	10
18	< 10	< 10	< 10		< 10		< 10	10
19	< 10	< 10	< 10		< 10		< 10	10
21.1	10	< 10	< 10		10		< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 21.1

Rainfall (in.)	
02/02	0.20
02/17	0.46
02/18	0.06
02/19	0.21
02/20	0.01

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED due to incorrect set points on overflow alarm

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R. Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Thu/09	Mon/13	Sat/18	Sun/19	Mon/20	Tue/21	Wed/22	Mon/27	30-day Geometric Mean[2]
15	**14136**	*	5475		663	1842	2851	1162	1723		189	1783
15EAST	74	*	259		226	620	480	697	1314		185	349
16	52	*	201		443	767		341	2613		201	349
17	109				448				1296	657	122	348
18	31	*	345		31			432	265		52	112
19	74	*	228		30			5172	538		122	236
21.1	131	*	733	959	10			345	857		31	188
20		*	496					313	457			
21		*	350					350	631			
22		201						**> 24196**	1223			

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Thu/09	Mon/13	Sat/18	Sun/19	Mon/20	Tue/21	Wed/22	Mon/27	30-day Geometric Mean[2]
15	85	*	63		< 10	84	10	31	226		31	42
15EAST	< 10	*	20		10	31	10	20	231		20	22
16	< 10	*	41		20	63		10	187		10	27
17	10				20				241	30	< 10	27
18	10	*	31		< 10			52	31		10	19
19	30	*	10		< 10			**860**	31		< 10	30
21.1	10	*	20	97	< 10			85	86		< 10	28
20		*	10					< 10	96			
21		*	< 10					52	52			
22		31						**9804**	97			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Thu/09	Mon/13	Sat/18	Sun/19	Mon/20	Tue/21	Wed/22	Mon/27	30-day Geometric Mean[2]
15	41	*	< 10		< 10	**107**	10	20	20		< 10	19
15EAST	< 10	*	20		< 10	10	31	31	52		< 10	18
16	< 10	*	< 10		< 10	10		10	20		< 10	11
17	< 10				20				**110**	10	< 10	19
18	< 10	*	20		< 10			10	< 10		< 10	11
19	< 10	*	10		< 10			199	10		< 10	16
21.1	10	*	**426**	52	< 10			20	30		< 10	28
20		*	20					30	31			
21		*	20					10	20			
22		< 10						**3654**	< 10			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)

02/02	0.07	02/08	0.31	02/18	0.35						
02/03	0.44	02/09	0.88	02/19	0.11	02/25	0.02				
02/04	0.53	02/10	0.02	02/20	1.62	02/26	0.10				
02/05	0.25	02/15	0.09	02/21	0.41	02/27	0.02				
02/06	0.40	02/16	0.42	02/22	0.01						
02/07	0.90	02/17	1.01	02/23	0.01						

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* STATION POSTED due to Combined Sewer Discharge sampled next day due to sampling error
STATION POSTED due to error

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: A Loveland

City and County of San Francisco
SFPUC Wastewater Enterprise
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Tue/20	Mon/26	30-day Geometric Mean[2]
15	2924	249	74	3076	266	536
15EAST	2187	10	63	10	97	67
16	< 10		20	< 10	63	
17	< 10		31	< 10	10	
18	< 10		689	10	10	
19	< 10		20	10	10	
21.1	< 10		98	< 10	< 10	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Tue/20	Mon/26	30-day Geometric Mean[2]
15	84	20	< 10	20	< 10	20
15EAST	**2098**	< 10	52	< 10	< 10	41
16	< 10		10	< 10	< 10	
17	< 10		< 10	< 10	< 10	
18	< 10		10	< 10	10	
19	< 10		< 10	< 10	10	
21.1	< 10		31	< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/05	Tue/06	Mon/12	Tue/20	Mon/26	30-day Geometric Mean[2]
15	31	10	10	< 10	10	13
15EAST	41	< 10	31	< 10	10	17
16	< 10		< 10	< 10	10	
17	10		< 10	< 10	< 10	
18	< 10		< 10	< 10	< 10	
19	< 10		10	< 10	20	
21.1	< 10		< 10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	02/26 0.24
China Beach	17	02/28 0.21
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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March 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/01	Sun/06	Mon/07	Tue/08	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
15		**15531**	759	86				1187		109		3076	860
15EAST		448	563	31				110		1334	95	10	141
16		341	749	52				73		121	74	10	98
17		617	1374					63	86	6867	20	20	200
18		305	677	218	146		364	97		134		10	154
19	< 10	1250	2046	187	2247	328	**19863**	350		20		10	294
21.1		228		183 *	1935	52	228	41		121		< 10	115
20		265			2143	120	350						393
21		189			1314		6488	121					
22		426											

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/01	Sun/06	Mon/07	Tue/08	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
15		122	145	10				31		41		10	36
15EAST		75	109	10				< 10		**620**	< 10	< 10	34
16		63	292	< 10				41		20	10	10	28
17		86	259					< 10	10	**455**	< 10	10	37
18		20	146	< 10	10		41	20		41		< 10	24
19	< 10	52	**520**	10	**1081**	41	**1723**	122		< 10		< 10	69
21.1		31		41 *	52	10	10	< 10		52		< 10	19
20		20			122	20	31						35
21		20			75		**697**	20					
22		20											

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Tue/01	Sun/06	Mon/07	Tue/08	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
15		63	**420**	< 10				31		< 10		20	34
15EAST		20	63	< 10				20		**697**	10	< 10	29
16		10	**231**	< 10				< 10		**145**	< 10	< 10	23
17		< 10	84					< 10	20	**169**	< 10	< 10	22
18		< 10	**110**	< 10	41		41	10		< 10		< 10	19
19	< 10	31	**315**	< 10	73	10	**465**	20		20		< 10	33
21.1		20		41 *	**183**	10	20	< 10		20		< 10	20
20		10			**187**	< 10	31						28
21		10			95		**235**	20					
22		63											

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
03/03	0.04	03/10	0.95
03/04	0.34	03/11	0.38
03/05	1.21	03/12	1.21
03/06	0.57	03/13	0.46
03/07	0.19	03/20	0.10
03/09	0.14	03/21	0.16

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
Not physically posted
STATION POSTED due to private residence sewage lateral pipe breakage draining into storm drain

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

***** Not sampled till the next day due to safety reasons

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sun/05	Mon/06	Tue/07	Mon/13	Mon/20	Tue/21	Wed/22	Fri/24	Mon/27	30-day Geometric Mean[2]
15	443	8164		616	8664	246	288		1421	1100
15EAST	744	563		63	30	171	345		86	169
16	323	336		10	< 10	52	216		20	59
17		228		20	< 10			132	98	57
18	573	226		10	< 10	228			10	56
19	**> 24196**	512		< 10	10	8164	231		10	218
21.1	2909	201		< 10	< 10	1137			20	105
20	2481					771				
21	**14136**	1782	86			591				
22	1989					1054				

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Sun/05	Mon/06	Tue/07	Mon/13	Mon/20	Tue/21	Wed/22	Fri/24	Mon/27	30-day Geometric Mean[2]
15	< 10	20		< 10	31	41	10		20	18
15EAST	86	20		< 10	< 10	< 10	98		< 10	21
16	52	20		< 10	< 10	< 10	20		10	15
17		41		20	< 10			20	< 10	17
18	52	52		< 10	< 10	10			< 10	17
19	**9804**	52		< 10	< 10	**1081**	31		< 10	78
21.1	231	20		< 10	< 10	52			< 10	25
20	336					20				
21	**2098**	**480**	< 10			20				
22	199					63				

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Sun/05	Mon/06	Tue/07	Mon/13	Mon/20	Tue/21	Wed/22	Fri/24	Mon/27	30-day Geometric Mean[2]
15	< 10	10		< 10	75	< 10	< 10		< 10	13
15EAST	10	< 10		< 10	< 10	< 10	< 10		< 10	10
16	20	< 10		10	< 10	< 10	< 10		< 10	11
17		10		< 10	< 10			< 10	10	10
18	20	< 10		< 10	< 10	< 10			< 10	11
19	**1334**	20		< 10	< 10	**185**	< 10		< 10	34
21.1	**108**	< 10		< 10	< 10	< 10			< 10	15
20	63					31				
21	**309**	41	< 10			< 10				
22	52					< 10				

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
03/04	1.13	03/21	0.32
03/05	0.25	03/22	0.10
03/06	0.35	03/24	0.56
03/16	0.01	03/25	0.01
03/20	0.97	03/26	0.04

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED due to loss of power at pump station; 5-day report submitted

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
March 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Thu/01	Fri/02	Sat/03	Sun/04	Mon/05	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
15	**24196**	1153	1169	5475	8164	41	226	882	1363
15EAST	789	256	836	20	63	85	52	20	108
16	109				10	226	10	< 10	30
17	41				10	20	< 10	< 10	15
18					144	41	10	< 10	
19					10	10	< 10	< 10	
21.1					85	20	< 10	< 10	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Thu/01	Fri/02	Sat/03	Sun/04	Mon/05	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
15	**435**	85	63	187	122	< 10	20	20	62
15EAST	86	98	< 10	< 10	10	20	10	< 10	19
16	20				< 10	10	< 10	< 10	11
17	< 10				10	< 10	< 10	< 10	10
18					144	20	< 10	< 10	
19					< 10	< 10	< 10	< 10	
21.1					63	< 10	< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Thu/01	Fri/02	Sat/03	Sun/04	Mon/05	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
15	**309**	**683**	**121**	**144**	73	< 10	< 10	< 10	64
15EAST	52	**7701**	10	**292**	< 10	< 10	< 10	< 10	43
16	< 10				< 10	< 10	< 10	< 10	10
17	< 10				< 10	< 10	< 10	< 10	10
18					< 10	< 10	< 10	< 10	
19					< 10	< 10	< 10	< 10	
21.1					10	< 10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 21.1

Rainfall (in.)			
03/01	0.89	03/15	0.40
03/02	0.18	03/16	0.21
03/03	0.06	03/17	0.22
03/04	0.03	03/20	0.61
03/07	0.02	03/21	0.28
03/08	0.06	03/22	0.45
03/12	0.04	03/24	0.04
03/13	0.59	03/25	0.04
03/14	0.04		

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED but no CSD occurred at this site

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
April 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Mon/11	Mon/18	Mon/25	30-day Geometric Mean[2]
15	6131	131	520	4106	
15EAST	< 10	97	10	31	
16	< 10	20	20	< 10	
17	10	52	< 10	< 10	
18	10	10	< 10	10	
19	20	20	< 10	< 10	
21.1	< 10	20	20	20	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/04	Mon/11	Mon/18	Mon/25	30-day Geometric Mean[2]
15	30	10	< 10	63	
15EAST	< 10	10	10	< 10	
16	< 10	10	< 10	< 10	
17	10	< 10	< 10	< 10	
18	< 10	10	< 10	10	
19	< 10	20	< 10	< 10	
21.1	< 10	20	< 10	10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Mon/11	Mon/18	Mon/25	30-day Geometric Mean[2]
15	< 10	< 10	10	31	
15EAST	< 10	10	< 10	< 10	
16	< 10	10	< 10	< 10	
17	< 10	< 10	< 10	< 10	
18	< 10	< 10	< 10	< 10	
19	< 10	< 10	< 10	< 10	
21.1	< 10	< 10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 21.1

Rainfall (in.)	
04/08	0.14
04/09	0.46
04/10	0.04
04/14	0.08
04/22	0.16
04/27	0.08

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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April 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Fri/07	Sat/08	Mon/10	Mon/17	Mon/24	30-day Geometric Mean[2]
15	1014			142	131	3076	
15EAST	52			63	110	41	
16	10			331	3654	31	
17	41			110	110	171	
18	20	97		63	31	< 10	33
19	20	1529	132	41	31	41	77
21.1	< 10	134		52	31	< 10	29
20		63					
21		197					
22		74					

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/03	Fri/07	Sat/08	Mon/10	Mon/17	Mon/24	30-day Geometric Mean[2]
15	31			10	10	109	
15EAST	10			10	10	< 10	
16	< 10			31	10	10	
17	20			< 10	20	< 10	
18	< 10	10		< 10	10	< 10	10
19	10	**422**	30	< 10	< 10	10	22
21.1	< 10	31		10	10	< 10	13
20		< 10					
21		20					
22		< 10					

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/03	Fri/07	Sat/08	Mon/10	Mon/17	Mon/24	30-day Geometric Mean[2]
15	41			10	< 10	52	
15EAST	< 10			< 10	10	< 10	
16	< 10			30	< 10	< 10	
17	< 10			< 10	< 10	< 10	
18	10	< 10		< 10	< 10	< 10	10
19	10	85	< 10	< 10	10	< 10	14
21.1	< 10	20		< 10	< 10	< 10	11
20		20					
21		10					
22		20					

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)		
04/06 0.94	04/16 0.09	04/25 0.01
04/07 0.29	04/17 0.12	04/26 0.02
04/08 0.11	04/18 0.06	
04/11 0.01	04/19 0.22	
04/12 0.31	04/20 0.02	
04/13 0.10	04/24 0.01	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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April 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Tue/03	Sat/07	Sun/08	Mon/09	Tue/10	Mon/16	Mon/23	30-day Geometric Mean[2]
15	545	20	3076	7270	1014		63	292	463
15EAST	51	< 10	3448	305	86		109	31	107
16	20	10	4352	323	52		10	52	69
17	10				122		20	109	
18	20		7270	253	63		31	10	95
19	< 10		**12033**	1860	420		41	10	184
21.1	< 10		959		663	10	41	20	61
20			2755	97					
21			2613						
22			1046						

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/02	Tue/03	Sat/07	Sun/08	Mon/09	Tue/10	Mon/16	Mon/23	30-day Geometric Mean[2]
15	20	< 10	**408**	**882**	41		< 10	< 10	44
15EAST	< 10	< 10	345	31	< 10		20	< 10	22
16	10	< 10	**583**	31	10		10	< 10	21
17	< 10				10		10	74	
18	10		**1017**	20	< 10		10	< 10	24
19	< 10		**1314**	135	216		10	< 10	58
21.1	< 10		10		393	< 10	20	10	21
20			238	10					
21			199						
22			98						

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/02	Tue/03	Sat/07	Sun/08	Mon/09	Tue/10	Mon/16	Mon/23	30-day Geometric Mean[2]
15	**256**	< 10	85	**11199**	41		< 10	30	84
15EAST	**1019**	< 10	41	20	10		< 10	< 10	26
16	**158**	< 10	20	10	10		< 10	< 10	16
17	< 10				10		< 10	< 10	
18	< 10		**238**	10	10		20	< 10	19
19	< 10		**226**	63	< 10		< 10	< 10	23
21.1	10		10		**1500**	< 10	10	< 10	23
20			**108**	< 10					
21			85						
22			85						

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)	
04/05	0.16
04/06	2.01
04/07	1.13
04/11	0.19
04/15	0.22
04/16	0.10

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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May 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Tue/03	Mon/09	Mon/16	Mon/23	Tue/31	30-day Geometric Mean[2]
15	**10462**	189	813	52	457	1624	629
15EAST	< 10	41	41	52	75	< 10	29
16	20		10	20	< 10	< 10	13
17	< 10		20	< 10	20	10	13
18	10		< 10	10	10	41	13
19	10		20	< 10	20	20	15
21.1	< 10		10	< 10	< 10	< 10	10

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/02	Tue/03	Mon/09	Mon/16	Mon/23	Tue/31	30-day Geometric Mean[2]
15	20	31	10	< 10	20	97	22
15EAST	< 10	10	20	< 10	< 10	< 10	11
16	< 10		< 10	< 10	< 10	< 10	10
17	< 10		< 10	< 10	< 10	< 10	10
18	< 10		< 10	< 10	10	10	10
19	< 10		20	< 10	10	10	11
21.1	< 10		10	< 10	< 10	< 10	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Tue/03	Mon/09	Mon/16	Mon/23	Tue/31	30-day Geometric Mean[2]
15	84	10	10	< 10	< 10	41	18
15EAST	< 10	< 10	< 10	< 10	< 10	< 10	10
16	< 10		< 10	< 10	< 10	< 10	10
17	10		< 10	< 10	< 10	< 10	10
18	< 10		< 10	< 10	< 10	< 10	10
19	< 10		< 10	< 10	10	< 10	10
21.1	< 10		< 10	10	< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	05/06 0.06
China Beach	17	05/07 0.04
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: RDuggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
May 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Mon/08	Mon/15	Mon/22	Tue/30	30-day Geometric Mean[2]
15	1872	457	275	63	1455	464
15EAST	110	63	52	95	< 10	51
16	< 10	10	< 10	52	30	17
17	< 10	30	10	41	20	19
18	20	< 10	31	< 10	20	17
19	10	10	10	749	< 10	24
21.1	< 10	10	20	< 10	< 10	11

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/01	Mon/08	Mon/15	Mon/22	Tue/30	30-day Geometric Mean[2]
15	20	10	< 10	20	10	13
15EAST	< 10	< 10	< 10	10	< 10	10
16	< 10	10	< 10	< 10	< 10	10
17	< 10	< 10	< 10	10	< 10	10
18	10	< 10	10	< 10	10	10
19	10	10	< 10	84	< 10	15
21.1	< 10	< 10	20	< 10	< 10	11

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Mon/08	Mon/15	Mon/22	Tue/30	30-day Geometric Mean[2]
15	< 10	< 10	< 10	< 10	20	11
15EAST	< 10	< 10	< 10	< 10	< 10	10
16	< 10	< 10	< 10	< 10	< 10	10
17	< 10	< 10	< 10	10	< 10	10
18	< 10	< 10	< 10	< 10	< 10	10
19	< 10	< 10	< 10	10	< 10	10
21.1	< 10	< 10	< 10	< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	None
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R. Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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June 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Mon/27	30-day Geometric Mean[2]
15	295	657	738	5475	
15EAST	120	85	31	10	
16	< 10	< 10	20	10	
17	10	< 10	< 10	41	
18	< 10	< 10	< 10	< 10	
19	10	< 10	< 10	10	
21.1	10	10	< 10	< 10	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Mon/27	30-day Geometric Mean[2]
15	< 10	10	41	98	
15EAST	20	20	10	< 10	
16	< 10	< 10	< 10	< 10	
17	< 10	< 10	< 10	10	
18	< 10	< 10	< 10	< 10	
19	< 10	< 10	< 10	10	
21.1	< 10	< 10	< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Mon/27	30-day Geometric Mean[2]
15	< 10	< 10	20	41	
15EAST	20	< 10	< 10	< 10	
16	< 10	< 10	< 10	< 10	
17	10	< 10	< 10	10	
18	< 10	< 10	< 10	< 10	
19	41	< 10	< 10	< 10	
21.1	< 10	< 10	< 10	73	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	06/07 0.01
China Beach	17	06/08 0.01
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
June 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
15	402	292	932	256	
15EAST	120	< 10	41	96	
16	52	< 10	10	20	
17	20	< 10	84	10	
18	< 10	41	10	10	
19	10	10	10	< 10	
21.1	< 10	10	10	< 10	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/05	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
15	10	< 10	20	20	
15EAST	20	< 10	20	52	
16	10	< 10	< 10	< 10	
17	< 10	< 10	< 10	< 10	
18	< 10	41	10	10	
19	10	< 10	< 10	< 10	
21.1	< 10	< 10	< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/05	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
15	< 10	20	10	10	
15EAST	< 10	< 10	< 10	< 10	
16	< 10	< 10	< 10	< 10	
17	< 10	< 10	< 10	< 10	
18	< 10	< 10	< 10	< 10	
19	20	< 10	< 10	< 10	
21.1	< 10	< 10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	06/08 0.2
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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July 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/05	Mon/11	Mon/18	Mon/25	30-day Geometric Mean[2]
15	86	369	75	1354	
15EAST	31	75	20	63	
16	10	< 10	10	10	
17	20	< 10	10	< 10	
18	10	< 10	10	< 10	
19	31	< 10	< 10	< 10	
21.1	31	< 10	10	10	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/05	Mon/11	Mon/18	Mon/25	30-day Geometric Mean[2]
15	< 10	20	10	10	
15EAST	10	< 10	< 10	10	
16	< 10	< 10	< 10	< 10	
17	10	< 10	< 10	< 10	
18	10	< 10	< 10	< 10	
19	20	< 10	< 10	< 10	
21.1	20	< 10	< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/05	Mon/11	Mon/18	Mon/25	30-day Geometric Mean[2]
15	< 10	20	< 10	< 10	
15EAST	< 10	< 10	< 10	< 10	
16	< 10	< 10	< 10	< 10	
17	< 10	< 10	< 10	< 10	
18	< 10	< 10	< 10	< 10	
19	< 10	< 10	< 10	< 10	
21.1	< 10	10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	07/08 0.01
China Beach	17	07/09 0.01
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by R Duggan

City and County of San Francisco
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July 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Wed/05	Mon/10	Mon/17	Mon/24	Mon/31	30-day Geometric Mean[2]
15	638	1259	1374	417	259	654
15EAST	20	20	156	120	< 10	38
16	< 10	10	63	10	10	14
17	41	< 10	< 10	10	10	13
18	< 10	10	10	10	20	11
19	10	20	10	86	< 10	18
21.1	20	20	10	41	< 10	17

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Wed/05	Mon/10	Mon/17	Mon/24	Mon/31	30-day Geometric Mean[2]
15	41	158	41	10	63	44
15EAST	< 10	< 10	< 10	20	< 10	11
16	< 10	10	63	< 10	< 10	14
17	< 10	< 10	< 10	< 10	< 10	10
18	< 10	< 10	< 10	10	10	10
19	10	< 10	< 10	63	< 10	14
21.1	20	10	< 10	31	< 10	14

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Wed/05	Mon/10	Mon/17	Mon/24	Mon/31	30-day Geometric Mean[2]
15	10	63	41	10	**144**	33
15EAST	< 10	< 10	10	< 10	51	14
16	< 10	< 10	63	< 10	< 10	14
17	10	< 10	< 10	< 10	< 10	10
18	< 10	< 10	< 10	< 10	< 10	10
19	< 10	10	< 10	10	< 10	10
21.1	< 10	< 10	< 10	< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	None
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
August 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Tue/02	Mon/08	Mon/15	Mon/22	Fri/26	Mon/29	30-day Geometric Mean[2]
15	6131	211	2481	218	383		384	685
15EAST	52	20	1017	< 10	41		20	45
16	10		10	< 10	< 10		134	17
17	< 10		10	10	*	< 10	10	10
18	< 10		10	10	< 10		10	10
19	10		10	10	< 10		< 10	10
21.1	< 10		10	10	10		< 10	10

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/01	Tue/02	Mon/08	Mon/15	Mon/22	Fri/26	Mon/29	30-day Geometric Mean[2]
15	**565**	20	< 10	10	20		20	28
15EAST	10	< 10	< 10	< 10	< 10		< 10	10
16	< 10		10	< 10	< 10		< 10	10
17	< 10		10	< 10	*	< 10	< 10	10
18	< 10		10	< 10	< 10		< 10	10
19	< 10		10	10	< 10		< 10	10
21.1	< 10		10	< 10	< 10		< 10	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Tue/02	Mon/08	Mon/15	Mon/22	Fri/26	Mon/29	30-day Geometric Mean[2]
15	**193**	10	< 10	< 10	10		41	21
15EAST	< 10	< 10	< 10	< 10	10		< 10	10
16	< 10		< 10	< 10	< 10		10	10
17	< 10		10	< 10	*	< 10	< 10	10
18	< 10		< 10	< 10	< 10		< 10	10
19	< 10		< 10	< 10	< 10		< 10	10
21.1	< 10		< 10	< 10	< 10		< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	08/05 0.01
China Beach	17	08/06 0.01
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station sampled later in week due to restricted access by GGNRA.

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
August 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/01	Mon/07	Mon/14	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
15	1274	108	4106	9208	663	285	997
15EAST	< 10	1187	185	95	10	52	69
16		< 10	20	30		20	
17		10	< 10	< 10		10	
18		< 10	< 10	10		10	
19		10	10	< 10		< 10	
21.1		10	10	41		31	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/01	Mon/07	Mon/14	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
15	20	< 10	20	160	120	20	34
15EAST	< 10	< 10	10	10	10	< 10	10
16		< 10	< 10	10		< 10	
17		< 10	< 10	< 10		< 10	
18		< 10	< 10	10		10	
19		10	< 10	< 10		< 10	
21.1		10	10	10		10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/01	Mon/07	Mon/14	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
15	< 10	10	41	**285**	73	< 10	31
15EAST	< 10	< 10	31	< 10	< 10	< 10	12
16		< 10	< 10	< 10		< 10	
17		< 10	< 10	< 10		10	
18		< 10	< 10	< 10		< 10	
19		< 10	< 10	< 10		< 10	
21.1		10	< 10	10		10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	None
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R. Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
September 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/06	Wed/07	Thu/08	Mon/12	Mon/19	Tue/20	Mon/26	30-day Geometric Mean[2]
15	6867	5794	4884	350	7701	546	189	1768
15EAST	282	30	108	122	41	75	< 10	62
16	< 10			10	10		10	
17	< 10			20	10		< 10	
18	< 10			< 10	10		< 10	
19	10			< 10	10		< 10	
21.1	< 10			< 10	< 10		< 10	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/06	Wed/07	Thu/08	Mon/12	Mon/19	Tue/20	Mon/26	30-day Geometric Mean[2]
15	**426**	171	279	20	**410**	110	135	158
15EAST	20	10	20	10	< 10	20	< 10	13
16	< 10			< 10	10		10	
17	< 10			10	10		< 10	
18	< 10			< 10	< 10		< 10	
19	< 10			< 10	< 10		< 10	
21.1	< 10			< 10	< 10		< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/06	Wed/07	Thu/08	Mon/12	Mon/19	Tue/20	Mon/26	30-day Geometric Mean[2]
15	**161**	**122**	98	31	**109**	20	10	54
15EAST	10	< 10	< 10	< 10	< 10	< 10	< 10	10
16	< 10			< 10	10		< 10	
17	< 10			< 10	< 10		< 10	
18	< 10			< 10	< 10		< 10	
19	< 10			< 10	< 10		< 10	
21.1	< 10			< 10	< 10		10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	None
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R. Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
September 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/05	Mon/11	Mon/18	Mon/25	30-day Geometric Mean[2]
15	5794	987	1789	683	
15EAST	63	160	63	169	
16	< 10	10	10	10	
17	< 10	< 10	75	52	
18	10	10	< 10	< 10	
19	10	20	20	< 10	
21.1	41	30	< 10	10	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/05	Mon/11	Mon/18	Mon/25	30-day Geometric Mean[2]
15	63	20	121	30	
15EAST	30	10	< 10	63	
16	< 10	10	< 10	10	
17	< 10	< 10	< 10	< 10	
18	< 10	< 10	< 10	< 10	
19	< 10	20	< 10	< 10	
21.1	< 10	30	< 10	10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/05	Mon/11	Mon/18	Mon/25	30-day Geometric Mean[2]
15	97	63	63	20	
15EAST	10	< 10	< 10	74	
16	< 10	< 10	< 10	20	
17	< 10	< 10	< 10	< 10	
18	< 10	< 10	< 10	< 10	
19	< 10	10	< 10	10	
21.1	< 10	< 10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	09/11 0.34
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
October 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Tue/11	Sun/16	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
15	146	199	246	231*		9804		6488	854
15EAST	< 10	10	31	218*		74		75	28
16	< 10	63	63	187*		< 10		20	24
17	10	52		933		373	10	20	58
18	< 10	10		670	132	< 10		86	44
19	< 10	20		132		< 10		20	22
21.1	< 10	< 10		173		31		31	28

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/03	Tue/11	Sun/16	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
15	10	63	< 10	86*		31		110	29
15EAST	< 10	< 10	20	75*		< 10		< 10	11
16	< 10	41	10	20*		< 10		10	13
17	10	20		213		185	10	10	30
18	< 10	< 10		331	31	< 10		< 10	22
19	< 10	20		20		< 10		< 10	13
21.1	< 10	< 10		< 10		< 10		< 10	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/03	Tue/11	Sun/16	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
15	< 10	20	< 10	< 10*		72		86	26
15EAST	< 10	10	< 10	20*		< 10		< 10	10
16	< 10	20	10	10*		< 10		< 10	11
17	10	< 10		30		**441**	< 10	< 10	23
18	< 10	10		**134**	10	< 10		10	15
19	< 10	10		31		< 10		10	13
21.1	< 10	< 10		< 10		< 10		< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 21.1

Rainfall (in.)

10/02 0.01	10/16 0.64	10/28 0.29
10/03 0.01	10/17 0.01	10/29 0.05
10/12 0.01	10/18 0.01	10/30 0.49
10/13 0.01	10/24 0.02	
10/14 0.46	10/25 0.02	
10/15 0.34	10/27 0.55	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

* Un-permitted discharge occurred at SeaCliff 2 due to power outage. Receiving water samples were collected and beaches remained posted. Five-day report submitted to RWQCB.

Reviewed by: RDuggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
October 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Tue/03	Tue/10	Mon/16	Mon/23	Mon/30	30-day Geometric Mean[2]
15	2247	213	52	148	119	820	267
15EAST	10	504	63	31	31	41	48
16	10		10	10	31	52	17
17	< 10		31	31	20	10	18
18	< 10		10	< 10	52	41	18
19	< 10		10	< 10	10	41	13
21.1	< 10		20	31	20	52	23

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/02	Tue/03	Tue/10	Mon/16	Mon/23	Mon/30	30-day Geometric Mean[2]
15	41	20	20	20	31	52	28
15EAST	10	20	10	10	10	10	11
16	< 10		10	10	10	20	11
17	< 10		< 10	< 10	10	< 10	10
18	< 10		< 10	< 10	31	31	16
19	< 10		10	< 10	< 10	10	10
21.1	< 10		< 10	10	< 10	20	11

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Tue/03	Tue/10	Mon/16	Mon/23	Mon/30	30-day Geometric Mean[2]
15	**108**	< 10	< 10	10	< 10	20	17
15EAST	< 10	20	63	< 10	< 10	< 10	15
16	< 10		< 10	< 10	< 10	< 10	10
17	< 10		< 10	< 10	< 10	< 10	10
18	< 10		< 10	< 10	< 10	< 10	10
19	< 10		< 10	< 10	< 10	< 10	10
21.1	< 10		31	< 10	< 10	< 10	13

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	10/19 0.18
China Beach	17	10/20 0.10
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R. Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
"November 2016"

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/07	Mon/14	Tue/15	Wed/16	Mon/21	Tue/23	Wed/24	Mon/28	30-day Geometric Mean[2]
15	160	**12033**	4352	816	2755	**10462**	134	1723	1612
15EAST	41	41	10	20	158	144	52	85	49
16	< 10	120			84	145		41	57
17	20	10			109			108	
18	< 10	20			98			201	
19	20	20			301			279	
21.1	< 10	52			75			279	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/07	Mon/14	Tue/15	Wed/16	Mon/21	Tue/23	Wed/24	Mon/28	30-day Geometric Mean[2]
15	10	51	259	52	52	160	20	10	43
15EAST	< 10	< 10	< 10	10	10	< 10	10	< 10	10
16	< 10	< 10			10	20		< 10	11
17	10	< 10			41			30	
18	< 10	< 10			10			10	
19	< 10	10			98			41	
21.1	< 10	10			< 10			63	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/07	Mon/14	Tue/15	Wed/16	Mon/21	Tue/23	Wed/24	Mon/28	30-day Geometric Mean[2]
15	< 10	74	**269**	10	41	31	< 10	10	27
15EAST	< 10	< 10	10	< 10	< 10	10	< 10	< 10	10
16	10	< 10			< 10	< 10		< 10	10
17	< 10	< 10			< 10			< 10	
18	< 10	< 10			< 10			10	
19	< 10	< 10			< 10			< 10	
21.1	20	20			< 10			10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 21.1

Rainfall (in.)

11/01	0.01	11/26	0.62
11/02	0.01	11/27	0.09
11/19	0.37	11/28	0.09
11/20	0.43	11/30	0.05
11/22	0.15		

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
November 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Mon/13	Tue/14	Thu/16	Fri/17	Mon/20	Mon/27	30-day Geometric Mean[2]
15	41	5475	272	2143	3654	31	1664	589
15EAST	52	10	31	97	158	20	169	50
16	41	41		63		52	10	35
17	74	31				52	41	
18	10	< 10		5794	272	10	41	63
19	63	< 10		**11199**	448	31	73	139
21.1	20	31		5794	292	10	74	96
20				9208	231			
21				**> 24196**	331			
22				**24196**	97			

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/06	Mon/13	Tue/14	Thu/16	Fri/17	Mon/20	Mon/27	30-day Geometric Mean[2]
15	< 10	226	20	275	31	< 10	95	45
15EAST	< 10	< 10	10	20	20	< 10	144	18
16	10	10		< 10		< 10	< 10	10
17	20	10				10	< 10	
18	10	< 10		**959**	31	< 10	31	31
19	10	< 10		**3076**	41	< 10	< 10	33
21.1	< 10	20		**1296**	< 10	< 10	< 10	25
20				**2187**	10			
21				**12997**	31			
22				**2187**	< 10			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/06	Mon/13	Tue/14	Thu/16	Fri/17	Mon/20	Mon/27	30-day Geometric Mean[2]
15	< 10	**110**	20	**216**	97	< 10	31	39
15EAST	< 10	10	< 10	< 10	10	< 10	10	10
16	< 10	< 10		< 10		< 10	< 10	10
17	< 10	10				< 10	< 10	
18	< 10	< 10		**187**	10	< 10	< 10	16
19	10	10		**1071**	< 10	< 10	20	24
21.1	< 10	< 10		**408**	10	< 10	< 10	19
20				**651**	< 10			
21				**3076**	20			
22				**2809**	< 10			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
11/04	0.05	11/15	0.32
11/08	0.36	11/16	1.86
11/09	0.02	11/17	0.02
11/10	0.19	11/26	0.31
11/13	0.06	11/27	0.09

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: H. Peterson

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
December 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Sat/10	Sun/11	Mon/12	Tue/13	Thu/15	Fri/16	Mon/19	Fri/23	Sat/24	Tue/27	30-day Geometric Mean[2]
15	5794			598				768			5794	
15EAST	< 10			110				85			31	
16	20			74				173			63	
17	< 10			213				52			41	
18	20			145		*	216	52	**		< 10	50
19	< 10			85		*	1145	663	**		10	92
21.1	30		677	85		*	546	31	**		< 10	81
20		*	727			*	364		**			
21			350			*	417		**			
22		*	538	*	86	*	327		**> 24196**	135		548

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/05	Sat/10	Sun/11	Mon/12	Tue/13	Thu/15	Fri/16	Mon/19	Fri/23	Sat/24	Tue/27	30-day Geometric Mean[2]
15	75			41				10			63	
15EAST	< 10			31				< 10			20	
16	10			31				52			20	
17	< 10			52				10			10	
18	10			74		*	52	10	**		< 10	21
19	< 10			< 10		*	262	134	**		< 10	32
21.1	10		86	10		*	109	< 10	**		< 10	21
20		*	74			*	30		**			
21			97			*	98		**			
22		*	75	*	20	*	41		**2613**	31		87

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/05	Sat/10	Sun/11	Mon/12	Tue/13	Thu/15	Fri/16	Mon/19	Fri/23	Sat/24	Tue/27	30-day Geometric Mean[2]
15	30			30				10			74	
15EAST	10			< 10				< 10			< 10	
16	< 10			10				20			< 10	
17	< 10			10				< 10			< 10	
18	< 10			41		*	< 10	< 10	**		< 10	13
19	< 10			20		*	52	10	**		< 10	16
21.1	20		10	< 10		*	31	< 10	**		< 10	14
20		*	31			*	20		**			
21			<10			*	31		**			
22		*	**160**	*	31	*	< 10		**3076**	10		69

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	12/07	0.37	12/13	0.09
China Beach	17	12/08	1.21	12/14	0.10
Ocean Beach	18, 19, 20, 21, 21.1	12/09	0.09	12/15	1.22
Ft. Funston	22	12/10	0.85	12/23	1.05

Reviewed by: R Duggan

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge (CSD)
* STATION POSTED not sampled till the next day
STATION POSTED CSD occurred but no sampling
** CSD occurred; no posting or sampling

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

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December 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Mon/11	Mon/18	Tue/26	Wed/27	30-day Geometric Mean[2]
15	**17329**	631	1850	213	2603	6488	2755	2132
15EAST	10	20	20	10	< 10	< 10	41	15
16	156			< 10	20	< 10		
17	10			< 10	10	31		
18	52			20	< 10	10		
19	63			20	10	< 10		
21.1	31			10	< 10	10		

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Mon/11	Mon/18	Tue/26	Wed/27	30-day Geometric Mean[2]
15	98	**464**	63	10	52	109	110	78
15EAST	< 10	< 10	< 10	< 10	< 10	< 10	10	10
16	< 10			< 10	< 10	< 10		
17	< 10			< 10	< 10	< 10		
18	31			10	< 10	10		
19	10			< 10	10	< 10		
21.1	20			< 10	< 10	10		

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Mon/11	Mon/18	Tue/26	Wed/27	30-day Geometric Mean[2]
15	20	52	10	< 10	63	**109**	10	26
15EAST	< 10	< 10	< 10	< 10	< 10	< 10	< 10	10
16	< 10			< 10	< 10	< 10		
17	< 10			< 10	< 10	< 10		
18	< 10			10	< 10	< 10		
19	< 10			< 10	< 10	< 10		
21.1	< 10			< 10	< 10	< 10		

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	12/02 0.02
China Beach	17	12/20 0.14
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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January 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/07	Mon/14	Thu/17	Fri/18	Tue/22	Mon/28	30-day Geometric Mean[2]
15	420	185	754		85	862	336
15EAST	355	52	233		20	30	76
16	181	86	98		31	31	68
17	*	*	*		*	< 10	
18	228	10	158		52	< 10	45
19	1081	< 10	1274		10	10	67
21.1	86	10	369		41	< 10	42
20	84		241				
21	259		3654	109			
22	*		2098	63			

Sampling/Posting issues
* No access to sites (17 & 22) due to partial Federal government shutdown China Beach and Fort Funston were posted on the web and hotline for 72 hrs after CSDs on 1/17 & 1/7, respectively

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/07	Mon/14	Thu/17	Fri/18	Tue/22	Mon/28	30-day Geometric Mean[2]
15	41	30	74		< 10	63	36
15EAST	109	10	20		< 10	< 10	19
16	73	10	< 10		10	< 10	15
17	*	*	*		*	< 10	
18	31	< 10	< 10		< 10	< 10	13
19	218	< 10	134		< 10	10	31
21.1	< 10	< 10	146		< 10	< 10	17
20	< 10		20				
21	20		**1067**	20			
22	*		132	10			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/07	Mon/14	Thu/17	Fri/18	Tue/22	Mon/28	30-day Geometric Mean[2]
15	< 10	20	30		10	31	18
15EAST	< 10	< 10	10		10	< 10	10
16	10	< 10	20		< 10	< 10	11
17	*	*	*		*	< 10	
18	10	< 10	20		< 10	< 10	11
19	41	< 10	75		< 10	10	20
21.1	< 10	< 10	41		< 10	< 10	13
20	71		85				
21	< 10		**359**	10			
22	*		**120**	< 10			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
01/05	0.33	01/15	0.42
01/06	1.45	01/16	1.41
01/09	0.12	01/17	0.70
01/11	0.06	01/20	0.20
01/12	0.01	01/30	0.16
01/14	0.01	01/31	0.32

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to partial Federal government shutdown
[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.
Reviewed by: R Duggan

City and County of San Francisco
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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Mon/13	Thu/16	Fri/17	Sat/18	Tue/21	Mon/27
15	1086	5172				74	598
15EAST	10	31				10	< 10
16	< 10	10				31	10
17	< 10	31	**12033**	199		31	< 10
18	10	30	**> 24196**	226		52	10
19	< 10	95	**> 24196**	2282	309	75	41
21.1	< 10	41	4352	120		< 10	52
20			**> 24196**	216			
21			**> 24196**	1086			
22			**> 24196**	327			

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/06	Mon/13	Thu/16	Fri/17	Sat/18	Tue/21	Mon/27
15	20	41				< 10	31
15EAST	< 10	20				< 10	< 10
16	< 10	10				< 10	< 10
17	< 10	10	**2755**	63		< 10	< 10
18	10	< 10	**8164**	20		20	< 10
19	< 10	31	**> 24196**	**428**	75	20	< 10
21.1	< 10	20	**1046**	10		< 10	10
20			**6867**	41			
21			**> 24196**	275			
22			**> 24196**	41			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/06	Mon/13	Thu/16	Fri/17	Sat/18	Tue/21	Mon/27
15	30	41				< 10	10
15EAST	< 10	< 10				< 10	< 10
16	< 10	< 10				31	< 10
17	< 10	< 10	**446**	10		10	< 10
18	< 10	< 10	**1918**	31		< 10	< 10
19	< 10	< 10	**> 24196**	**121**	41	< 10	< 10
21.1	< 10	< 10	**650**	< 10		< 10	20
20			**1467**	10			
21			**> 24196**	96			
22			**24196**	10			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	01/09	0.28	01/16	1.43
China Beach	17	01/11	0.21	01/21	0.06
Ocean Beach	18, 19, 20, 21, 21.1	01/13	0.17	01/26	0.23
Ft. Funston	22	01/14	0.01	01/28	0.02

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

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February 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sat/02	Mon/04	Mon/11	Wed/13	Thu/14	Fri/15	Tue/19	Mon/25	Tue/26	Wed/27
15	145	5172	160	**24196**	932		52	1515		1354
15EAST	187	146	20	**17329**	408		98	31		30
16	121	223	31	**24196**	727		63	20		31
17		187	63	**12997**	389		85	20		10
18		216	10	**> 24196**	216		20	31		
19		203	73	**> 24196**	41		< 10	4884	98	
21.1		364	74	1670	97		20	20		
20				**17329**	131					
21				**> 24196**	158					
22				**> 24196**	**> 24196**	369				

Sampling/Posting issues
Posting delayed a few hours at 15, 15E and 16 on February 2, 2019

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Sat/02	Mon/04	Mon/11	Wed/13	Thu/14	Fri/15	Tue/19	Mon/25	Tue/26	Wed/27
15	< 10	135	30	**6488**	110		10	97		41
15EAST	20	31	10	**6131**	161		< 10	< 10		10
16	< 10	20	31	**9208**	135		20	10		< 10
17		41	31	**3654**	134		10	10		< 10
18		52	10	**> 24196**	10		< 10	10		
19		20	41	**> 24196**	< 10		< 10	**2247**	10	
21.1		31	30	**723**	20		< 10	20		
20				**7701**	10					
21				**> 24196**	10					
22				**> 24196**	**1421**	86				

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Sat/02	Mon/04	Mon/11	Wed/13	Thu/14	Fri/15	Tue/19	Mon/25	Tue/26	Wed/27
15	20	31	20	**1782**	63		20	31		63
15EAST	20	20	< 10	**1081**	10		< 10	< 10		< 10
16	41	20	10	**1624**	41		31	< 10		10
17		10	< 10	**959**	52		< 10	10		< 10
18		< 10	< 10	**7270**	20		< 10	10		
19		< 10	< 10	**> 24196**	20		< 10	**2613**	< 10	
21.1		10	41	**189**	10		< 10	< 10		
20				**1616**	10					
21				**> 24196**	20					
22				**14136**	**1785**	< 10				

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)

02/01	0.22	02/09	0.38	02/16	0.22
02/02	1.21	02/10	0.08	02/17	0.23
02/03	0.20	02/12	0.30	02/25	0.21
02/04	0.40	02/13	2.33	02/26	0.73
02/05	0.06	02/14	1.01	02/27	0.42
02/08	0.26	02/15	0.11		

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/18	Mon/24
15	2909	301	3873	75
15EAST	282	31	10	31
16	30	< 10	20	< 10
17	< 10	41	< 10	< 10
18	< 10	31	< 10	20
19	52	31	< 10	10
21.1	< 10	52	10	< 10

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/18	Mon/24
15	10	10	52	< 10
15EAST	< 10	< 10	< 10	10
16	< 10	< 10	< 10	< 10
17	< 10	10	< 10	< 10
18	< 10	10	< 10	10
19	< 10	< 10	< 10	< 10
21.1	< 10	41	< 10	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/18	Mon/24
15	74	< 10	< 10	< 10
15EAST	10	< 10	< 10	< 10
16	< 10	< 10	< 10	< 10
17	< 10	< 10	< 10	< 10
18	< 10	< 10	< 10	< 10
19	< 10	10	< 10	< 10
21.1	< 10	< 10	< 10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	None
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
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March 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Wed/06	Mon/11	Mon/18	Mon/25	Wed/27	Thu/28
15	776	201	292	63	2224	**15531**	175
15EAST	173	98	148	31	63	272	
16	63	86	85	31	63	31	
17	135	122	75	31	41		
18	30		97	10	20		
19	74		63	63	20		
21.1	31		31	< 10	10		

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/04	Wed/06	Mon/11	Mon/18	Mon/25	Wed/27	Thu/28
15	31	20	< 10	31	63	**435**	10
15EAST	20	20	10	10	20	31	
16	10	< 10	< 10	10	10	10	
17	31	< 10	10	10	< 10		
18	< 10		20	< 10	< 10		
19	10		20	20	10		
21.1	< 10		20	< 10	10		

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Wed/06	Mon/11	Mon/18	Mon/25	Wed/27	Thu/28
15	31	20	31	10	52	**327**	10
15EAST	31	< 10	10	41	< 10	20	
16	< 10	< 10	< 10	20	20	< 10	
17	31	< 10	< 10	< 10	< 10		
18	< 10		< 10	20	< 10		
19	< 10		< 10	10	< 10		
21.1	10		< 10	< 10	< 10		

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 21.1

Rainfall (in.)			
03/01	0.02	03/10	0.12
03/02	0.79	03/20	0.83
03/03	0.04	03/22	0.46
03/04	0.08	03/23	0.12
03/05	0.40	03/25	0.15
03/06	0.65	03/26	0.12
03/07	0.03	03/27	0.17
03/09	0.38		

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
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March 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Mon/09	Wed/11	Tue/17	Mon/23	Mon/30
15	676	183		20	10	355
15EAST	20	52		< 10	31	< 10
16	< 10	158		< 10	31	< 10
17	20	< 10		< 10	31	< 10
18	< 10	< 10		< 10	< 10	< 10
19	20	31	10	10	10	10
21.1	31	10		31	10	20

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/02	Mon/09	Wed/11	Tue/17	Mon/23	Mon/30
15	20	< 10		< 10	< 10	< 10
15EAST	10	10		< 10	< 10	< 10
16	< 10	< 10		< 10	< 10	< 10
17	10	< 10		< 10	20	< 10
18	< 10	< 10		< 10	< 10	< 10
19	20	< 10	< 10	10	< 10	10
21.1	< 10	10		< 10	< 10	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Mon/09	Wed/11	Tue/17	Mon/23	Mon/30
15	31	< 10		10	< 10	10
15EAST	10	< 10		< 10	< 10	20
16	10	< 10		< 10	< 10	< 10
17	10	< 10		< 10	10	< 10
18	< 10	< 10		< 10	< 10	< 10
19	< 10	< 10	< 10	31	< 10	< 10
21.1	10	< 10		< 10	< 10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	03/07	0.19	03/18	0.06
China Beach	17	03/14	0.32	03/24	0.08
Ocean Beach	18, 19, 21.1	03/15	0.24	03/28	0.10
		03/16	0.08	03/29	0.25
		03/17	0.12		

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
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April 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Mon/08	Mon/15	Mon/22	Mon/29
15	3130	1222	199	723	393
15EAST	10	10	< 10	95	20
16	175	10	146	10	20
17	122	41	< 10	20	20
18	< 10	31	< 10	10	< 10
19	< 10	< 10	< 10	< 10	10
21.1	< 10	31	< 10	< 10	< 10

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/01	Mon/08	Mon/15	Mon/22	Mon/29
15	63	20	10	52	20
15EAST	< 10	< 10	< 10	< 10	< 10
16	20	< 10	10	10	10
17	20	20	< 10	< 10	< 10
18	< 10	10	< 10	10	< 10
19	< 10	< 10	< 10	< 10	10
21.1	< 10	< 10	< 10	< 10	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Mon/08	Mon/15	Mon/22	Mon/29
15	86	20	< 10	10	< 10
15EAST	< 10	< 10	< 10	< 10	< 10
16	10	< 10	< 10	< 10	< 10
17	< 10	< 10	< 10	< 10	< 10
18	10	< 10	< 10	< 10	< 10
19	< 10	< 10	< 10	< 10	< 10
21.1	< 10	< 10	< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 21.1

Rainfall (in.)			
04/01	0.02	04/08	0.04
04/02	0.09	04/09	0.01
04/04	0.09	04/15	0.04
04/05	0.21	04/16	0.06
04/06	0.01		

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by R Duggan

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Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Mon/27	Tue/28
15	368	908	697	6867	10
15EAST	20	< 10	20	231	< 10
16	41	< 10	148	< 10	
17	84	< 10	20	< 10	
18	10	10	< 10	10	
19	< 10	< 10	10	< 10	
21.1	< 10	< 10	< 10	< 10	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Mon/27	Tue/28
15	< 10	< 10	< 10	**624**	< 10
15EAST	< 10	< 10	< 10	86	< 10
16	< 10	< 10	< 10	< 10	
17	10	< 10	< 10	< 10	
18	< 10	10	< 10	< 10	
19	< 10	< 10	< 10	< 10	
21.1	< 10	< 10	< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Mon/27	Tue/28
15	10	< 10	< 10	**269**	< 10
15EAST	< 10	< 10	< 10	**122**	< 10
16	< 10	< 10	< 10	< 10	
17	< 10	< 10	< 10	< 10	
18	20	< 10	< 10	< 10	
19	< 10	< 10	< 10	< 10	
21.1	10	< 10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	04/04 0.19
China Beach	17	04/05 0.16
Ocean Beach	18, 19, 21.1	04/06 0.36

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

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Monthly Ocean Shoreline Bacteriological Report
April/May 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon 4/30	Tues/01	Mon/07	Mon/14	Mon/21	Tues/29	30-day Geometric Mean[2]
15	697	5475	5475	3873	457	7701	2565
15EAST	120	20	74	31	121	30	52
16	10		10	10	31	< 10	13
17	< 10		< 10	41	31	< 10	17
18	< 10		< 10	< 10	10	< 10	10
19	20		< 10	< 10	< 10	< 10	11
21.1	20		< 10	< 10	< 10	10	11

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon 4/30	Tues/01	Mon/07	Mon/14	Mon/21	Tues/29	30-day Geometric Mean[2]
15	10	63	41	75	20	10	27
15EAST	10	< 10	10	< 10	< 10	< 10	10
16	< 10		< 10	10	< 10	< 10	10
17	< 10		< 10	41	20	< 10	15
18	< 10		< 10	< 10	10	< 10	10
19	10		< 10	< 10	< 10	< 10	10
21.1	< 10		< 10	< 10	< 10	< 10	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon 4/30	Tues/01	Mon/07	Mon/14	Mon/21	Tues/29	30-day Geometric Mean[2]
15	**231**	52	41	41	10	20	40
15EAST	< 10	< 10	< 10	< 10	< 10	< 10	10
16	< 10		< 10	< 10	< 10	< 10	10
17	< 10		< 10	< 10	< 10	< 10	10
18	< 10		< 10	< 10	< 10	< 10	10
19	< 10		< 10	< 10	< 10	< 10	10
21.1	< 10		20	< 10	< 10	< 10	11

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	05/09 0.01
China Beach	17	05/23 0.01
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: D O'Donohue

Appendix O-TL3

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
May 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Tue/28
15	1043	663	480	2909
15EAST	41	10	41	84
16	< 10	74	158	< 10
17	10	< 10	20	< 10
18	< 10	10	52	< 10
19	10	10	121	< 10
21.1	10	< 10	213	< 10

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Tue/28
15	63	41	10	41
15EAST	10	10	< 10	< 10
16	< 10	31	20	< 10
17	< 10	< 10	< 10	< 10
18	< 10	10	10	< 10
19	10	< 10	< 10	< 10
21.1	< 10	< 10	20	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Tue/28
15	< 10	85	< 10	20
15EAST	< 10	< 10	10	< 10
16	< 10	< 10	< 10	< 10
17	10	< 10	< 10	10
18	< 10	< 10	< 10	< 10
19	< 10	10	10	< 10
21.1	< 10	< 10	< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	05/15 0.49
China Beach	17	05/16 0.15
Ocean Beach	18, 19, 21.1	05/18 0.75
		05/19 0.17
		05/21 0.28

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
June 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Mon/11	Tue/12	Mon/18	Mon/25	30-day Geometric Mean[2]
15	4352	175		1483	9208	
15EAST	108	52		20	216	
16	< 10	20		< 10	< 10	
17	10	226	< 10	20	< 10	21
18	< 10	< 10		10	31	
19	< 10	< 10		< 10	< 10	
21.1	< 10	< 10		< 10	< 10	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/04	Mon/11	Tue/12	Mon/18	Mon/25	30-day Geometric Mean[2]
15	31	< 10		20	20	
15EAST	< 10	10		< 10	< 10	
16	< 10	< 10		< 10	< 10	
17	< 10	< 10	< 10	< 10	< 10	10
18	< 10	< 10		< 10	31	
19	< 10	< 10		< 10	< 10	
21.1	< 10	< 10		< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Mon/11	Tue/12	Mon/18	Mon/25	30-day Geometric Mean[2]
15	63	< 10		31	20	
15EAST	10	< 10		10	< 10	
16	< 10	< 10		< 10	< 10	
17	< 10	**435**	< 10	< 10	< 10	21
18	< 10	< 10		< 10	< 10	
19	10	< 10		< 10	< 10	
21.1	< 10	< 10		< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	06/09 0.01
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: RDuggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
June 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Tue/04	Mon/10	Tue/11	Wed/12	Mon/17	Tue/18	Mon/24
15	459		2489		2382	4786	185	933
15EAST	41		10			132	201	52
16	10		10			51		< 10
17	10		20			85		< 10
18	< 10		10			10		< 10
19	1043	< 10	10			131		10
21.1	< 10		< 10	< 10		< 10		< 10

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/03	Tue/04	Mon/10	Tue/11	Wed/12	Mon/17	Tue/18	Mon/24
15	< 10		30		20	301	< 10	10
15EAST	< 10		< 10			< 10	187	< 10
16	10		< 10			10		< 10
17	< 10		< 10			20		< 10
18	< 10		< 10			10		< 10
19	**959**	< 10	< 10			< 10		10
21.1	< 10		< 10	< 10		< 10		< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/03	Tue/04	Mon/10	Tue/11	Wed/12	Mon/17	Tue/18	Mon/24
15	< 10		10		10	**794**	< 10	< 10
15EAST	< 10		< 10			< 10	< 10	< 10
16	< 10		< 10			< 10		< 10
17	< 10		< 10			< 10		< 10
18	10		< 10			10		< 10
19	< 10	10	< 10			< 10		< 10
21.1	< 10		10	< 10		10		< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	None
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
July 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Mon/09	Mon/16	Mon/23	Tue/24	Mon/30	30-day Geometric Mean[2]
15	1191	7701	203	9208	97	521	976
15EAST	10	20	10	31	< 10	20	15
16	10	< 10	10	41		10	13
17	< 10	< 10	10	63		< 10	14
18	< 10	< 10	30	< 10		31	16
19	20	< 10	20	20		20	17
21.1	10	< 10	10	< 10		31	13

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/02	Mon/09	Mon/16	Mon/23	Tue/24	Mon/30	30-day Geometric Mean[2]
15	10	41	20	317	< 10	10	25
15EAST	< 10	< 10	< 10	20	< 10	< 10	11
16	10	< 10	10	< 10		< 10	10
17	< 10	< 10	< 10	63		< 10	14
18	< 10	< 10	20	< 10		20	13
19	< 10	< 10	20	10		20	13
21.1	< 10	< 10	10	< 10		10	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Mon/09	Mon/16	Mon/23	Tue/24	Mon/30	30-day Geometric Mean[2]
15	86	63	10	**299**	10	52	45
15EAST	< 10	< 10	< 10	10	< 10	< 10	10
16	< 10	< 10	< 10	< 10		< 10	10
17	< 10	< 10	< 10	< 10		< 10	10
18	< 10	< 10	< 10	< 10		< 10	10
19	< 10	< 10	< 10	< 10		< 10	10
21.1	< 10	< 10	< 10	< 10		< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	None
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
July 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Tue/02	Mon/08	Tue/09	Mon/15	Mon/22	Wed/24	Mon/29	Tue/30
15	4160	10	4884	75	31	4106	4569	428	
15EAST	98	< 10	41	< 10	10	63		< 10	
16	< 10		< 10		< 10	< 10		20	
17	< 10		52		< 10	< 10		< 10	
18	< 10		31		31	< 10		< 10	< 10
19	10		< 10		< 10	< 10		< 10	
21.1	< 10		< 10		10	20		< 10	10

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/01	Tue/02	Mon/08	Tue/09	Mon/15	Mon/22	Wed/24	Mon/29	Tue/30
15	84	< 10	41	10	< 10	31	10	< 10	
15EAST	< 10	< 10	10	< 10	10	20		< 10	
16	< 10		< 10		< 10	< 10		< 10	
17	< 10		30		< 10	< 10		< 10	
18	< 10		31		31	< 10		< 10	< 10
19	10		< 10		< 10	< 10		< 10	
21.1	< 10		< 10		10	< 10		< 10	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Tue/02	Mon/08	Tue/09	Mon/15	Mon/22	Wed/24	Mon/29	Tue/30
15	**110**	< 10	**132**	< 10	< 10	85	20	< 10	
15EAST	< 10	< 10	10	< 10	< 10	10		20	
16	< 10		< 10		< 10	< 10		< 10	
17	10		< 10		< 10	< 10		10	
18	10		10		< 10	< 10		< 10	< 10
19	< 10		< 10		< 10	< 10		< 10	
21.1	20		10		< 10	< 10		< 10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	07/11 0.01
China Beach	17	07/12 0.01
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
August 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Mon/27	30-day Geometric Mean[2]
15	528	657	216	336	
15EAST	20	10	31	279	
16	< 10	10	20	52	
17	< 10	31	10	10	
18	41	20	10	10	
19	10	20	384	31	
21.1	< 10	10	41	< 10	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Mon/27	30-day Geometric Mean[2]
15	< 10	< 10	10	85	
15EAST	10	< 10	< 10	20	
16	< 10	< 10	< 10	10	
17	< 10	< 10	< 10	< 10	
18	< 10	< 10	< 10	< 10	
19	< 10	10	216	31	
21.1	< 10	10	10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/06	Mon/13	Mon/20	Mon/27	30-day Geometric Mean[2]
15	52	10	10	86	
15EAST	< 10	< 10	10	20	
16	< 10	< 10	< 10	< 10	
17	< 10	< 10	< 10	< 10	
18	< 10	< 10	10	< 10	
19	< 10	< 10	< 10	< 10	
21.1	< 10	10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	08/28 0.01
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
August 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Wed/07	Mon/12	Mon/19	Mon/26
15	3448	700	< 10	1722	1782
15EAST	10		908	63	31
16	20		74	20	41
17	< 10		< 10	< 10	10
18	< 10		20	< 10	10
19	< 10		< 10	< 10	< 10
21.1	< 10		< 10	< 10	< 10

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/05	Wed/07	Mon/12	Mon/19	Mon/26
15	10	41	< 10	109	< 10
15EAST	< 10		31	10	20
16	< 10		10	< 10	< 10
17	< 10		< 10	< 10	10
18	< 10		< 10	< 10	< 10
19	< 10		< 10	< 10	< 10
21.1	< 10		< 10	< 10	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/05	Wed/07	Mon/12	Mon/19	Mon/26
15	74	< 10	< 10	30	63
15EAST	< 10		10	< 10	< 10
16	< 10		< 10	< 10	< 10
17	< 10		< 10	< 10	< 10
18	< 10		< 10	< 10	< 10
19	< 10		< 10	< 10	< 10
21.1	< 10		< 10	< 10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	None
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
September 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/04	Mon/10	Mon/17	Mon/24	30-day Geometric Mean[2]
15	2603	1333	3873	20	
15EAST	10	20	10	< 10	
16	52	< 10	62	72	
17	31	< 10	< 10	< 10	
18	< 10	< 10	< 10	20	
19	31	10	< 10	10	
21.1	10	< 10	20	< 10	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/04	Mon/10	Mon/17	Mon/24	30-day Geometric Mean[2]
15	52	63	52	10	
15EAST	< 10	< 10	10	< 10	
16	< 10	< 10	< 10	10	
17	10	< 10	< 10	< 10	
18	< 10	< 10	< 10	10	
19	< 10	10	< 10	10	
21.1	10	< 10	10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/04	Mon/10	Mon/17	Mon/24	30-day Geometric Mean[2]
15	63	63	85	< 10	
15EAST	< 10	10	< 10	< 10	
16	< 10	< 10	20	20	
17	< 10	< 10	< 10	< 10	
18	10	< 10	< 10	< 10	
19	< 10	< 10	10	10	
21.1	< 10	< 10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	None
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
September 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/03	Mon/09	Mon/16	Mon/23	Mon/30
15	1658	315	839	345	3130
15EAST	10	31	161	20	20
16	10	< 10	20	41	31
17	< 10	41	< 10	20	< 10
18	31	< 10	31	52	41
19	< 10	10	10	< 10	< 10
21.1	10	10	< 10	< 10	31

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/03	Mon/09	Mon/16	Mon/23	Mon/30
15	20	10	52	20	31
15EAST	< 10	10	20	< 10	< 10
16	10	< 10	< 10	< 10	< 10
17	< 10	10	< 10	< 10	< 10
18	< 10	< 10	20	10	20
19	< 10	10	< 10	< 10	< 10
21.1	< 10	10	< 10	< 10	20

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/03	Mon/09	Mon/16	Mon/23	Mon/30
15	41	< 10	10	10	10
15EAST	< 10	< 10	10	< 10	10
16	< 10	< 10	< 10	20	< 10
17	10	10	< 10	< 10	< 10
18	< 10	< 10	< 10	< 10	< 10
19	< 10	< 10	< 10	< 10	< 10
21.1	< 10	< 10	< 10	< 10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	09/16 0.07
China Beach	17	09/18 0.02
Ocean Beach	18, 19, 21.1	09/27 0.01

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: H Peterson

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
October 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/07	Tue/15	Wed/16	Thu/17	Mon/21	Mon/28
15	1850	6488	813		266	31
15EAST	31	10	31	311	41	52
16	110	10			< 10	31
17	30	10			< 10	20
18	10	20			10	10
19	10	< 10			< 10	84
21.1	< 10	10			< 10	< 10

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/07	Tue/15	Wed/16	Thu/17	Mon/21	Mon/28
15	201	158	75		< 10	< 10
15EAST	10	< 10	20	181	< 10	< 10
16	52	10			< 10	< 10
17	10	10			< 10	20
18	10	10			10	< 10
19	< 10	< 10			< 10	< 10
21.1	< 10	10			< 10	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/07	Tue/15	Wed/16	Thu/17	Mon/21	Mon/28
15	< 10	**428**	20		< 10	< 10
15EAST	< 10	< 10	**109**	73	< 10	10
16	< 10	< 10			< 10	10
17	< 10	< 10			< 10	< 10
18	20	< 10			< 10	< 10
19	< 10	< 10			< 10	10
21.1	10	< 10			< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: Rduggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
October 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Tue/02	Tue/09	Mon/15	Mon/22	Mon/29	Tue/30	30-day Geometric Mean[2]
15	228		712	221	< 10	3255	228	254
15EAST	20		110	10	345	20	< 10	34
16	31		10	20	52	41		27
17	< 10		< 10	20	< 10	10		11
18	< 10		< 10	< 10	< 10	< 10		10
19	20		10	< 10	20	20		15
21.1	41	414	10	< 10	10	75		20

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/01	Tue/02	Tue/09	Mon/15	Mon/22	Mon/29	Tue/30	30-day Geometric Mean[2]
15	< 10		10	20	< 10	85	< 10	16
15EAST	< 10		10	< 10	20	< 10	< 10	11
16	20		< 10	20	< 10	< 10		13
17	< 10		< 10	20	< 10	10		11
18	< 10		< 10	< 10	< 10	< 10		10
19	20		< 10	< 10	10	< 10		11
21.1	31	< 10	< 10	< 10	< 10	10		13

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Tue/02	Tue/09	Mon/15	Mon/22	Mon/29	Tue/30	30-day Geometric Mean[2]
15	10		< 10	41	< 10	**295**	10	22
15EAST	< 10		< 10	< 10	10	< 10	< 10	10
16	< 10		< 10	10	< 10	< 10		10
17	< 10		10	< 10	< 10	< 10		10
18	< 10		< 10	< 10	< 10	< 10		10
19	10		< 10	< 10	20	10		11
21.1	< 10	20	< 10	< 10	10	10		10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	10/02 0.37
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
November 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/12	Mon/18	Mon/25	Tue/26	Wed/27	Thu/28	Fri/29
15	759	368	256	4884	3255	75		
15EAST	52	31	134	52	30	74	75	
16	51	31	10	97		144	134	
17	20	< 10	< 10	187	41	487	122	
18	20	< 10	10	< 10		109		
19	10	10	< 10	74	20	613	98	
21.1	< 10	< 10	10	98	52	122		
20						275	121	
21						183		** 1076
22						*	75	

Sampling/Posting issues
* Sampled the next day due to high tide ** Re-posted and resampled due to elevated final bacterial result

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/04	Tue/12	Mon/18	Mon/25	Tue/26	Wed/27	Thu/28	Fri/29
15	10	< 10	20	120	63	10		
15EAST	< 10	20	10	20	10	20	20	
16	< 10	10	< 10	41		< 10	10	
17	< 10	< 10	< 10	135	31	121	< 10	
18	< 10	< 10	10	< 10		41		
19	10	10	< 10	10	10	148	20	
21.1	< 10	< 10	< 10	63	10	20		
20						120	20	
21						20		** 183
22						*	20	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/04	Tue/12	Mon/18	Mon/25	Tue/26	Wed/27	Thu/28	Fri/29
15	10	10	10	**345**	169	75		
15EAST	< 10	< 10	< 10	52	97	**146**	10	
16	< 10	< 10	< 10	< 10		**122**	52	
17	< 10	10	10	**259**	20	**199**	< 10	
18	< 10	< 10	< 10	10		98		
19	10	10	< 10	**1354**	< 10	**181**	31	
21.1	< 10	< 10	< 10	**110**	20	63		
20						**243**	10	
21						**119**		** 85
22						*	10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	11/14	0.01	11/28	0.03
China Beach	17	11/26	0.79	11/29	0.07
Ocean Beach	18, 19, 20, 21, 21.1	11/27	0.16	11/30	0.15
Ft. Funston	22				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
November 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Tue/13	Mon/19	Fri/23	Sat/24	Sun/25	Mon/26	Thu/29	30-day Geometric Mean[2]
15	384	776	< 10	**> 24196**	7701	86	847	6131	840
15EAST	95	20	10	345			31	231	60
16	20	20	134	1076			41	298	94
17	20	20	31				52		
18	20	20	< 10	1789	109		63	345	78
19	< 10	< 10	10	**> 24196**	169		41	959	107
21.1	10	< 10	20	2046	583		31	1178	98
20				8164	3448	96		379	
21				**19863**	9804	**12033**	842	1725	5086
22				**> 24196**	4352			816	

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/05	Tue/13	Mon/19	Fri/23	Sat/24	Sun/25	Mon/26	Thu/29	30-day Geometric Mean[2]
15	41	< 10	< 10	**1935**	**420**	< 10	20	228	59
15EAST	73	< 10	10	109			10	20	23
16	10	< 10	10	145			< 10	31	19
17	< 10	< 10	20				10		
18	10	10	< 10	**882**	20		41	< 10	26
19	< 10	< 10	< 10	**> 24196**	41		< 10	41	46
21.1	< 10	< 10	10	226	51		20	41	27
20				**4884**	**644**	10		10	
21				**2014**	**565**	**959**	169	171	501
22				**2142**	98			63	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/05	Tue/13	Mon/19	Fri/23	Sat/24	Sun/25	Mon/26	Thu/29	30-day Geometric Mean[2]
15	20	20	< 10	**3654**	**211**	20	20	41	52
15EAST	10	< 10	< 10	86			< 10	10	14
16	20	< 10	10	74			< 10	20	18
17	20	< 10	20				10		
18	10	< 10	< 10	**355**	20		< 10	20	20
19	< 10	< 10	< 10	**12997**	41		< 10	41	42
21.1	< 10	< 10	< 10	**121**	< 10		< 10	63	19
20				**2603**	**238**	< 10		63	
21				**496**	**109**	**122**	20	20	77
22				**4884**	30			52	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	11/21	0.95	11/27	0.09
China Beach	17	11/22	0.79	11/28	0.69
Ocean Beach	18, 19, 20, 21, 21.1	11/23	0.40	11/29	0.30
Ft. Funston	22	11/24	0.02		

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
December 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Sat/07	Sun/08	Mon/09	Mon/16	Wed/18	Mon/23	Sun/29	Mon/30
15	934	**> 24196**	364	651	934	285	8164		9804
15EAST	41	4884	428	96	< 10	41	41		41
16	135	496	295	109	41	754	52		20
17	31	*	201	295	10		10		20
18	31	*	189	41	< 10		52		10
19	145	*	3076	880	41		10		30
21.1	10	*	63	63	52		31		72
20		*	31						
21		*	1789						
22		*	471					**> 24196 ****	173

Sampling/Posting issues
* Safety reasons - too dark to continue sampling
** Inaccessible for posting due to locked gate. Later determined no CSD occurred

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/02	Sat/07	Sun/08	Mon/09	Mon/16	Wed/18	Mon/23	Sun/29	Mon/30
15	< 10	**11199**	10	10	< 10	20	74		31
15EAST	< 10	171	73	20	< 10	10	20		< 10
16	10	52	63	52	10	10	< 10		< 10
17	< 10	*	41	20	10		< 10		< 10
18	< 10	*	63	10	< 10		10		< 10
19	51	*	**598**	85	< 10		< 10		< 10
21.1	10	*	10	< 10	31		< 10		10
20		*	10						
21		*	359						
22		*	86					**1106 ****	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/02	Sat/07	Sun/08	Mon/09	Mon/16	Wed/18	Mon/23	Sun/29	Mon/30
15	41	**11199**	52	10	10	20	41		30
15EAST	20	**171**	52	10	< 10	< 10	10		10
16	< 10	75	< 10	30	< 10	52	10		< 10
17	20	*	30	< 10	< 10		< 10		< 10
18	41	*	10	< 10	< 10		10		10
19	10	*	**345**	52	10		< 10		< 10
21.1	< 10	*	10	20	10		< 10		< 10
20		*	< 10						
21		*	74						
22		*	52					**4352 ****	20

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)

12/01	0.08	12/10	0.17	12/18	1.15
12/02	0.12	12/11	0.34	12/19	0.01
12/04	0.24	12/12	0.13	12/22	0.52
12/06	0.42	12/13	0.03	12/24	0.02
12/07	1.13	12/14	0.02	12/25	0.30
12/08	0.18	12/17	0.02	12/29	0.69
12/09	0.01				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
December 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/11	Mon/17	Tue/18	Wed/19	Mon/24	Mon/31	30-day Geometric Mean[2]
15	4106	7270		857	576		2603	860	1791
15EAST	41	63		379	63		86	10	61
16	144	109		1160	135	52	10	86	101
17	63	31		327			*	*	
18	31	20		121			10	20	27
19	63	< 10		345	72		10	20	38
21.1	52	30	< 10	110			< 10	41	30

Sampling/Posting issues
* No access to site due to locked gate Partial govt shutdown

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/11	Mon/17	Tue/18	Wed/19	Mon/24	Mon/31	30-day Geometric Mean[2]
15	75	10		63	41		41	31	37
15EAST	< 10	20		52	10		10	< 10	15
16	< 10	< 10		156	20	20	< 10	< 10	18
17	10	20		30			*	*	
18	10	10		20			10	< 10	11
19	10	< 10		97	20		10	< 10	16
21.1	10	10	< 10	10			< 10	10	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/11	Mon/17	Tue/18	Wed/19	Mon/24	Mon/31	30-day Geometric Mean[2]
15	31	52		**512**	84		63	< 10	59
15EAST	< 10	20		**155**	10		10	10	18
16	20	< 10		**364**	**148**	< 10	< 10	< 10	27
17	< 10	10		85			*	*	
18	10	< 10		41			< 10	< 10	13
19	< 10	< 10		**146**	< 10		< 10	10	16
21.1	< 10	**450**	10	30			< 10	< 10	23

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	12/01	0.12	12/16	0.73
China Beach	17	12/04	0.02	12/17	0.02
Ocean Beach	18, 19, 20, 21, 21.1	12/05	0.28	12/21	0.08
Ft. Funston	22	12/14	0.08	12/24	0.46

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to partial government shutdown

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
May 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Mon/11	Mon/18	Tue/26
15	4360	657	231	836
15EAST	10	10	20	41
16	< 10	< 10	41	10
17	10	< 10	20	< 10
18	< 10	< 10	31	< 10
19	< 10	< 10	< 10	< 10
21.1	< 10	< 10	10	146

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/04	Mon/11	Mon/18	Tue/26
15	52	< 10	10	63
15EAST	< 10	< 10	< 10	< 10
16	< 10	< 10	< 10	< 10
17	< 10	< 10	< 10	< 10
18	< 10	< 10	10	< 10
19	< 10	< 10	< 10	< 10
21.1	< 10	< 10	< 10	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Mon/11	Mon/18	Tue/26
15	20	< 10	< 10	31
15EAST	< 10	< 10	< 10	20
16	< 10	< 10	< 10	< 10
17	< 10	< 10	< 10	< 10
18	< 10	< 10	< 10	< 10
19	< 10	< 10	10	< 10
21.1	< 10	< 10	10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	05/02	0.01	05/18	0.13
China Beach	17	05/11	0.02	05/30	0.01
Ocean Beach	18, 19, 21.1	05/12	0.09		
		05/14	0.04		
		05/17	0.18		

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
June 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Mon/08	Mon/15	Mon/22	Mon/29
15	754	1815	1354	1951	75
15EAST	122	84	211	52	52
16	< 10	10	20	63	687
17	52	41	10	31	< 10
18	< 10	10	41	31	161
19	< 10	10	10	< 10	< 10
21.1	< 10	< 10	< 10	31	< 10

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Day/Date	Day/Date	Day/Date	Day/Date	Day/Date
15	10	266	20	86	10
15EAST	< 10	< 10	< 10	10	10
16	< 10	< 10	< 10	31	134
17	< 10	10	< 10	< 10	< 10
18	< 10	< 10	< 10	20	20
19	< 10	< 10	< 10	< 10	< 10
21.1	< 10	< 10	< 10	10	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Day/Date	Day/Date	Day/Date	Day/Date	Day/Date
15	10	63	31	84	< 10
15EAST	10	10	41	< 10	< 10
16	< 10	< 10	< 10	< 10	52
17	< 10	< 10	< 10	< 10	10
18	< 10	< 10	< 10	< 10	10
19	30	< 10	< 10	< 10	< 10
21.1	< 10	< 10	< 10	< 10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	None
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

EXHIBIT 13 -

submitted separately

EXHIBIT 14 -

submitted separately

Law Offices of
Thomas N. Lippe, APC

201 Mission Street
12th Floor
San Francisco, CA 94105

Telephone: 415-777-5604
Facsimile: 415-777-5606
Email: lippelaw@sonic.net

September 11, 2020

By Email: *EIR@ucsf.edu*
Ms Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Comprehensive Parnassus Heights Plan Draft Environmental Impact Report: Comments on Water Quality, Water Recreation, and Wastewater Public Services – Exhibit 13a

Dear Ms Wong:

This office represents San Franciscans for Balanced and Livable Communities (San Franciscans), a citizen's group composed of San Francisco residents.

We submitted to you by email a letter of today's date under separate cover regarding "Comments on Water Quality, Water Recreation, and Wastewater Public Services."

Due to the file size of Exhibit 13 to that letter, we are transmitting Exhibit 13 to you by email in three (3) separate electronic files, designated "Exhibit 13a," "Exhibit 13b" and "Exhibit 13c."

Attached, hereto, please find Exhibit 13a (page nos. OSP0001 through OSP0056).

Thank you for your attention to this matter.

Sincerely,

Kelly Marie

Kelly Marie Perry

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EXHIBIT 13a

(page nos. OSP0001 through OSP0056)

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Wed/20	Mon/25	30-day Geometric Mean[2]
15	171	9804	842		3784		481		5794	1568
15EAST	74	158	464		52		146		84	123
16	20	155	439		31		110		75	84
17	20				97		173		20	
18	10		1071		41	733	6131	85	41	183
19	51		2755	327	52	960	**> 24196**	109	41	354
21.1	31		233		20	327	**15531**	10	96	132
20			548			410	2481	20		
21			706			489	3448	109		
22			231				**19863**	135		

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Wed/20	Mon/25	30-day Geometric Mean[2]
15	20	241	85		30		10		52	43
15EAST	20	20	109		20		< 10		< 10	21
16	10	51	161		< 10		< 10		31	25
17	10				< 10		20		< 10	
18	10		216		20	98	**2247**	31	10	60
19	< 10		**591**	63	20	135	**24196**	20	< 10	91
21.1	20		20		< 10	52	**4106**	< 10	20	40
20			97			52	336	10		
21			41			41	373	10		
22			20				**1565**	< 10		

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Wed/20	Mon/25	30-day Geometric Mean[2]
15	< 10	**384**	52		10		31		10	29
15EAST	10	52	52		20		10		< 10	19
16	< 10	**379**	41		< 10		20		< 10	26
17	< 10				10		31		< 10	
18	20		52		< 10	20	**520**	10	< 10	27
19	< 10		**173**	52	10	52	**> 24196**	10	< 10	57
21.1	< 10		62		< 10	10	**749**	20	30	31
20			84			41	**109**	< 10		
21			63			20	**146**	10		
22			75				**1529**	< 10		

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)

01/03	0.04	01/10	0.01	01/18	0.17
01/04	0.06	01/13	0.21	01/19	1.02
01/05	1.07	01/14	0.08	01/22	0.12
01/06	1.01	01/15	0.12	01/23	0.04
01/07	0.08	01/16	0.23	01/29	0.30
01/09	0.17	01/17	1.05	01/30	0.01

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

CALIFORNIA Water Boards

EDMUND G. BROWN JR. GOVERNOR

MATTHEW RODRIQUEZ SECRETARY FOR ENVIRONMENTAL PROTECTION

San Francisco Bay Regional Water Quality Control Board

TO: File 256498

FROM: Bill Johnson
Senior Environmental Scientist
NPDES WASTEWATER DIVISION

DATE: February 10, 2016

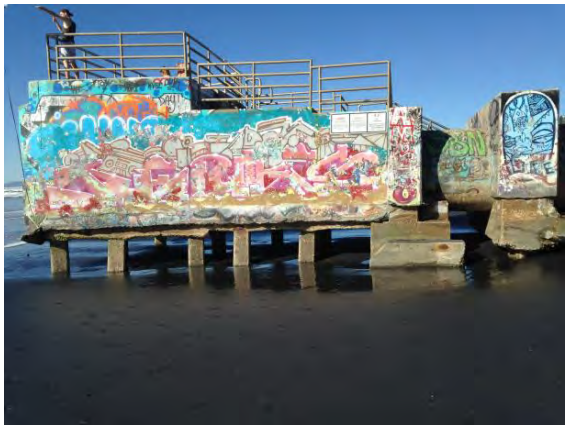
SUBJECT: Complaint-Related Inspection—San Francisco Oceanside Sewer System

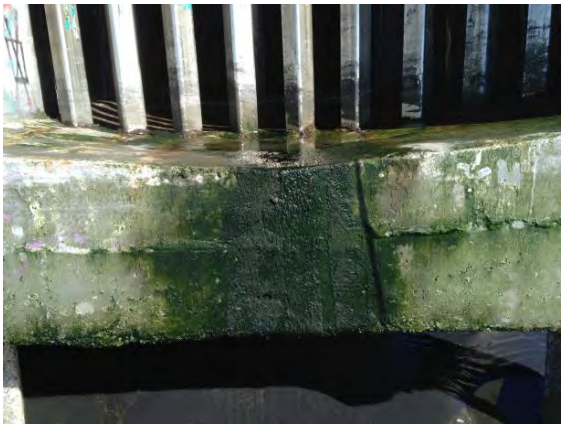
I inspected a portion of the San Francisco sewer system in response to a complaint received from William Rasmussen on Saturday, February 6, 2016. Mr. Rasmussen reported two concerns: (1) a sewage odor on Ocean Beach at Vicente St. and (2) sewage flowing into the street at Wawona St. and 46th Ave.

On Monday morning, February 8, we forwarded the complaint to Laura Pagano at the San Francisco Public Utilities Commission for investigation and follow-up. She provided status reports that afternoon and on Wednesday, February 10. She mentioned conditions at Wawona St. and 47th Ave. The complaint and subsequent correspondence is attached.

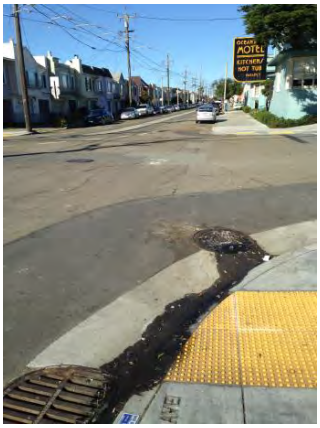
On February 8, I inspected Ocean Beach at Vicente St. and the intersection of Wawona St. and 46th Ave. between 2:00 and 2:30 p.m. On February 9, I returned at about 8:30 a.m. to inspect the intersections of Wawona St. and 46th and 47th Aves. Each time, the weather was sunny and unseasonably warm. On February 8, there was an offshore breeze. No precipitation had occurred for several days.

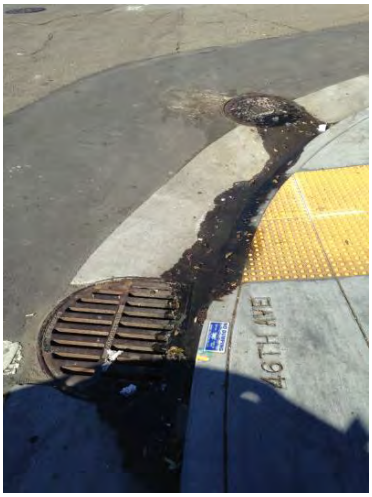
I smelled sewage at Ocean Beach. The smell came from the combined sewer system outfall at Vicente St. The odor was faint at the sides of the structure, but considerably stronger at its opening. Water dripped from the outfall, which was green with algae.





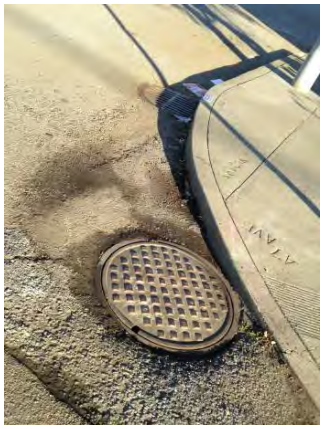
On February 8, an “excursion” was taking place at Wawona St. and 46th Ave. Wastewater flowed from a manhole at the southeast corner of the intersection to a storm drain about 9 feet away at the same corner of the intersection. Based on reference photos of sewer manhole overflows, the flow probably exceeded 5 gallons per minute (gpm), but was considerably less than 25 gpm. The wastewater was fairly clear, with relatively little suspended solids. Pavement stains and debris suggested that somewhat larger flows may have occurred recently. The other corners of the intersection were dry.

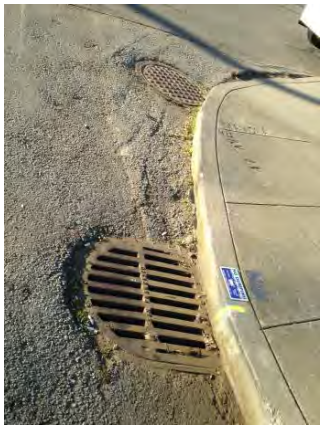


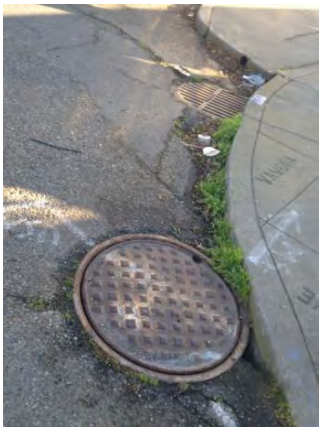


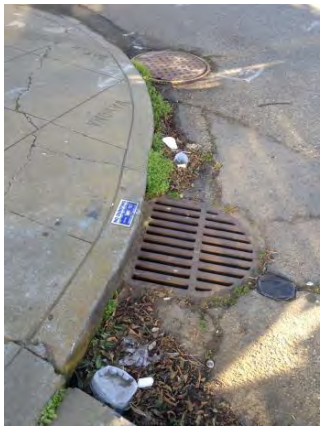
On February 9, the manhole and storm drain at the southeast corner of Wawona St. and 46th Ave. were dry. However, there was a long puddle at the southwest corner with no obvious source.

On February 9, I inspected each corner of the intersection of Wawona St. and 47th Ave. and observed no clear evidence of an excursion.









My observations corroborate Ms. Pagano's reports.

Johnson, Bill@Waterboards

From: Johnson, Bill@Waterboards
Sent: Wednesday, February 10, 2016 11:37 AM
To: Johnson, Bill@Waterboards
Subject: Effuent on Ocean Beach SF CA

From: Tang, Lila@Waterboards
Sent: Wednesday, February 10, 2016 11:30 AM
To: Pagano, Laura
Cc: Watkins, Jessica@Waterboards; Johnson, Bill@Waterboards
Subject: RE: Effuent on Ocean Beach SF CA

P.S. Laura – While at the Board meeting, I thought of two more issues. Please add these to the first report I requested this morning:

1. Address the issue Mr. Rasmussen brought up in his complaint about no response from the City to his 311 reports, including any measures necessary to improve response. I understand that this may take more than the next few days to track down; if so, then please note in the first report to us the process the City will follow to investigate and its plan to report on it in the status reports.
2. Explain the PUC's current routine inspection, and the date and findings of the last inspection, of the Vicente outfall, and include address if improvements to Oceanside O&M plan would be necessary.

P.P.S. If it would be the City's privacy policy also, please redact Mr. Rasmussen's personal email address from the City's public records. I had erred in failing to do so when I forwarded his complaint. This would be consistent with the State's personal information policy, though in a grey area of the State's policy.

From: Tang, Lila@Waterboards
Sent: Wednesday, February 10, 2016 9:24 AM
To: Pagano, Laura
Cc: Watkins, Jessica@Waterboards; Johnson, Bill@Waterboards
Subject: Re: Effuent on Ocean Beach SF CA

Thanks Laura for the updates and it appears PUC is satisfactorily addressing the problems. For clearer documention in our records, would puc provide by end of week or next Tu a written report of actions completed, actions planned w projected schedule, and then follow up with status reports until problems are fixed. I will defer to Jeasica when she returns to establish the frequency for the status reports.

Sent from my iPhone

On Feb 10, 2016, at 8:41 AM, Pagano, Laura <LPagano@sfwater.org> wrote:

> Hi Lila,
>
> I wanted to provide you with an additional update on the situation you ask me to investigate.
>
> (1) Odor complaint near Vicente box discharge structure
> Staff ordered parts yesterday to repair portion of the flapper gate on the discharge structure which is not intact and which may be allowing odors from the Vicente box to escape. Staff will repair the flapper gate as soon as the parts come in and tides allow.
>
> (2) Excursion at 46th and Wawona

There are a number of workorders for this situation beginning February 6, as well as follow-up inspections which took place over the last several days. Piecing it together, this is our understanding of the situation. There is a collapsed pipe on the south side of the intersection of 47th and Wawona. This pipe failure is causing a decrease in flow capacity which in turn is causing the upstream flow to overwhelm the system. As a result the upstream manholes at 47th & Wawona (SE corner) and 46th & Wawona (both the SW and SE corners) have been intermittently excursioning. Most of the flows in this system are water from construction dewatering and the Sloat Garden Center, although there is some sanitary flow from one block upstream which consists of apartments and the United Irish Cultural Center.

In response our crews have:

- Cleared manholes and lines both up and downstream of the collapse to increase capacity as much as possible
- Created a temporary pump around to take flows from the failed system and send them to a fully functioning local sewer in the area
- Have put a rush request to dig up and replace the collapsed pipe. Currently still within the USA utility marking period for safety. Dig up is scheduled begin this Thursday (February 11). Crews will CCTV the surrounding system to confirm that no other failures have been caused by the nearby construction site
- Sewer Operations is continuing to monitor the manhole and surrounding areas for containment

Please let me know if you have questions or concerns. Best regards, --Laura

Laura Pagano
Regulatory Program Manager, Wastewater
City and County of San Francisco
525 Golden Gate Avenue, 11th Floor
San Francisco, CA 94102
415-554-3109 (office)
510-388-4936 (cell)

-----Original Message-----
From: Pagano, Laura
Sent: Monday, February 08, 2016 4:42 PM
To: 'Tang, Lila@Waterboards'
Cc: Watkins, Jessica@Waterboards; Johnson, Bill@Waterboards
Subject: RE: Effluent on Ocean Beach SF CA

Hi Lila,

I wanted to give you a status update about the situation(s) below.
(1) odors near Vicente discharge box structure

Staff inspected the site and were able to confirm an occasional sewage odor near the Vicente discharge structure. Inspection of the discharge box structure revealed that the parts of the gates at the end of the discharge structure are not intact, which could be letting odors from the Vicente box escape. Staff will determine the most appropriate fix for the gates tomorrow morning and draw up a work order.
(2) manhole discharge at 46th and Wawona

There are multiple workorders which have been initiated for work over the last 3 days at 46th and Wawona and a block away downstream at 47th and Wawona. Our staff cleared the main sewer once (2/7/16 in the morning). They also marked the downstream sewer for a rush digup as part of the

solution (we are awaiting utility markups for safety reasons, and hope to have them by Wednesday February 10).

There is more investigation at the site underway. I will provide another update as soon as I have more information.

Best regards, --Laura

Laura Pagano
Regulatory Program Manager, Wastewater
City and County of San Francisco
525 Golden Gate Avenue, 11th Floor
San Francisco, CA 94102
415-554-3109 (office)
510-388-4936 (cell)

-----Original Message-----
From: Tang, Lila@Waterboards [mailto:Lila.Tang@waterboards.ca.gov]
Sent: Monday, February 08, 2016 8:06 AM
To: Pagano, Laura
Cc: Watkins, Jessica@Waterboards; Johnson, Bill@Waterboards
Subject: FW: Effluent on Ocean Beach SF CA

Laura - Would SFPUC investigate this complaint and report back on its findings as soon as possible? Thanks.

-----Original Message-----
From: William Rasmussen
Sent: Saturday, February 06, 2016 3:52 PM
To: Tang, Lila@Waterboards
Subject: Effluent on Ocean Beach SF CA

February 6th 2016: Strong oder of sewage on Ocean Beach at an old sewer pipe at Vicente the city emergency services were not available, meanwhile children are playing on that beach. There is a treatment plant at the end of Great Highway but the oder actually fades in that direction and is strongest at the old sewer line. I have contacted 311 (on several occasions in the last week) and the city of SF and the GGNRA. Neither were available. There has also been sewage overflowing into the street at Wawona and 46th for a week and complaints have been made but nothing has been done. As this area is adjacent to the large catchment under Great Highway (paralleling Ocean Beach) I think it may be evidence of the catchment being damaged or overtaxed or issues with the Sloat pumping station or the treatment plant itself. I realize you are probably unwilling or unable (likely both) to test the water but it would be nice to know if the kids are safe. So in the event that we see a spike of sewage related illness in the area I will at least be able to say we contacted you.

William

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 11th Floor
San Francisco, CA 94102
T 415.554.3109
F 415.554.3161
TTY 415.554.3488

February 17, 2016

Lila Tang
Regional Water Quality Control Board
1515 Clay Street, 14th Floor
Oakland CA 94612

Dear Ms. Tang,

This report is being submitted to you pursuant to your request that the SFPUC summarize its efforts in addressing the following issues you asked us to investigate: (1) a reoccurring excursion at 46th and Wawona; (2) an odor complaint near the Vicente outfall structure; (3) 311 availability; (4) trickle of water from the Vicente outfall structure in dry weather; and (5) sign free of graffiti notifying the public about the possibility combined sewage discharges at Vicente outfall structure

(1) Excursion at 46th and Wawona

In response to a reoccurring excursion at 46th and Wawona, SFPUC crews generated work orders and responded multiple times to the site beginning February 6, 2016. Staff diagnosed the underlying problem to be a collapsed pipe on the south side of the intersection of 47th and Wawona which was causing a decrease in flow capacity which in turn was causing the upstream flow to overwhelm the system. As a result the upstream manholes at 47th & Wawona (SE corner) and 46th & Wawona (both the SW and SE corners) were been intermittently excursioning. Most of the flows in this system were water from construction dewatering and the Sloat Garden Center, although there was some sanitary flow from one block upstream which consists of apartments and the United Irish Cultural Center.

In response to the situation, our crews took the following actions:

- Cleared manholes and lines both up and downstream of the collapse to increase capacity as much as possible, through multiple visits to the site
- Created a temporary pump around to take flows from the failed system and send them to a fully functioning local sewer in the area
- Put a rush request to dig up and replace the collapsed pipe, although the pipe needed to have USA utility marking period for safety, which took a couple of days.
- Monitored the site and surrounding areas for containment

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Commissioner

Ike Kwon
Commissioner

Harlan L. Kelly, Jr.
General Manager

On February 11, 2016, crews began the dig-up as planned and repaired the collapsed pipe on 47th and Wawona. It is now functioning. As part of the repair, crews discovered that the slurry had been dumped down the pipe between 46th and 47th, which constrains the capacity of the pipe. Staff is now in the process of investigating to try to identify the responsible party. The work order to address the slurry will be scheduled for repair according to the Collection System Planning priority system.

(2) Odor complaint near Vicente outfall structure

Staff inspected the site and confirmed an occasional sewage odor on February 8, 2016 near the Vicente discharge structure. Inspection of the discharge box structure revealed that the parts of the gates at the end of the discharge structure were damaged, which could have been letting odors from the Vicente box escape. Staff ordered parts to repair the flapper gate, which are expected to be delivered in 3-4 weeks. Staff will repair the flapper gate as soon as the parts come in and tides allow.

The Vicente outfall structure is inspected annually, per our permit requirement. The last two dates of the inspection were 7/30/2014 and 10/26/2015. The following were the findings of the 2015 inspection:

Observations - Both pipes appear to be in good condition, with smooth clean concrete and evidence of flow up to springline. Some flap gates are damaged/missing.
Short-Term Outlook – Primary integrity and functionality are intact. Concrete and rebar may not have been properly installed at upstream end of southern barrel. Recommend refurbishment within 5 years to maximize service life, and installation of new flap gates.

(3) 311 availability

311 is available 24-hours a day, and one can submit a service request in a number of ways including calling 311, the 311 web page, 311 app, and email. Our 311 operations report that there was no break in service (e.g., no fire drill, power outage, etc.) between January 28 and February 11, 2016. I do not know what Mr. Rasmussen meant when he stated in his email to you in regards to "the city of SF and the GGNRA" that "Neither was available," but without any specific facts it is hard to conclude that 311 wasn't available to him.

There were no reports submitted (via phone, email, or other) by either William Rasmussen, the email address he used to contact you, or the address found for this name in the white pages. Presuming that he did call in service requests, he must have done so anonymously. Our research reveals that there were several anonymously reported service requests on or around February 6 regarding an odor complaint at Vicente at Ocean Beach and an excursion at 46th and Wawona. All Mr. Rasmussen would need to do to get an update

about his service requests (even if made anonymously), would be to call 311 and ask the operator for an update using the tracking number he would have been given at the time he made the service request. He could also use the web for this purpose or the app.

It is not clear from his email whether Mr. Rasmussen ever called 311 to find out the status of the service requests he made (or tried through other means such as the web or the 311 app). Accordingly, we do not have any facts that would point to a need to modify the 311 procedures. One potential explanation for Mr. Rasmussen's experience is that while Sewer Ops came out several times to the 46th and Wawona site in response to the service requests, the excursions continued to occur intermittently due to the collapsed pipe downstream at 47th and Wawona restricting capacity. Fixing the root cause with the dig up required several days to get the utilities marked to be able to perform the work safely. Mr. Rasmussen could have seen the intermittent excursions and erroneously concluded that no-one was responding to his service requests, without necessarily calling to check up on his service requests through 311.

(4) Trickle of water from Vicente outfall in dry weather

At high tide portions of the Vicente outfall structure are submerged by the ocean. The trickle of water observed by Regional Board staff from the Vicente outfall structure after high tide was confirmed by sample tests to be seawater and not sewage.

(5) Sign free of graffiti notifying the public about the possibility combined sewage discharges at Vicente outfall structure

The SFPUC put up a new sign on the Vicente outfall structure after the Regional Board staff site visit last year. Below is a picture taken of the sign on the Vicente structure on February 8, 2016 which, as you can see, is free of graffiti.

Please contact me with any questions or concerns at 415-554-3109.

Sincerely,

Laura Pagano
Regulatory Compliance Manager

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
T 415.920.4600
F 415.242.2285

February 29, 2016
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP
NPDES/CA0037681
Self-Monitoring Report January, 2016

Attention: NPDES Division

Transmitted herein is the Oceanside Water Pollution Control Plant (Oceanside Plant) Self-Monitoring Report for January, 2016.
During the month of January, there were eighteen days of measurable precipitation totaling 5.79 inches. The Oceanside Plant treated 758.88 million gallons (MG) of wastewater. A total of 383.33 MG of decanted wet weather flow was pumped to the Southwest Ocean Outfall (SWOO). There were four combined sewer overflow discharges (CSOD) during this reporting period.

Drainage Area CSOD	Westside
This Month	4
2015-16 Season	5
Design Criteria	8

If you have any questions concerning this report, please call (415) 920-4600 and enter the appropriate extension number: Superintendent Jeff Yee, x 6-2225, Operations Manager Tony Flores, x 6-4902, Supervising Chemist Linda Candelaria, x 6-2204, or Laboratory Manager Kenneth Lee, x 6-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sincerely,

Jeff Yee
Operations Superintendent

cc: Distribution List

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Francesca Vietor
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Vice President

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Commissioner

Vince Courtney
Commissioner

Ike Kwon
Commissioner

Harlan L. Kelly, Jr.
General Manager

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681

Facility: OCEANSIDE WWTP

DMR Parameters

Feature - LS: 001-A **Monitoring Period:** 01/01/2016 - 01/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				11.0 mg/L Monthly Average	14.0 mg/L High Weekly Average		Weekly	COMP24
1	0	00400	pH			6.8 SU Minimum		7.2 SU Maximum		Five Per Week	GRAB
1	0	00530	Solids, total suspended				11.0 mg/L Monthly Average	16.0 mg/L High Weekly Average		Five Per Week	COMP24
1	0	50050	Flow, in conduit or thru treatment plant	15.8 Mgal/d Monthly Average	41.6 Mgal/d Daily Maximum					Daily	CONTIN
1	0	71901	Mercury, total recoverable				0.0069 ug/L 6 Month Median	0.0074 ug/L Daily Maximum		Monthly	COMP24
K	0	81010	BOD, 5-day, percent removal			96.0 % Monthly Average Minimum				Monthly	CALCTD
K	0	81011	Solids, suspended percent removal			96.0 % Monthly Average Minimum				Monthly	CALCTD

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2016 - 01/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				30.0 mg/L Monthly Average	30.0 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00400	pH			7.2 SU Minimum		7.2 SU Maximum		Once Every Occurance	COMP24
1	0	00530	Solids, total suspended				51.0 mg/L Monthly Average	68.0 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00610	Nitrogen, ammonia total (as N)				1.6 mg/L Monthly Average	2.2 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00720	Cyanide, total (as CN)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00978	Arsenic, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00981	Selenium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00982	Thallium, total recoverable				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)				2.1 ug/L Monthly Average	2.6 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01074	Nickel, total recoverable				2.2 ug/L Monthly Average	2.7 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01079	Silver total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2016 - 01/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01094	Zinc, total recoverable				92.7 ug/L Monthly Average	110.0 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01113	Cadmium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01114	Lead, total recoverable				6.9 ug/L Monthly Average	8.8 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01119	Copper, total recoverable				18.4 ug/L Monthly Average	22.2 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01268	Antimony, total recoverable				0.7 ug/L Monthly Average	0.9 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	03582	Oil and grease				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	22456	Polynuclear Aromatic Hydrocarbons (PAHs)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34198	.delta.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34351	Endosulfan sulfate				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34356	.beta.-Endosulfan				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34361	.alpha.-Endosulfan				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34366	Endrin aldehyde				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2016 - 01/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34671	PCB-1016				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39300	4,4'-DDT				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39310	4,4'-DDD				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39320	4,4'-DDE				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39330	Aldrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39336	.alpha.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39338	.beta.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39344	.gamma.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39350	Chlordane (tech mix. and metabolites)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39380	Dieldrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39390	Endrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39400	Toxaphene				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39410	Heptachlor				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2016 - 01/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39420	Heptachlor epoxide				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39488	PCB-1221				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39492	PCB-1232				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39496	PCB-1242				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39500	PCB-1248				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39504	PCB-1254				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39508	PCB-1260				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	50050	Flow, in conduit or thru treatment plant	47.167 Mgal/d Monthly Average	52.77 Mgal/d Daily Maximum					Continuous	COMP24
1	0	71901	Mercury, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: INF-A										**Monitoring Period:** 01/01/2016 - 01/31/2016	
Loc	**Sea**	**Param**	**Param Text**	**Q1**	**Q2**	**C1**	**C2**	**C3**	**Excur Count**	**Analy Freq**	**Sample Type**
G	0	00310	BOD, 5-day, 20 deg. C				266.0 mg/L Monthly Average	395.0 mg/L Daily Maximum		Weekly	COMP24
G	0	00400	pH			7.0 SU Minimum		8.5 SU Maximum		Five Per Week	GRAB
G	0	00530	Solids, total suspended				295.0 mg/L Monthly Average	966.0 mg/L Daily Maximum		Five Per Week	COMP24
G	0	50050	Flow, in conduit or thru treatment plant	24.5 Mgal/d Monthly Average	58.1 Mgal/d Daily Maximum					Daily	CONTIN

Westside Drainage Area - Wet Weather Treatment Summary
January 2016

Date	Rainfall Inches	Maximum Hourly Rainfall	Hours of Rainfall	Estimated Rainfall Volume, MG	Flow to Oceanside MG	Decanted Flow to SWOO, MG	Estimated CSD Discharge Vol, MG
1/1/2016	0.00	0.00	0	0.00	18.15	0.00	0.00
1/2/2016	0.00	0.00	0	0.00	13.03	0.00	0.00
1/3/2016	0.04	0.03	2	0.73	14.73	0.00	0.00
1/4/2016	0.06	0.04	2	5.46	19.46	0.00	0.00
1/5/2016	1.07	0.22	14	148.54	58.13	104.41	0.11
1/6/2016	1.01	0.28	11	122.38	56.10	80.28	4.54
1/7/2016	0.08	0.04	3	21.50	27.41	8.09	0.00
1/8/2016	0.00	0.00	0	0.00	13.69	0.01	0.00
1/9/2016	0.17	0.04	8	14.72	28.72	0.00	0.00
1/10/2016	0.01	0.01	1	2.51	16.51	0.00	0.00
1/11/2016	0.00	0.00	0	0.00	13.14	0.00	0.00
1/12/2016	0.00	0.00	0	0.00	14.69	0.00	0.00
1/13/2016	0.21	0.13	5	27.82	33.10	8.71	0.00
1/14/2016	0.08	0.05	3	7.61	21.61	0.00	0.00
1/15/2016	0.12	0.07	3	1.06	15.06	0.00	0.00
1/16/2016	0.23	0.07	7	26.94	40.94	0.00	0.00
1/17/2016	1.05	0.32	10	48.15	35.59	26.57	10.57
1/18/2016	0.17	0.08	4	95.13	48.78	60.35	3.91
1/19/2016	1.02	0.24	8	117.63	50.36	81.27	5.54
1/20/2016	0.00	0.00	0	0.00	20.08	0.00	0.00
1/21/2016	0.00	0.00	0	0.00	14.78	0.00	0.00
1/22/2016	0.12	0.07	5	11.39	25.39	0.00	0.00
1/23/2016	0.04	0.04	1	9.78	23.78	0.00	0.00
1/24/2016	0.00	0.00	0	0.00	12.98	0.00	0.00
1/25/2016	0.00	0.00	0	0.00	13.11	0.00	0.00
1/26/2016	0.00	0.00	0	0.00	13.38	0.00	0.00
1/27/2016	0.00	0.00	0	0.00	12.71	0.00	0.00
1/28/2016	0.00	0.00	0	0.00	13.60	0.00	0.00
1/29/2016	0.30	0.06	11	31.80	32.16	13.64	0.00
1/30/2016	0.01	0.01	1	10.24	24.23	0.00	0.00
1/31/2016	0.00	0.00	0	0.00	13.47	0.00	0.00
Total	***5.79***	***1.80***	99	703.38	758.88	383.33	24.673
Max	1.07	0.32	0.00	148.54	58.13	104.41	10.570

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Wastewater Enterprise

Westside Drainage Area - Wet Weather Discharge Summary

January 2016

Date	Lake Merced CSOD #1		Vicente CSOD #2		Lincoln CSOD #3		Mile Rock CSOD #4		Sea Cliff 1 CSOD #5		Sea Cliff O.F. CSOD #6		Sea Cliff 2 CSOD #7		Total Discharge per day	
	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG
1															0:00	0.00
2															0:00	0.00
3															0:00	0.00
4															0:00	0.00
5	0:11	0.10											0:16	0.01	0:27	0.11
6	1:42	1.68	1:56	2.79	0:29	0.07									4:07	4.54
7															0:00	0.00
8															0:00	0.00
9															0:00	0.00
10															0:00	0.00
11															0:00	0.00
12															0:00	0.00
13															0:00	0.00
14															0:00	0.00
15															0:00	0.00
16															0:00	0.00
17	1:35	6.81	1:12	3.67	0:22	0.08							0:13	0.01	3:22	10.57
18	1:07	1.48	2:45	2.44											3:52	3.91
19	1:51	2.27	2:15	3.01	0:23	0.26							0:05	0.001	4:34	5.54
20															0:00	0.00
21															0:00	0.00
22															0:00	0.00
23															0:00	0.00
24															0:00	0.00
25															0:00	0.00
26															0:00	0.00
27															0:00	0.00
28															0:00	0.00
29															0:00	0.00
30															0:00	0.00
31															0:00	0.00
Total	**6:26**	**12.34**	**8:08**	**11.91**	**1:14**	**0.41**	**0.00**	**0.00**	**0:00**	**0.000**	**0:00**	**0.00**	**0:34**	**0.02**	**16:22**	**24.673**

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Wastewater Enterprise

Westside Drainage Area - Annual Summary
2015-2016

Month	Rainfall Inches	Maximun Hourly Rainfall Inches	Hours of Rainfall Hours	Estimated Rainfall Volume MG	Flow to Oceanside Plant MG	Decanted Flow to SWOO MG	Estimated CSD Discharge Volume MG	Westside Transport CSD Count
Jul	0.04	0.02	2	0.14	375.68	0.0	0.00	0
Aug	0.02	0.01	2	0.00	382.11	0.0	0.00	0
Sep	0.07	0.01	7	1.89	388.70	0.0	0.00	0
Oct	0.00	0.00	0	0.00	388.73	0.0	0.00	0
Nov	1.10	0.16	22	101.56	468.07	37.8	0.00	0
Dec	3.80	0.39	72	465.24	676.59	230.2	2.69	1
Jan	5.79	0.32	99	703.38	758.88	383.3	24.67	4
Feb								
Mar								
April								
May								
Jun								
Total	**10.82**	**0.91**	**204**	**1272.21**	**3438.75**	**651.3**	**27.36**	5
Maximum	5.79	0.39	99	703.38	758.88	383.3	24.67	4

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Wed/20	Mon/25	30-day Geometric Mean[2]
15	171	9804	842		3784		481		5794	1568
15EAST	74	158	464		52		146		84	123
16	20	155	439		31		110		75	84
17	20				97		173		20	
18	10		1071		41	733	6131	85	41	183
19	51		2755	327	52	960	**> 24196**	109	41	354
21.1	31		233		20	327	**15531**	10	96	132
20			548			410	2481	20		
21			706			489	3448	109		
22			231				**19863**	135		

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Wed/20	Mon/25	30-day Geometric Mean[2]
15	20	241	85		30		10		52	43
15EAST	20	20	109		20		< 10		< 10	21
16	10	51	161		< 10		< 10		31	25
17	10				< 10		20		< 10	
18	10		216		20	98	**2247**	31	10	60
19	< 10		**591**	63	20	135	**24196**	20	< 10	91
21.1	20		20		< 10	52	**4106**	< 10	20	40
20			97			52	336	10		
21			41			41	373	10		
22			20				**1565**	< 10		

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Wed/20	Mon/25	30-day Geometric Mean[2]
15	< 10	**384**	52		10		31		10	29
15EAST	10	52	52		20		10		< 10	19
16	< 10	**379**	41		< 10		20		< 10	26
17	< 10				10		31		< 10	
18	20		52		< 10	20	**520**	10	< 10	27
19	< 10		**173**	52	10	52	**> 24196**	10	< 10	57
21.1	< 10		62		< 10	10	**749**	20	30	31
20			84			41	**109**	< 10		
21			63			20	**146**	10		
22			75				**1529**	< 10		

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)

01/03	0.04	01/10	0.01	01/18	0.17
01/04	0.06	01/13	0.21	01/19	1.02
01/05	1.07	01/14	0.08	01/22	0.12
01/06	1.01	01/15	0.12	01/23	0.04
01/07	0.08	01/16	0.23	01/29	0.30
01/09	0.17	01/17	1.05	01/30	0.01

bold STATION POSTED due to elevated bacteria count
bold STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
T 415.242.2225
F 415.242.2285

March 21, 2016

Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP (NPDES/CA0037681) 5-Day Written Report

Dear Ms. Watkins,

This is the 5-Day Written Report for the unauthorized discharge incident caused by the clogged lateral of a single family home which is assumed to have occurred on Saturday, March 12, 2016 through Tuesday, March 15, 2016 at 11:30 am at the Seacliff 1 Combined Sewer Discharge (CSD) Outfall. This is a follow-up to the verbal notification sent to the Regional Board on March 15, 2016 following the discovery of this event.

1) Incident description and cause:

On March 15, 2016 at approximately 9:00 am, the Oceanside Operations Chief (Mark Lauer) observed flow coming out of an air vent on a sewer lateral across from the Seacliff 1 Pump Station. The residence is located at 475 Seacliff Avenue. It was determined that there was a clog on the sewer lateral downstream of the vent, preventing flow from the residence to reach the main sewer line that flows to the pump station. This caused intermittent flow from the residence to exit through the vent and onto the street to a catch basin (see Attachment 1 for diagram). The catch basin, which normally captures runoff, bypasses the pump station and discharges onto China Beach at CSD-005. SFPUC Staff investigated, including interviews. According to the resident at 475 Seacliff, flow had been going through the vent three days prior. She reported it to her landlord when she first saw the problem.

2) Location of threatened or involved waterway(s) or storm drains:

The discharge location was CSD-005, located at China Beach. Discharge was onto the beach, with an unknown portion of the discharge reaching the Pacific Ocean.

3) Date and time the unauthorized discharge started:

Edwin M. Lee
Mayor
Francesca Vietor
President
Anson Moran
Vice President
Ann Moller Caen
Commissioner
Vince Courtney
Commissioner
Ike Kwon
Commissioner
Harlan L. Kelly, Jr.
General Manager

The discharge is estimated to have started sometime on March 12, 2016. The exact time is uncertain.

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered:

Approximately 840 gallons; the unauthorized discharge occurred intermittently for approximately three days (ended March 15 @ 11:30 am) with 0% recovery. The estimation assumes that the average American household uses 400 gallons of water per day, with 70% of the water used indoors (based on EPA Watersense Article, Attachment 2).

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on):

Raw wastewater

6) Identity of the person reporting the unauthorized discharge:

Mark Lauer, Operations Chief

5-Day Written Report

1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters:

There were no visible signs of raw wastewater found on the beach or floating in the receiving waters. All bacteria results from ocean shoreline samples collected on March 15 were below State standards for water contact recreation. Additionally, samples were collected from the outfall seepage and results were negative for urea and odor.

2) Efforts implemented to minimize public exposure to the unauthorized discharge:

An SFPUC Biologist was dispatched to take samples and notification of the discharge was posted at the beach on March 15 at 11:30 am. Email notification was sent and the website was updated. The beach was de-posted on March 16 at 9:30 am.

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted:

No negative impacts were observed on March 15, when the SFPUC became aware of the situation and investigated.

4) Corrective measures taken to minimize the impact of the unauthorized discharge:

Once the Operations Chief identified the incident, he coordinated with Sewer Operations to unclog the sewer lateral. The sewer lateral was unclogged on March 15 at approximately 11:30 am.

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future:

In response to this incident, the following measures will be taken:
Private sewer lateral issues are the responsibility of the homeowner, not the SFPUC. However, to protect water quality, SFPUC Staff performed the work to reduce the clog rather than wait for the homeowner to address the problem.

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges:

To minimize the chances of future unauthorized discharges, the following modifications and actions will be taken:
The residents at 475 Seacliff Avenue are being provided with materials advising them to call 311 if a similar situation occurs again. SFPUC Staff is also investigating to see if there are measures (curbing, etc.) which could be taken to route outflow from the vent away from the catch basin. No modifications to the Spill Prevention Plan or O&M Manual need to be made at this time.

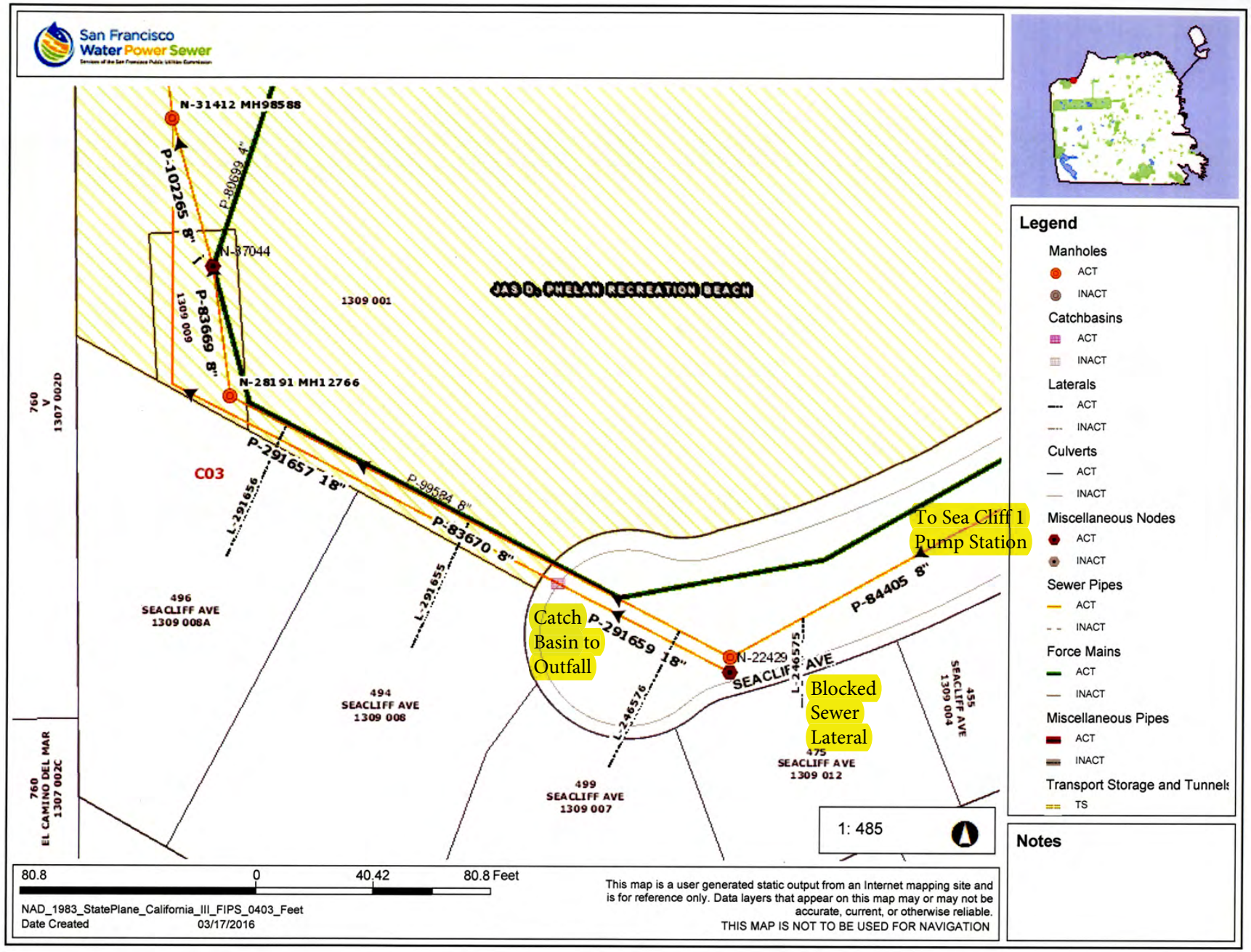
If you have any questions concerning this report, please contact me at (415) 242-2225.

Sincerely,

Jeff Yee

Jeff Yee
Operations Superintendent

cc: Habte Kifle


San Francisco
Water Power Sewer
N-31412 MH98588
P-102265 8"
P-80699 4"
N-37044
P-83669 8"
1309 009
1309 001
JAS D. PHELAN RECREATION BEACH
N-28191 MH12766
760
V
1307 002D
C03
P-291657 18"
L-291656
P-99584 8"
P-83670 8"
L-291655
496
SEACLIFF AVE
1309 008A
494
SEACLIFF AVE
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760
EL CAMINO DEL MAR
1307 002C
Catch Basin to Outfall
P-291659 18"
N-22429
SEACLIFF AVE
L-246575
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499
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P-84405 8"
To Sea Cliff 1 Pump Station
Blocked Sewer Lateral
1: 485
Legend
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Catchbasins
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Laterals
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INACT
Culverts
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Sewer Pipes
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Date Created 03/17/2016
This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION

EPA WaterSense

Indoor Water Use in the United States

Americans use large quantities of water inside their homes. A family of four can use 400 gallons of water every day, and, on average, approximately 70 percent of that water is used indoors.

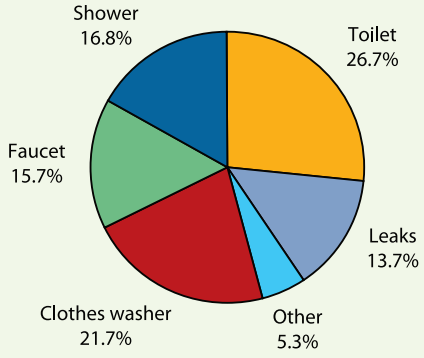
The bathroom is the largest consumer of indoor water. The toilet alone can use 27 percent of household water. Almost every activity or daily routine that happens in the home bathroom uses a large quantity of water. For example:

- Older toilets use between 3.5 and 7 gallons of water per flush. However, WaterSense® labeled toilets use at least 60 percent less water.
- A leaky toilet can waste about 200 gallons of water every day.
- A bathroom faucet generally runs at 2 gallons of water per minute. By turning off the tap while brushing your teeth or shaving, a person can save more than 200 gallons of water per month.

Outside the bathroom, there are many opportunities to save water. Here are some common water-efficiency measures, along with a few solutions to those problems you may not have known existed:

- High-efficiency washing machines can conserve large amounts of water. Traditional models can use 50 gallons or more of water per load, but newer, energy- and water-conserving models (front-loading or top-loading, non-agitator ones) use less than 27 gallons per load.

How Much Water Do We Use?



Source: American Water Works Association Research Foundation, "Residential End Uses of Water," 1999

- Washing the dishes with an open tap can use up to 20 gallons of water, but filling the sink or a bowl and closing the tap saves 10 of those gallons.
- Keeping a pitcher of water in the refrigerator saves time and water instead of running the tap until it gets cold.
- Not rinsing dishes prior to loading the dishwasher could save up to 10 gallons per load.

WaterSense, a partnership program sponsored by the U.S. Environmental Protection Agency, seeks to help families and businesses realize that they can reduce water use by doing just a few simple things, such as upgrading to higher quality, more efficient products. For more information, visit <www.epa.gov/watersense>.

June 2008

(866) WTR-SENS (987-7367) · www.epa.gov/watersense · watersense@epa.gov

EPA

EPA-832-F-06-004

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
T 415.920.4600
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April 27, 2016
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP
NPDES/CA0037681
Self-Monitoring Report March, 2016

Attention: NPDES Division

Transmitted herein is the Oceanside Water Pollution Control Plant (Oceanside Plant) Self-Monitoring Report for March, 2016.
During the month of March, there were twelve days of measurable precipitation totaling 5.75 inches. The Oceanside Plant treated 718.11 million gallons (MG) of wastewater. A total of 397.28 MG of decanted wet weather flow was pumped to the Southwest Ocean Outfall (SWOO). There were three combined sewer overflow discharges (CSOD) during this reporting period.

Drainage Area CSOD	Westside
This Month	3
2015-16 Season	9
Design Criteria	8

The Chronic Toxicity Test conducted from March 9, 2016 through March 12, 2016 was invalidated due to poor control development. The subsequent chronic test was valid for Quarter 1, 2016 and has been reported to Linda Candelaria.
A private sewer lateral discharge to the Seacliff 1 Combined Sewer Discharge (CSD) Outfall occurred on Saturday, March 12, 2016 through Tuesday, March 15, 2016. It was first reported as an unauthorized discharge incident and a 5-Day Written Report was submitted to Jessica Watkins on March 21, 2016. Upon further investigation, the discharge was identified as an illicit discharge from a private sewer lateral to a storm drain system. It will be reported in the MS4 Annual Report.
If you have any questions concerning this report, please call (415) 920-4600 and enter the appropriate extension number: Superintendent Jeff Yee, x 6-2225, Operations Manager Tony Flores, x 6-4902, Supervising Chemist Linda Candelaria, x 6-2204, or Laboratory Manager Kenneth Lee, x 6-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sincerely,

Jeff Yee
Operations Superintendent

cc: Distribution List

Edwin M. Lee
Mayor
Francesca Vietor
President
Anson Moran
Vice President
Ann Moller Caen
Commissioner
Vince Courtney
Commissioner
Ike Kwon
Commissioner
Harlan L. Kelly, Jr.
General Manager

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681

Facility: OCEANSIDE WWTP

DMR Parameters

Feature - LS: 001-A **Monitoring Period:** 03/01/2016 - 03/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				13.0 mg/L Monthly Average	20.0 mg/L High Weekly Average		Weekly	COMP24
1	0	00400	pH			6.8 SU Minimum		7.2 SU Maximum		Five Per Week	GRAB
1	0	00530	Solids, total suspended				11.0 mg/L Monthly Average	15.0 mg/L High Weekly Average		Five Per Week	COMP24
1	0	50050	Flow, in conduit or thru treatment plant	15.9 Mgal/d Monthly Average	24.8 Mgal/d Daily Maximum					Daily	CONTIN
1	0	71901	Mercury, total recoverable				0.0074 ug/L 6 Month Median	0.0047 ug/L Daily Maximum		Monthly	COMP24
K	0	81010	BOD, 5-day, percent removal			96.0 % Monthly Average Minimum				Monthly	CALCTD
K	0	81011	Solids, suspended percent removal			96.0 % Monthly Average Minimum				Monthly	CALCTD

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Q **Monitoring Period:** 01/01/2016 - 03/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00070	Turbidity					12.1 NTU Daily Maximum		Quarterly	COMP24
1	0	00610	Nitrogen, ammonia total (as N)					42.8 mg/L Daily Maximum		Quarterly	COMP24
1	0	00720	Cyanide, total (as CN)					NODI: Q Daily Maximum			
1	0	00978	Arsenic, total recoverable					NODI: Q Daily Maximum			
1	0	00981	Selenium, total recoverable					NODI: Q Daily Maximum			
1	0	00982	Thallium, total recoverable					NODI: B Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)					NODI: B Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)					NODI: Q Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)					1.2 ug/L Daily Maximum		Quarterly	COMP24
1	0	01074	Nickel, total recoverable					27.3 ug/L Daily Maximum		Quarterly	COMP24
1	0	01079	Silver total recoverable					NODI: Q Daily Maximum			
1	0	01094	Zinc, total recoverable					97.3 ug/L Daily Maximum		Quarterly	COMP24
1	0	01113	Cadmium, total recoverable					1.22 ug/L Daily Maximum		Quarterly	COMP24

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Q **Monitoring Period:** 01/01/2016 - 03/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01114	Lead, total recoverable					1.21 ug/L Daily Maximum		Quarterly	COMP24
1	0	01119	Copper, total recoverable					21.0 ug/L Daily Maximum		Quarterly	COMP24
1	0	01268	Antimony, total recoverable					2.75 ug/L Daily Maximum		Quarterly	COMP24
1	0	03582	Oil and grease					NODI: Q Daily Maximum			
1	0	TTJ3L	Static 72Hr Chronic Strongyl. Purpuratus				50.0 tox chronic Average	50.0 tox chronic Daily Maximum		Quarterly	COMP24
1	0	TTJ3N	Static 72Hr Chronic Dendraster Excentri.				NODI: 9 Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 03/01/2016 - 03/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00400	pH			7.0 SU Minimum		7.3 SU Maximum		Once Every Occurance	COMP24
1	0	00530	Solids, total suspended				50.0 mg/L Monthly Average	55.0 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00610	Nitrogen, ammonia total (as N)				2.7 mg/L Monthly Average	2.7 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00720	Cyanide, total (as CN)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00978	Arsenic, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00981	Selenium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00982	Thallium, total recoverable				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)				2.9 ug/L Monthly Average	3.1 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01074	Nickel, total recoverable				2.6 ug/L Monthly Average	2.9 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01079	Silver total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 03/01/2016 - 03/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01094	Zinc, total recoverable				92.7 ug/L Monthly Average	97.1 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01113	Cadmium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01114	Lead, total recoverable				7.0 ug/L Monthly Average	7.1 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01119	Copper, total recoverable				25.6 ug/L Monthly Average	27.3 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01268	Antimony, total recoverable				1.0 ug/L Monthly Average	1.2 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	03582	Oil and grease				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	22456	Polynuclear Aromatic Hydrocarbons (PAHs)				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	34198	.delta.-BHC				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	34351	Endosulfan sulfate				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	34356	.beta.-Endosulfan				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	34361	.alpha.-Endosulfan				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	34366	Endrin aldehyde				NODI: B Monthly Average	NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 03/01/2016 - 03/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34671	PCB-1016				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39300	4,4'-DDT				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39310	4,4'-DDD				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39320	4,4'-DDE				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39330	Aldrin				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39336	.alpha.-BHC				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39338	.beta.-BHC				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39344	.gamma.-BHC				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39350	Chlordane (tech mix. and metabolites)				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39380	Dieldrin				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39390	Endrin				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39400	Toxaphene				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39410	Heptachlor				NODI: B Monthly Average	NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 03/01/2016 - 03/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39420	Heptachlor epoxide				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39488	PCB-1221				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39492	PCB-1232				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39496	PCB-1242				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39500	PCB-1248				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39504	PCB-1254				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39508	PCB-1260				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	50050	Flow, in conduit or thru treatment plant	41.14 Mgal/d Monthly Average	47.1 Mgal/d Daily Maximum					Continuous	COMP24
1	0	71901	Mercury, total recoverable				0.2 ug/L Monthly Average	0.4 ug/L Daily Maximum		Once Every Occurance	COMP24

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: INF-A **Monitoring Period:** 03/01/2016 - 03/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
G	0	00310	BOD, 5-day, 20 deg. C				353.0 mg/L Monthly Average	621.0 mg/L Daily Maximum		Weekly	COMP24
G	0	00400	pH			6.6 SU Minimum		8.3 SU Maximum		Five Per Week	GRAB
G	0	00530	Solids, total suspended				243.0 mg/L Monthly Average	896.0 mg/L Daily Maximum		Five Per Week	COMP24
G	0	50050	Flow, in conduit or thru treatment plant	23.2 Mgal/d Monthly Average	56.4 Mgal/d Daily Maximum					Daily	CONTIN

Westside Drainage Area - Wet Weather Treatment Summary
March 2016

Date	Rainfall Inches	Maximum Hourly Rainfall	Hours of Rainfall	Estimated Rainfall Volume, MG	Flow to Oceanside MG	Decanted Flow to SWOO, MG	Estimated CSD Discharge Vol, MG
3/1/2016	0.00	0.00	0	0.00	12.92	0.00	0.000
3/2/2016	0.00	0.00	0	0.00	13.78	0.00	0.000
3/3/2016	0.04	0.02	3	4.21	18.21	0.00	0.000
3/4/2016	0.34	0.22	8	44.09	34.85	23.24	0.000
3/5/2016	1.21	0.32	15	67.73	45.87	35.86	7.850
3/6/2016	0.57	0.22	8	96.51	51.18	59.33	0.000
3/7/2016	0.19	0.08	6	53.14	42.48	24.65	0.000
3/8/2016	0.00	0.00	0	0.00	14.82	0.00	0.000
3/9/2016	0.14	0.05	4	10.77	24.77	0.00	0.000
3/10/2016	0.95	0.28	12	81.41	37.76	57.65	3.508
3/11/2016	0.38	0.16	8	112.67	56.34	70.33	0.000
3/12/2016	1.21	0.32	9	62.14	35.00	41.14	12.680
3/13/2016	0.46	0.09	12	127.42	56.35	85.07	0.000
3/14/2016	0.00	0.00	0	0.00	20.74	0.00	0.000
3/15/2016	0.00	0.00	0	0.00	15.51	0.00	0.000
3/16/2016	0.00	0.00	0	0.00	12.84	0.00	0.000
3/17/2016	0.00	0.00	0	0.00	13.19	0.00	0.000
3/18/2016	0.00	0.00	0	0.00	14.16	0.00	0.000
3/19/2016	0.00	0.00	0	0.00	14.56	0.00	0.000
3/20/2016	0.10	0.04	4	8.44	22.44	0.00	0.000
3/21/2016	0.16	0.13	3	8.79	22.79	0.00	0.000
3/22/2016	0.00	0.00	0	0.00	22.66	0.00	0.000
3/23/2016	0.00	0.00	0	0.00	12.57	0.00	0.000
3/24/2016	0.00	0.00	0	0.00	12.88	0.00	0.000
3/25/2016	0.00	0.00	0	0.00	13.48	0.00	0.000
3/26/2016	0.00	0.00	0	0.00	13.76	0.00	0.000
3/27/2016	0.00	0.00	0	0.00	12.57	0.00	0.000
3/28/2016	0.00	0.00	0	0.00	12.32	0.00	0.000
3/29/2016	0.00	0.00	0	0.00	12.57	0.00	0.000
3/30/2016	0.00	0.00	0	0.00	12.28	0.00	0.00
3/31/2016	0.00	0.00	0	0.00	12.48	0.00	0.00
Total	***5.75***	***1.93***	92	677.31	718.11	397.28	24.038
Max	1.21	0.32	0.00	127.42	56.35	85.07	12.680

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Wastewater Enterprise

Westside Drainage Area - Wet Weather Discharge Summary

March 2016

Date	Lake Merced CSOD #1		Vicente CSOD #2		Lincoln CSOD #3		Mile Rock CSOD #4		Sea Cliff 1 CSOD #5		Sea Cliff O.F. CSOD #6		Sea Cliff 2 CSOD #7		Total Discharge per day	
	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG
1															0:00	0.000
2															0:00	0.000
3															0:00	0.000
4															0:00	0.000
5	1:40	4.06	1:34	3.49	0:40	0.30									3:54	7.850
6															0:00	0.000
7															0:00	0.000
8															0:00	0.000
9															0:00	0.000
10	2:11	1.66	1:52	0.96	2:00	0.89									6:03	3.508
11															0:00	0.000
12	2:46	6.50	2:38	5.61	0:46	0.57									6:10	12.680
13															0:00	0.000
14															0:00	0.000
15															0:00	0.000
16															0:00	0.000
17															0:00	0.000
18															0:00	0.000
19															0:00	0.000
20															0:00	0.000
21															0:00	0.000
22															0:00	0.000
23															0:00	0.000
24															0:00	0.000
25															0:00	0.000
26															0:00	0.000
27															0:00	0.000
28															0:00	0.000
29															0:00	0.000
30															0:00	0.000
31															0:00	0.000
Total	**6:37**	**12.22**	**6:04**	**10.06**	**3:26**	**1.76**	**0.00**	**0.00**	**0:00**	**0.000**	**0:00**	**0.00**	**0:00**	**0.00**	**16:07**	**24.038**

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Wastewater Enterprise

Westside Drainage Area - Annual Summary

2015-2016

Month	Rainfall Inches	Maximun Hourly Rainfall Inches	Hours of Rainfall Hours	Estimated Rainfall Volume MG	Flow to Oceanside Plant MG	Decanted Flow to SWOO MG	Estimated CSD Discharge Volume MG	Westside Transport CSD Count
Jul	0.04	0.02	2	0.14	375.68	0.0	0.00	0
Aug	0.02	0.01	2	0.00	382.11	0.0	0.00	0
Sep	0.07	0.01	7	1.89	388.70	0.0	0.00	0
Oct	0.00	0.00	0	0.00	388.73	0.0	0.00	0
Nov	1.10	0.16	22	101.56	468.07	37.8	0.00	0
Dec	3.80	0.39	72	465.24	676.59	230.2	2.69	1
Jan	5.79	0.32	99	703.38	758.88	383.3	24.67	4
Feb	0.94	0.20	16	83.68	445.52	31.1	0.01	1
Mar	5.75	0.32	92	677.31	718.11	397.3	24.04	3
April								
May								
Jun								
Total	**17.51**	**1.43**	**312**	**2033.20**	**4602.38**	**1079.7**	**51.41**	9
Maximum	5.79	0.39	99	703.38	758.88	397.3	24.67	4

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
March 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/01	Sun/06	Mon/07	Tue/08	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
15		**15531**	759	86				1187		109		3076	860
15EAST		448	563	31				110		1334	95	10	141
16		341	749	52				73		121	74	10	98
17		617	1374					63	86	6867	20	20	200
18		305	677	218	146		364	97		134		10	154
19	< 10	1250	2046	187	2247	328	**19863**	350		20		10	294
21.1		228		183 *	1935	52	228	41		121		< 10	115
20		265			2143	120	350						393
21		189			1314		6488	121					
22		426											

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/01	Sun/06	Mon/07	Tue/08	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
15		122	145	10				31		41		10	36
15EAST		75	109	10				< 10		**620**	< 10	< 10	34
16		63	292	< 10				41		20	10	10	28
17		86	259					< 10	10	**455**	< 10	10	37
18		20	146	< 10	10		41	20		41		< 10	24
19	< 10	52	**520**	10	**1081**	41	**1723**	122		< 10		< 10	69
21.1		31		41 *	52	10	10	< 10		52		< 10	19
20		20			122	20	31						35
21		20			75		**697**	20					
22		20											

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Tue/01	Sun/06	Mon/07	Tue/08	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Mon/21	Tue/22	Mon/28	30-day Geometric Mean[2]
15		63	**420**	< 10				31		< 10		20	34
15EAST		20	63	< 10				20		**697**	10	< 10	29
16		10	**231**	< 10				< 10		**145**	< 10	< 10	23
17		< 10	84					< 10	20	**169**	< 10	< 10	22
18		< 10	**110**	< 10	41		41	10		< 10		< 10	19
19	< 10	31	**315**	< 10	73	10	**465**	20		20		< 10	33
21.1		20		41 *	**183**	10	20	< 10		20		< 10	20
20		10			**187**	< 10	31						28
21		10			95		**235**	20					
22		63											

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
03/03	0.04	03/10	0.95
03/04	0.34	03/11	0.38
03/05	1.21	03/12	1.21
03/06	0.57	03/13	0.46
03/07	0.19	03/20	0.10
03/09	0.14	03/21	0.16

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
Not physically posted
STATION POSTED due to private residence sewage lateral pipe breakage draining into storm drain

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

* Not sampled till the next day due to safety reasons

Reviewed by: R Duggan

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
T 415.242.2200
F 415.242.2285

October 24, 2016

Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP (NPDES/CA0037681) 5-Day Written Report

Dear Ms. Watkins,

This is the 5-Day Written Report for the discharge that occurred on Monday, October 17, 2016 at approximately 10:53 a.m. to 11:05 a.m. from the Seacliff 2 Pump Station Outfall (CSD-007). This report follows up on the notification voicemail and email to you from Mark Lauer (Oceanside Treatment Plant Operations Chief) on October 17, 2016 following the discovery of this event.

(1) Event Description and Cause

On Monday, October 17, Oceanside plant staff reviewed plant and pump station data for a wet weather event which had occurred over the weekend. Staff saw data which indicated that a CSD at Seacliff 2 (CSD-006) could be occurring and immediately went out to the pump station to investigate (An alarm from the Seacliff 2 outfall weir (CSD-006) occurred on Sunday October 16, 2016, at approximately 1:00 p.m. Staff did not physically investigate the pump station at that time). Investigation revealed that the overflow side of the weir was dry, and that the sump level trend had not exceeded the overflow level. Accordingly, plant staff has concluded that no discharge from CSD-006 had occurred.

While investigating the potential discharge, staff discovered that the inlet valve to the pump station was failing to open. To prevent a discharge occurring at CSD-006, staff opened the valve manually to lower the level. During this time, the pump station lift pumps failed due to the scheduled PG&E interruption described below. This power failure caused a discharge to occur at CSD-007.

Oceanside Treatment Plant (OSP) Electricians, who were on site standing by to be able to respond to any issues caused by the power interruption, were able to restore emergency power to the station within approximately five minutes and stop the overflow.

A planned PG&E Electric Service Interruption for the Seacliff area was scheduled that day between 9:00 a.m. to 11:00 a.m. The purpose of the service interruption was to switch circuits to work around a transformer that was being replaced.

(2) Time Period of the Event

The discharge at CSD-007 began at approximately 10:53 a.m. and ended at 11:05 a.m. on Monday, October 17, 2016 with 0% recovery.

Edwin M. Lee
Mayor

Anson Moran
President

Ike Kwon
Vice President

Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Vince Courtney
Commissioner

Harlan L. Kelly, Jr.
General Manager

OSP Staff estimate that approximately 8,011 gallons of combined wastewater was discharged through CSD-007 to Baker Beach as a result of this event.

Receiving water samples were collected at three separate locations along Baker Beach including point zero within two hours of the reported discharge. These samples were analyzed for Total coliforms, *E. coli* and *Enterococcus*. The results indicated that bacterial concentrations were below State standards for recreational waters at all three locations.

Visual observations were made as receiving water samples were collected. No evidence of adverse effects was observed.

Baker Beach was posted 10/16/2016 to 10/18/2016 and the public was notified via email and the web.

(3) Anticipated time Event is expected to continue if the Issue has not been resolved

N/A: The issue has been resolved.

(4) Steps taken or planned to reduce, eliminate and prevent reoccurrence

Staff responded appropriately to the discharge which occurred at CSD-007. Emergency repairs have been made to the inlet valve to the pump station so that it is now functioning properly.

To address the issue of timely performing physical inspections when alarms occur, the following measures will be taken:

- Operations staff will be re-trained on existing SOPs regarding appropriate steps to take in investigating alarms.
- A new logsheet will be created that requires hourly readings of all pump station sump levels and alarm status.

In addition, all of the alarm probes monitoring these areas have been tested and recalibrated by the I&C staff. An examination of the Spill Prevention Plan and O&M Manual has been made and staff has determined that no changes are needed

If you have any questions concerning this report, please call Jeff Yee at (415) 242-2225.

Sincerely,

Jeff Yee

Jeff Yee
Operations Superintendent

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=1835660

		(AMEL)					
EFF-001	Total Suspended Solids (TSS), Percent Removal	Percent Reduction	=	95	%	10/31/2016	None
EFF-001	pH	Monthly Maximum	=	7.1	SU	10/05/2016	None
EFF-001	pH	Monthly Minimum	=	6.7	SU	10/17/2016	None
EFF-CSD	Flow	Maximum Daily (MDEL)	=	27.3	MGD	10/15/2016	None
EFF-CSD	Flow	Average Monthly (AMEL)	=	22.14	MGD	10/31/2016	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Maximum Daily (MDEL)	=	286	mg/L	10/19/2016	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	246	mg/L	10/31/2016	None
INF-001	Flow	Maximum Daily (MDEL)	=	43.4	MGD	10/16/2016	None
INF-001	Flow	Average Monthly (AMEL)	=	17.2	MGD	10/31/2016	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	433	mg/L	10/25/2016	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	205	mg/L	10/31/2016	None
INF-001	pH	Maximum Daily (MDEL)	=	8.3	SU	10/04/2016	None
INF-001	pH	Monthly Minimum	=	7	SU	10/26/2016	None

Total Calculated Data Points: 23

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1022988	10/17/2016	Order Conditions	Approximately 8,011 gallons of combined stormwater and wastewater was discharged	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size

Total Attachments: 0

Cover Letter

File Name
OSP 10-16 SMR.pdf

Total No. of Cover Letter Files: 1 **Cover Leter Text: No**

The current report was generated with data as of: 08/26/2020
Regional Boards are in the process of entering backlogged data.
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San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
415.242.2200

November 30, 2016
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP
NPDES/CA0037681
Self-Monitoring Report October, 2016

Attention: NPDES Division

Transmitted herein is the Oceanside Water Pollution Control Plant (Oceanside Plant) Self-Monitoring Report for October, 2016.

During the month of October, there were fifteen days of measurable precipitation totaling 2.92 inches. The Oceanside Plant treated 534.10 million gallons (MG) of wastewater. A total of 178.52 MG of decanted wet weather flow was pumped to the Southwest Ocean Outfall (SWOO). There were three combined sewer overflow discharges (CSODs) during this reporting period.

An unauthorized discharge incident occurred on Monday, October 17, 2016 from the Seacliff 2 Pump Station Overflow/Outfall (CSD-007). The estimated amount discharged through the overflow/outfall was approximately 8,011 gallons of combined wastewater. A 5-Day Written Report was submitted to Jessica Watkins of the San Francisco Bay Regional Water Quality Control Board on October 24, 2016.

Drainage Area CSOD	Westside
This Month	3
2016-17 Season	3
Design Criteria	8

If you have any questions concerning this report, please call (415) 920-4600 and enter the appropriate extension number: Superintendent Jeff Yee, x 6-2225, Operations Manager Tony Flores, x 6-4902, Supervising Chemist Linda Candelaria, x 6-2204, or Laboratory Manager Kenneth Lee, x 6-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sincerely,

Jeff Yee

Jeff Yee
Operations Superintendent

cc: Distribution List

Edwin M. Lee
Mayor

Anson Moran
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eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681

Facility: OCEANSIDE WWTP

DMR Parameters

Feature - LS: 001-A **Monitoring Period:** 10/01/2016 - 10/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				14.0 mg/L Monthly Average	18.0 mg/L High Weekly Average		Weekly	COMP24
1	0	00400	pH			6.7 SU Minimum		7.1 SU Maximum		Five Per Week	GRAB
1	0	00530	Solids, total suspended				9.0 mg/L Monthly Average	10.0 mg/L High Weekly Average		Five Per Week	COMP24
1	0	50050	Flow, in conduit or thru treatment plant	14.4 Mgal/d Monthly Average	21.7 Mgal/d Daily Maximum					Daily	CONTIN
1	0	71901	Mercury, total recoverable				0.0042 ug/L 6 Month Median	0.0068 ug/L Daily Maximum		Monthly	COMP24
K	0	81010	BOD, 5-day, percent removal			94.0 % Monthly Average Minimum				Monthly	CALCTD
K	0	81011	Solids, suspended percent removal			95.0 % Monthly Average Minimum				Monthly	CALCTD

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 10/01/2016 - 10/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00400	pH			NODI: 9 Minimum		NODI: 9 Maximum			
1	0	00530	Solids, total suspended				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00610	Nitrogen, ammonia total (as N)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00720	Cyanide, total (as CN)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00978	Arsenic, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00981	Selenium, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00982	Thallium, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01074	Nickel, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01079	Silver total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 10/01/2016 - 10/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01094	Zinc, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01113	Cadmium, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01114	Lead, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01119	Copper, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01268	Antimony, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	03582	Oil and grease				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	22456	Polynuclear Aromatic Hydrocarbons (PAHs)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34198	.delta.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34351	Endosulfan sulfate				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34356	.beta.-Endosulfan				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34361	.alpha.-Endosulfan				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34366	Endrin aldehyde				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 10/01/2016 - 10/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34671	PCB-1016				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39300	4,4'-DDT				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39310	4,4'-DDD				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39320	4,4'-DDE				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39330	Aldrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39336	.alpha.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39338	.beta.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39344	.gamma.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39350	Chlordane (tech mix. and metabolites)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39380	Dieldrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39390	Endrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39400	Toxaphene				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39410	Heptachlor				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 10/01/2016 - 10/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39420	Heptachlor epoxide				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39488	PCB-1221				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39492	PCB-1232				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39496	PCB-1242				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39500	PCB-1248				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39504	PCB-1254				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39508	PCB-1260				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	50050	Flow, in conduit or thru treatment plant	22.14 Mgal/d Monthly Average	27.3 Mgal/d Daily Maximum					Once Every Occurance	CONTIN
1	0	71901	Mercury, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: INF-A **Monitoring Period:** 10/01/2016 - 10/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
G	0	00310	BOD, 5-day, 20 deg. C				246.0 mg/L Monthly Average	286.0 mg/L Daily Maximum		Weekly	COMP24
G	0	00400	pH			7.0 SU Minimum		8.3 SU Maximum		Five Per Week	GRAB
G	0	00530	Solids, total suspended				205.0 mg/L Monthly Average	433.0 mg/L Daily Maximum		Five Per Week	COMP24
G	0	50050	Flow, in conduit or thru treatment plant	17.2 Mgal/d Monthly Average	43.4 Mgal/d Daily Maximum					Daily	CONTIN

Westside Drainage Area - Wet Weather Treatment Summary
October 2016

Date	Rainfall Inches	Maximum Hourly Rainfall	Hours of Rainfall	Estimated Rainfall Volume, MG	Flow to Oceanside MG	Decanted Flow to SWOO, MG	Estimated CSD Discharge Vol, MG
10/1/2016	0.00	0.00	0	0.00	12.60	0.00	0.000
10/2/2016	0.01	0.00	8	0.00	12.23	0.00	0.000
10/3/2016	0.01	0.01	1	0.00	13.93	0.00	0.000
10/4/2016	0.00	0.00	0	0.00	11.56	0.00	0.000
10/5/2016	0.00	0.00	0	0.00	13.07	0.00	0.000
10/6/2016	0.00	0.00	0	0.00	12.73	0.00	0.000
10/7/2016	0.00	0.00	0	0.00	13.20	0.00	0.000
10/8/2016	0.00	0.00	0	0.00	13.91	0.00	0.000
10/9/2016	0.00	0.00	0	0.00	11.95	0.00	0.000
10/10/2016	0.00	0.00	0	0.00	11.79	0.00	0.000
10/11/2016	0.00	0.00	0	0.00	11.22	0.00	0.000
10/12/2016	0.01	0.00	7	0.00	13.58	0.00	0.000
10/13/2016	0.01	0.01	1	0.79	14.79	0.01	0.000
10/14/2016	0.46	0.14	10	39.35	32.45	20.89	0.000
10/15/2016	0.34	0.23	8	31.30	24.45	20.84	0.000
10/16/2016	0.64	0.24	24	81.00	43.45	51.54	0.000
10/17/2016	0.01	0.00	8	4.76	18.76	0.00	0.000
10/18/2016	0.01	0.01	1	0.00	12.63	0.00	0.000
10/19/2016	0.00	0.00	0	0.00	12.82	0.00	0.000
10/20/2016	0.00	0.00	0	0.00	12.93	0.00	0.000
10/21/2016	0.00	0.00	0	0.00	11.90	0.00	0.000
10/22/2016	0.00	0.00	0	0.00	13.38	0.00	0.000
10/23/2016	0.00	0.00	0	0.00	13.07	0.00	0.000
10/24/2016	0.02	0.00	8	0.54	14.54	0.00	0.000
10/25/2016	0.02	0.00	15	0.52	14.52	0.00	0.000
10/26/2016	0.00	0.00	0	0.00	13.06	0.00	0.000
10/27/2016	0.55	0.13	8	28.78	23.80	18.98	0.000
10/28/2016	0.29	0.07	15	51.74	36.99	28.75	0.000
10/29/2016	0.05	0.02	7	2.04	16.04	0.00	0.000
10/30/2016	0.49	0.30	11	60.53	37.02	37.51	0.000
Total	***2.92***	***1.16***	132	301.34	518.39	178.52	0.000
Max	0.64	0.30	0.00	81.00	43.45	51.54	0.000

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Wastewater Enterprise

Westside Drainage Area - Wet Weather Discharge Summary

October 2016

Date	Lake Merced CSOD #1		Vicente CSOD #2		Lincoln CSOD #3		Mile Rock CSOD #4		Sea Cliff 1 CSOD #5		Sea Cliff O.F. CSOD #6		Sea Cliff 2 CSOD #7		Total Discharge per day	
	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG
1															0:00	0.000
2															0:00	0.000
3															0:00	0.000
4															0:00	0.000
5															0:00	0.000
6															0:00	0.000
7															0:00	0.000
8															0:00	0.000
9															0:00	0.000
10															0:00	0.000
11															0:00	0.000
12															0:00	0.000
13															0:00	0.000
14															0:00	0.000
15													0:06	0.001	0:06	0.001
16															0:00	0.000
17															0:00	0.000
18															0:00	0.000
19															0:00	0.000
20															0:00	0.000
21															0:00	0.000
22															0:00	0.000
23															0:00	0.000
24													0:20	0.01	0:20	0.010
25															0:00	0.000
26															0:00	0.000
27									0:31	0.07					0:31	0.070
28															0:00	0.000
29															0:00	0.000
30															0:00	0.000
Total	**0:00**	**0.00**	**0:00**	**0.00**	**0:00**	**0.00**	**0.00**	**0.00**	**0:00**	**0.070**	**0:00**	**0.00**	**0:26**	**0.01**	**0:57**	**0.081**

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Wastewater Enterprise

Westside Drainage Area - Annual Summary

2016-2017

Month	Rainfall Inches	Maximun Hourly Rainfall Inches	Hours of Rainfall Hours	Estimated Rainfall Volume MG	Flow to Oceanside Plant MG	Decanted Flow to SWOO MG	Estimated CSD Discharge Volume MG	Westside Transport CSD Count
Jul	0.02	0.01	8	0.00	385.24	0.0	0.00	0
Aug	0.02	0.01	8	3.26	380.24	0.0	0.00	0
Sep	0.00	0.00	0	0.00	385.56	0.0	0.00	0
Oct	2.92	1.16	132	301.34	518.39	178.5	0.08	3
Nov								
Dec								
Jan								
Feb								
Mar								
April								
May								
Jun								
Total	**2.96**	**1.18**	**148**	**304.60**	**1669.43**	**178.5**	**0.08**	3
Maximum	2.92	1.16	132	301.34	518.39	178.5	0.08	3

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
October 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Tue/11	Sun/16	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
15	146	199	246	231*		9804		6488	854
15EAST	< 10	10	31	218*		74		75	28
16	< 10	63	63	187*		< 10		20	24
17	10	52		933		373	10	20	58
18	< 10	10		670	132	< 10		86	44
19	< 10	20		132		< 10		20	22
21.1	< 10	< 10		173		31		31	28

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/03	Tue/11	Sun/16	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
15	10	63	< 10	86*		31		110	29
15EAST	< 10	< 10	20	75*		< 10		< 10	11
16	< 10	41	10	20*		< 10		10	13
17	10	20		213		185	10	10	30
18	< 10	< 10		331	31	< 10		< 10	22
19	< 10	20		20		< 10		< 10	13
21.1	< 10	< 10		< 10		< 10		< 10	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/03	Tue/11	Sun/16	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
15	< 10	20	< 10	< 10*		72		86	26
15EAST	< 10	10	< 10	20*		< 10		< 10	10
16	< 10	20	10	10*		< 10		< 10	11
17	10	< 10		30		**441**	< 10	< 10	23
18	< 10	10		**134**	10	< 10		10	15
19	< 10	10		31		< 10		10	13
21.1	< 10	< 10		< 10		< 10		< 10	10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)					
Baker Beach	15, 15EAST, 16	10/02	0.01	10/16	0.64	10/28	0.29
China Beach	17	10/03	0.01	10/17	0.01	10/29	0.05
Ocean Beach	18, 19, 21.1	10/12	0.01	10/18	0.01	10/30	0.49
		10/13	0.01	10/24	0.02		
		10/14	0.46	10/25	0.02		
		10/15	0.34	10/27	0.55		

* Un-permitted discharge occurred at SeaCliff 2 due to power outage. Receiving water samples were collected and beaches remained posted. Five-day report submitted to RWQCB.

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: RDuggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
December 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Sat/10	Sun/11	Mon/12	Tue/13	Thu/15	Fri/16	Mon/19	Fri/23	Sat/24	Tue/27	30-day Geometric Mean[2]
15	5794			598				768			5794	
15EAST	< 10			110				85			31	
16	20			74				173			63	
17	< 10			213				52			41	
18	20			145		*	216	52			< 10	50
19	< 10			85		*	1145	663			10	92
21.1	30		677	85		*	546	31			< 10	81
20		*	727			*	364					
21			350			*	417					
22		*	538	*	86	*	327		**> 24196**	135		548

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/05	Sat/10	Sun/11	Mon/12	Tue/13	Thu/15	Fri/16	Mon/19	Fri/23	Sat/24	Tue/27	30-day Geometric Mean[2]
15	75			41				10			63	
15EAST	< 10			31				< 10			20	
16	10			31				52			20	
17	< 10			52				10			10	
18	10			74		*	52	10			< 10	21
19	< 10			< 10		*	262	134			< 10	32
21.1	10		86	10		*	109	< 10			< 10	21
20		*	74			*	30					
21			97			*	98					
22		*	75	*	20	*	41		**2613**	31		87

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/05	Sat/10	Sun/11	Mon/12	Tue/13	Thu/15	Fri/16	Mon/19	Fri/23	Sat/24	Tue/27	30-day Geometric Mean[2]
15	30			30				10			74	
15EAST	10			< 10				< 10			< 10	
16	< 10			10				20			< 10	
17	< 10			10				< 10			< 10	
18	< 10			41		*	< 10	< 10			< 10	13
19	< 10			20		*	52	10			< 10	16
21.1	20		10	< 10		*	31	< 10			< 10	14
20		*	31			*	20					
21			< 10			*	31					
22		*	**160**	*	31	*	< 10		**3076**	10		69

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	12/07	0.37	12/13	0.09
China Beach	17	12/08	1.21	12/14	0.10
Ocean Beach	18, 19, 20, 21, 21.1	12/09	0.09	12/15	1.22
Ft. Funston	22	12/10	0.85	12/23	1.05

Reviewed by: R Duggan

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* STATION POSTED not sampled till the next day due to safety
STATION POSTED but no CSD occurred

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Law Offices of
Thomas N. Lippe, APC

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12th Floor
San Francisco, CA 94105

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September 11, 2020

By Email: *EIR@ucsf.edu*
Ms Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Comprehensive Parnassus Heights Plan Draft Environmental Impact Report: Comments on Water Quality, Water Recreation, and Wastewater Public Services – Exhibit 13b

Dear Ms Wong:

This office represents San Franciscans for Balanced and Livable Communities (San Franciscans), a citizen's group composed of San Francisco residents.

We submitted to you by email a letter of today's date under separate cover regarding "Comments on Water Quality, Water Recreation, and Wastewater Public Services."

Due to the file size of Exhibit 13 to that letter, we are transmitting Exhibit 13 to you by email in three (3) separate electronic files, designated "Exhibit 13a," "Exhibit 13b" and "Exhibit 13c."

Attached, hereto, please find Exhibit 13b (page nos. OSP0057 through OSP0137).

Thank you for your attention to this matter.

Sincerely,

Kelly Marie Perry

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EXHIBIT 13b

(page nos. OSP0057 through OSP0137)

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
415.242.2200

January 30, 2017
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP
NPDES/CA0037681
Self-Monitoring Report December, 2016

Attention: NPDES Division

Transmitted herein is the Oceanside Water Pollution Control Plant (Oceanside Plant) Self-Monitoring Report for December, 2016.

During the month of December, there were eight days of measurable precipitation totaling 4.98 inches. The Oceanside Plant treated 628.47 million gallons (MG) of wastewater. A total of 302.48 MG of decanted wet weather flow was pumped to the Southwest Ocean Outfall (SWOO). There were three combined sewer discharges (CSDs) during this reporting period.

Drainage Area CSDs	Westside
This Month	3
2016-17 Season	8
Design Criteria	8

There were posting and sampling delays and omissions for Vicente and Lincoln CSDs as follows:

- Lincoln was posted on December 10th, and deposted and not sampled on December 11th, and Vicente was posted and sampled one day late (on December 11th), and due to a miscommunication about the CSD location and confusion about whether a discharge had occurred at Lincoln
- No posting or sampling occurred following a CSD at Vicente and Lincoln on Dec 23rd, due to overflow sensor calibration issues

Staff is meeting regularly to address the calibration issues, and Millbrae Dispatch and Operators have received additional instruction regarding communication of CSD events to the field biologist.

If you have any questions concerning this report, please call (415) 920-4600 and enter the appropriate extension number: Superintendent Jeff Yee, x 6-2225, Acting Supervising Chemist Lily Chan, x 6-2220, or Laboratory Manager Kenneth Lee, x 6-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sincerely,

Jeff Yee

Jeff Yee
Operations Superintendent

cc: Distribution List

Edwin M. Lee
Mayor
Anson Moran
President
Ike Kwon
Vice President
Ann Moller Caen
Commissioner
Francesca Vietor
Commissioner
Vince Courtney
Commissioner
Harlan L. Kelly, Jr.
General Manager

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681

Facility: OCEANSIDE WWTP

DMR Parameters

Feature - LS: 001-A **Monitoring Period:** 12/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				17.0 mg/L Monthly Average	20.0 mg/L High Weekly Average		Weekly	COMP24
1	0	00400	pH			6.8 SU Minimum		7.0 SU Maximum		Five Per Week	GRAB
1	0	00530	Solids, total suspended				10.0 mg/L Monthly Average	11.0 mg/L High Weekly Average		Five Per Week	COMP24
1	0	50050	Flow, in conduit or thru treatment plant	14.1 Mgal/d Monthly Average	28.1 Mgal/d Daily Maximum					Daily	CONTIN
1	0	71901	Mercury, total recoverable				0.0045 ug/L 6 Month Median	0.0048 ug/L Daily Maximum		Monthly	COMP24
K	0	81010	BOD, 5-day, percent removal			95.0 % Monthly Average Minimum				Monthly	CALCTD
K	0	81011	Solids, suspended percent removal			98.0 % Monthly Average Minimum				Monthly	CALCTD

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Q **Monitoring Period:** 10/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00070	Turbidity					14.0 NTU Daily Maximum		Quarterly	COMP24
1	0	00610	Nitrogen, ammonia total (as N)					35.0 mg/L Daily Maximum		Quarterly	COMP24
1	0	00720	Cyanide, total (as CN)					NODI: Q Daily Maximum			
1	0	00978	Arsenic, total recoverable					NODI: Q Daily Maximum			
1	0	00981	Selenium, total recoverable					NODI: Q Daily Maximum			
1	0	00982	Thallium, total recoverable					NODI: Q Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)					NODI: Q Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)					NODI: Q Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)					0.55 ug/L Daily Maximum		Quarterly	COMP24
1	0	01074	Nickel, total recoverable					2.6 ug/L Daily Maximum		Quarterly	COMP24
1	0	01079	Silver total recoverable					NODI: Q Daily Maximum			
1	0	01094	Zinc, total recoverable					40.6 ug/L Daily Maximum		Quarterly	COMP24
1	0	01113	Cadmium, total recoverable					0.47 ug/L Daily Maximum		Quarterly	COMP24

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Q **Monitoring Period:** 10/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01114	Lead, total recoverable					0.54 ug/L Daily Maximum		Quarterly	COMP24
1	0	01119	Copper, total recoverable					14.3 ug/L Daily Maximum		Quarterly	COMP24
1	0	01268	Antimony, total recoverable					0.51 ug/L Daily Maximum		Quarterly	COMP24
1	0	03582	Oil and grease					NODI: B Daily Maximum			
1	0	TTJ3L	Static 72Hr Chronic Strongyl. Purpuratus				50.0 tox chronic Average	50.0 tox chronic Daily Maximum		Quarterly	COMP24
1	0	TTJ3N	Static 72Hr Chronic Dendraster Excentri.				NODI: 9 Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 12/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00400	pH			NODI: 9 Minimum		NODI: 9 Maximum			
1	0	00530	Solids, total suspended				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00610	Nitrogen, ammonia total (as N)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00720	Cyanide, total (as CN)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00978	Arsenic, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00981	Selenium, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00982	Thallium, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01074	Nickel, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01079	Silver total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 12/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01094	Zinc, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01113	Cadmium, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01114	Lead, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01119	Copper, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	01268	Antimony, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	03582	Oil and grease				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	22456	Polynuclear Aromatic Hydrocarbons (PAHs)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34198	.delta.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34351	Endosulfan sulfate				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34356	.beta.-Endosulfan				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34361	.alpha.-Endosulfan				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34366	Endrin aldehyde				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 12/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34671	PCB-1016				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39300	4,4'-DDT				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39310	4,4'-DDD				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39320	4,4'-DDE				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39330	Aldrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39336	.alpha.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39338	.beta.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39344	.gamma.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39350	Chlordane (tech mix. and metabolites)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39380	Dieldrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39390	Endrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39400	Toxaphene				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39410	Heptachlor				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 12/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39420	Heptachlor epoxide				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39488	PCB-1221				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39492	PCB-1232				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39496	PCB-1242				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39500	PCB-1248				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39504	PCB-1254				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39508	PCB-1260				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	50050	Flow, in conduit or thru treatment plant	3.68 Mgal/d Monthly Average	7.2 Mgal/d Daily Maximum					Once Every Occurance	CONTIN
1	0	71901	Mercury, total recoverable				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: INF-A **Monitoring Period:** 12/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
G	0	00310	BOD, 5-day, 20 deg. C				353.0 mg/L Monthly Average	436.0 mg/L Daily Maximum		Weekly	COMP24
G	0	00400	pH			6.9 SU Minimum		8.4 SU Maximum		Five Per Week	GRAB
G	0	00530	Solids, total suspended				420.0 mg/L Monthly Average	4280.0 mg/L Daily Maximum		Five Per Week	COMP24
G	0	50050	Flow, in conduit or thru treatment plant	20.3 Mgal/d Monthly Average	58.7 Mgal/d Daily Maximum					Daily	CONTIN

Westside Drainage Area - Wet Weather Treatment Summary
December 2016

Date	Rainfall Inches	Maximum Hourly Rainfall	Hours of Rainfall	Estimated Rainfall Volume, MG	Flow to Oceanside MG	Decanted Flow to SWOO, MG	Estimated CSD Discharge Vol, MG
12/1/2016	0.00	0.00	0	0.00	14.99	0.00	0.000
12/2/2016	0.00	0.00	0	0.00	14.47	0.00	0.000
12/3/2016	0.00	0.00	0	0.00	15.10	0.00	0.000
12/4/2016	0.00	0.00	0	0.00	16.09	0.00	0.000
12/5/2016	0.00	0.00	0	0.00	13.63	0.00	0.000
12/6/2016	0.00	0.00	0	0.00	12.69	0.00	0.000
12/7/2016	0.37	0.10	8	12.03	19.39	6.63	0.000
12/8/2016	1.21	0.15	24	128.39	58.68	83.71	0.000
12/9/2016	0.09	0.05	16	13.06	27.06	0.00	0.000
12/10/2016	0.85	0.14	16	101.55	49.08	66.46	1.760
12/11/2016	0.00	0.00	0	0.00	32.19	0.00	0.000
12/12/2016	0.00	0.00	0	0.00	13.29	0.00	0.000
12/13/2016	0.09	0.03	8	0.85	14.85	0.00	0.000
12/14/2016	0.10	0.04	24	12.61	26.61	0.00	0.000
12/15/2016	1.22	0.31	16	81.40	38.09	57.31	7.160
12/16/2016	0.00	0.00	0	0.00	35.83	31.44	0.000
12/17/2016	0.00	0.00	0	0.00	13.18	0.00	0.000
12/18/2016	0.00	0.00	0	0.00	12.75	0.00	0.000
12/19/2016	0.00	0.00	0	0.00	12.15	0.00	0.000
12/20/2016	0.00	0.00	0	0.00	12.24	0.00	0.000
12/21/2016	0.00	0.00	0	0.00	12.65	0.00	0.000
12/22/2016	0.00	0.00	0	0.00	12.61	0.00	0.000
12/23/2016	1.05	0.26	14	92.14	49.21	56.93	2.830
12/24/2016	0.00	0.00	0	0.00	17.70	0.00	0.000
12/25/2016	0.00	0.00	0	0.00	11.89	0.00	0.000
12/26/2016	0.00	0.00	0	0.00	11.60	0.00	0.000
12/27/2016	0.00	0.00	0	0.00	11.95	0.00	0.000
12/28/2016	0.00	0.00	0	0.00	11.70	0.00	0.000
12/29/2016	0.00	0.00	0	0.00	12.03	0.00	0.000
12/30/2016	0.00	0.00	0	0.00	12.01	0.00	0.000
12/31/2016	0.00	0.00	0	0.00	12.75	0.00	0.000
Total	***4.98***	***1.08***	126	442.02	628.47	302.48	11.750
Max	1.22	0.31	0.00	128.39	58.68	83.71	7.160

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Wastewater Enterprise

Westside Drainage Area - Wet Weather Discharge Summary

December 2016

Date	Lake Merced CSOD #1		Vicente CSOD #2		Lincoln CSOD #3		Mile Rock CSOD #4		Sea Cliff 1 CSOD #5		Sea Cliff O.F. CSOD #6		Sea Cliff 2 CSOD #7		Total Discharge per day	
	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG
1															0:00	0.000
2															0:00	0.000
3															0:00	0.000
4															0:00	0.000
5															0:00	0.000
6															0:00	0.000
7															0:00	0.000
8															0:00	0.000
9															0:00	0.000
10	0:43	1.01	0:47	0.20	0:54	0.55									2:24	1.760
11															0:00	0.000
12															0:00	0.000
13															0:00	0.000
14															0:00	0.000
15	2:58	3.11	3:38	0.92	5:07	3.13									11:43	7.160
16															0:00	0.000
17															0:00	0.000
18															0:00	0.000
19															0:00	0.000
20															0:00	0.000
21															0:00	0.000
22															0:00	0.000
23	0:44	1.31	0:15	0.76	1:15	0.76									2:14	2.830
24															0:00	0.000
25															0:00	0.000
26															0:00	0.000
27															0:00	0.000
28															0:00	0.000
29															0:00	0.000
30															0:00	0.000
31															0:00	0.000
Total	**4:25**	**5.43**	**4:40**	**1.88**	**7:16**	**4.44**	**0.00**	**0.00**	**0:00**	**0.000**	**0:00**	**0.00**	**0:00**	**0.00000**	**16:21**	**11.750**

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Wastewater Enterprise

Westside Drainage Area - Annual Summary
2016-2017

Month	Rainfall Inches	Maximun Hourly Rainfall Inches	Hours of Rainfall Hours	Estimated Rainfall Volume MG	Flow to Oceanside Plant MG	Decanted Flow to SWOO MG	Estimated CSD Discharge Volume MG	Westside Transport CSD Count
Jul	0.02	0.01	8	0.00	385.24	0.0	0.00	0
Aug	0.02	0.01	8	3.26	380.24	0.0	0.00	0
Sep	0.00	0.00	0	0.00	385.56	0.0	0.00	0
Oct	2.92	1.16	132	301.34	518.39	178.5	0.08100	3
Nov	1.82	2.05	90	180.75	544.59	67.0	0.01471	2
Dec	4.98	1.08	126	442.02	628.47	302.5	11.75	3
Jan								
Feb								
Mar								
April								
May								
Jun								
Total	**9.76**	**4.31**	**364**	**927.37**	**2842.49**	**548.0**	**11.85**	8
Maximum	4.98	2.05	132	442.02	628.47	302.5	11.75	3

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
December 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Sat/10	Sun/11	Mon/12	Tue/13	Thu/15	Fri/16	Mon/19	Fri/23	Sat/24	Tue/27	30-day Geometric Mean[2]
15	5794			598				768			5794	
15EAST	< 10			110				85			31	
16	20			74				173			63	
17	< 10			213				52			41	
18	20			145		*	216	52	**		< 10	50
19	< 10			85		*	1145	663	**		10	92
21.1	30		677	85		*	546	31	**		< 10	81
20		*	727			*	364		**			
21			350			*	417		**			
22		*	538	*	86	*	327		**> 24196**	135		548

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/05	Sat/10	Sun/11	Mon/12	Tue/13	Thu/15	Fri/16	Mon/19	Fri/23	Sat/24	Tue/27	30-day Geometric Mean[2]
15	75			41				10			63	
15EAST	< 10			31				< 10			20	
16	10			31				52			20	
17	< 10			52				10			10	
18	10			74		*	52	10	**		< 10	21
19	< 10			< 10		*	262	134	**		< 10	32
21.1	10		86	10		*	109	< 10	**		< 10	21
20		*	74			*	30		**			
21			97			*	98		**			
22		*	75	*	20	*	41		**2613**	31		87

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/05	Sat/10	Sun/11	Mon/12	Tue/13	Thu/15	Fri/16	Mon/19	Fri/23	Sat/24	Tue/27	30-day Geometric Mean[2]
15	30			30				10			74	
15EAST	10			< 10				< 10			< 10	
16	< 10			10				20			< 10	
17	< 10			10				< 10			< 10	
18	< 10			41		*	< 10	< 10	**		< 10	13
19	< 10			20		*	52	10	**		< 10	16
21.1	20		10	< 10		*	31	< 10	**		< 10	14
20		*	31			*	20		**			
21			< 10			*	31		**			
22		*	**160**	*	31	*	< 10		**3076**	10		69

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	12/07	0.37	12/13	0.09
China Beach	17	12/08	1.21	12/14	0.10
Ocean Beach	18, 19, 20, 21, 21.1	12/09	0.09	12/15	1.22
Ft. Funston	22	12/10	0.85	12/23	1.05

Reviewed by: R Duggan

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge (CSD)
* STATION POSTED not sampled till the next day
STATION POSTED CSD occurred but no sampling
** CSD occurred; no posting or sampling
[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

3500 Great Highway
San Francisco, CA 94132
T 415.242.2200
F 415.242.2285

February 1, 2017

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland CA 94612

NPDES/CA 0037681
2016 Annual Report

RE: Oceanside Water Pollution Control Plant 2016 Annual Self-Monitoring Report

Dear Jessica:

Transmitted herewith is the Annual Self-Monitoring Report for the Oceanside Water Pollution Control Plant (WPCP) for the calendar year 2016.

A. Treatment Plant Compliance and Performance

1. Volume Treated

The Oceanside WPCP treated a total of 6.0 billion gallons of wastewater (combined sanitary, industrial and storm water) in 2016. The average dry weather flow was calculated as 12.5 million gallons per day (MGD), calculated using flows from three consecutive dry weather months (July, August, and September).

The Oceanside WPCP final effluent was in compliance with all dry and wet weather discharge permit numeric limits for the entire calendar year of 2016.

2. Combined Sewer Discharges

The table below shows the frequency of combined sewer discharges (CSDs) during 2016. A complete wet weather annual report covering the wet weather season from July 2016 through June 2017 will be submitted in July 2017 and will include all the wet weather events for that period.

2016 Combined Sewer Discharge Frequency

	Month												Total
Basin	J	F	M	A	M	J	J	A	S	O	N	D	
West Side	4	1	3	0	0	0	0	0	0	3	2	3	16

3. Discussion of Treatment Plant Performance and Compliance (Jeff)

The San Francisco Public Utilities Commission (SFPUC) is exempt from submittal of an annual compliance summary table and tabular and graphical summaries of monitoring data because all data for the Oceanside WPCP are reported electronically. See Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D), Attachment G (2010) at G-19.

Edwin M. Le
Mayo
Francesca Vieto
Presider
Anson Mora
Vice Presider
Ann Moller Cae
Commissione
Vince Courtne
Commissione
Ike Kwo
Commissione
Harlan L. Kelly, J
General Manage

Summary of Compliance
Due to communication issues between treatment plant operators, Millbrae Dispatch, and field staff biologist, not all of the relevant public notification and/or sampling occurred or was conducted within a day of the CSD during the January 18, 2016 and December 10, 2016 rain events. Specifically:

- Fort Funston Beach (January 5, 2016; January 18, 2016) and Baker Beach (January 18, 2016) were not posted or sampled following a CSD.
- Ocean Beach was posted 1-2 hours later than normal (January 18, 2016)
- Fort Funston Beach was posted and the public notified 4-5 hours later than normal (January 19, 2016)
- Following a CSD on December 10, 2016, Lincoln was posted, then deposted and not sampled on December 11th, and Vicente was posted and sampled one day late (on December 11th), due to a miscommunication about the CSD location and confusion about whether a discharge had occurred at Lincoln

In addition, no posting or sampling occurred following a CSD at Vicente and Lincoln on Dec 23, 2016, due to overflow sensor calibration issues.

To improve communication, the SFPUC implemented an I-Info email/text notification program in January 2016. These alerts from Plant Operations are now directed to both Millbrae Dispatch and to the responding on-call Biologist. In addition, a back-up notification method has been developed and launched. This method uses level and other sensor data from the Distributed Control System (DCS) and PI Coresight (PI) to automatically send an email to Millbrae Dispatch when information indicates that a CSD is occurring or imminent. For example, PI can be used to automatically generate an email that discharges from Lake Merced are imminent when levels at in Lake Merced Transport/Storage structure reach a specified level. Implementation of this back-up notification method is being refined. Staff is meeting regularly to address the calibration issues, and Millbrae Dispatch and Operators have received additional instruction regarding communication of CSD events to the field biologist.

A private sewer lateral discharge to the Seacliff 1 Outfall occurred on March 12, 2016, which was first reported as an unauthorized discharge. Upon further investigation, however, the discharge was identified as an illicit discharge from a private sewer lateral to a storm drain system. It was reported in the 2016 MS4 Annual Report.

An unauthorized discharge incident occurred on Monday, October 17, 2016 from the Seacliff 2 Pump Station Outfall. The estimated volume was approximately 8,011 gallons of combined wastewater. A 5-Day Written Report was submitted to Jessica Watkins of the San Francisco Bay Regional Water Quality Control Board on October 24, 2016. The SFPUC provided additional information about this event on December 1, 2016 in response to regulator communication.

4. Actions Taken or Planned to Improve Plant Performance & Reliability

The following projects are planned for, underway or recently completed for the Oceanside WPCP and associated collection system:

Temperature-Phased Anaerobic digestion (TPAD) Conversion: The startup is 75% completed. The SFPUC will be seeking Class A certification from the EPA in 2017.

WW-589 Total Solid Control & Waste Activated Sludge System Upgrade (TF78): The installation of seven Total Solids (TS) Analyzers, new Waste Activated Sludge (WAS) Pumps and a Solids Retention Time (SRT) Control System was completed

in March 2016. The SRT is now controlled automatically and the thickening process polymer dosage has been automated.

WW-572R WSS Discharge Pipe Manifold Upgrade (TF47): The scope of the project includes rehabilitation of the discharge pipe manifold including new lining, valves, actuators and a hydraulic power unit. Other items include rehabilitation of the surge tank, installation of submersible chopper pumps, sump pump replacement, new flood alarms, lighting, walkway grating and railings. The project reached substantial completion in December 2016.

WW-559 Fixed Gas Monitoring System Upgrades (TF30): This project furnishes and installs fixed gas monitoring devices at various wastewater treatment facilities, including the Oceanside Treatment Plant. The project was substantially complete as of November 2015 with an ongoing maintenance.

WW-625 OSP Flare Control and Stack Upgrade (TF46): The existing waste gas burners will be replaced with two Varec Biogas flares to be located outside of the existing Waste Gas Burner Building 821. The project received construction Notice to Proceed on October 2016.

WW-580 W2/W3 Water System Improvements (TF69): The project is to upgrade W2 and W3 water system by installing new filters and associated mechanical and electrical equipment. The W2 water system that uses millions of gallons of potable water every month has been upgraded to use W3 water instead. The W3 water chlorination dosing and monitoring system have been upgraded as part of this project. As a result of this project, the plant potable water consumption has been decreased by more than 75%. The project reached substantial completion August 2016.

WW-570 OSP & WSS HVAC Upgrades (TF48): This project includes replacement of the existing deficient and deteriorated Heating, Ventilating and Air Conditioning units, associated ductwork and plumbing modifications and duct cleaning, electrical power, instrumentation and controls, and related equipment structural support work at OSP and Westside Pump Station (WSS). The project received construction Notice-to-Proceed on July 2016.

WW-643 OSP Building 620 Safety Improvements (TF92): This project is to replace the digester recirculating pumps in OSP Building 620 with associated mechanical and electrical improvements. The project team completed 95% design September 2016.

WW-648 OSP042 Primary Clarifier Improvements (TF93): This project is to replace the helical scum skimmers, W3 spray water system, compressed air system, bubbler system, primary influent flowmeter signal converters, 30" effluent butterfly valves, lighting system, piping, valves, fittings and appurtenances. The project team completed 95% design October 2016.

Pine Lake Pump Station Upgrade (TF79): The project is to build a wet weather detention tank for additional capacity of the existing pump station. The additional capacity is intended to minimize the potential for overflows during large wet weather events. Work includes but is not limited to cast in place concrete work, excavation, electrical and mechanical improvements. The

project was substantially complete in June 2016 with fencing work targeted to be complete January 2017.

WW-606R2 OSP Building 930 Exterior And Awning Improvements (TF67): The scope of this project is to repair and replace the original Oceanside Plant Building 930 1st and 2nd floor awning systems. OSP 930 Admin HVAC Improvements, corrosion stain removal, corrosion rehabilitation and electrical lighting replacement are additional work scope items. Construction Notice to Proceed is anticipated February 2017.

OSP 011 Grit Classifier and Primary Influent Improvements (TFA2): This project will improve grit removal system, restore functionality to the primary influent flow and aeration tank process. This goal will achieved by the replacement of the existing (E) two (2) grit classifiers, six (6) cyclone separators, five (5) primary influent slide gates, pressure gauges, process ductile iron piping, fittings, six (6) grit pump overhead discharge clean out lines with an isolation (grooved end type) plug valve, blind flange, flushing port (cam-lock type) to improve ease of maintenance, three (3) Pista Tank grit blowers. The project team is evaluating conceptual needs associated with the grit classifier system.

JOC 47R 17 OSP 620 Screw Press Day Tank Improvements (TF46): This project included cleaning of the secondary bypass flowmeter and installed an overflow pipe at the screw press day tanks to improve removal of sludge. Project was completed July 2016.

Wemco Model C Grit Pump Replacements (TF07.51): This project procured new pumps to replace existing dilapidated grit pumps. The new pumps were installed by in-house WWE staff August 2016.

WSS East (Dry Weather) Bar screen Replacement Parts (TF07.47): This project procured a new dry weather bar screen top section to improve the existing operation at WSS. The project was completed January 2016.

OSP Manual Valve Replacement (TF07.39): This project procured twenty (20) manual valves to replace existing dilapidated valves at OSP Building 042. The project was completed by WWE in-house staff February 2016.

Recycled Water Facility: The project scope is to build a new recycled water facility that will include microfiltration, reverse osmosis, and UV disinfection of the OSP final effluent. The project has been advertised and construction is scheduled to start in 2017.

Digester Gas Utilization Upgrade: The project scope will replace the Oceanside Plant cogeneration engines and gas holder, and add a new digester gas cleanup system. The project is currently at the 95% Design Phase.

5. Effluent Characteristics for Selected Constituents

For this evaluation, all constituents with required minimum sampling frequency of less than once a month that were detected above the method Minimum Levels (ML) were evaluated. Estimated concentrations of constituents detected below the MLs

were excluded from this evaluation because the uncertainty in the result when a constituent is detected below the ML prevents useful comparison.

There were eight constituents detected above the method MLs: Antimony, Cadmium, Chloroform, Chromium III, Copper, Lead, Nickel, and Zinc. The 2016 maximum detected level of the eight constituents were compared to the Maximum Effluent Concentration (MEC) as presented in Table F-11 of the Oceanside Permit (Reasonable Potential Analysis). The MECs were used as the general indicators of past performance of the detected constituents.

Seven of the eight detected constituents showed deceases or no statistically significant changes or increases compared to the corresponding MECs.

Antimony and Nickel increased from 0.94 to 2.75 µg/L and 7.2 to 27.3 µg/L respectively. No obvious reasons were identified for the increases and the increases were less than one order of magnitude of the MEC. The increases were potentially statistical variations caused by variability in sampling and analytical procedures. The constituents will be monitored and evaluated again in 2017.

The detected constituents and evaluations are summarized below.

Constituent	Method Minimum Level (ML, µg/L)	2016 Maximum Detected Level (µg/L)	Past Performance[1] (µg/L)	Governing Criterion or Objective (µg/L)	Comment
Antimony	0.5	2.75	0.94	1200	Continue to Monitor
Cadmium	0.25	1.22	1.9	1	Decrease
Chloroform	0.5	1.08	9.8	130	Decrease
Chromium III	0.5	1.2	5.4	190000	Decrease
Copper	0.5	21	70	3	Decrease
Lead	0.5	1.21	8.6	2	Decrease
Nickel	1	27.3	7.2	5	Continue to Monitor
Zinc	1	97.3	146	20	Decrease

1. The Maximum Effluent Concentration (MEC) as listed in Table F-11. Reasonable Potential Analysis Results for the Discharge Point 001 in the Oceanside Permit, NPDES NO. CA0037681, Order No. R2-2009-0062, is used as an indicator for past performance.

6. Sludge Disposal

In 2016, the Oceanside Treatment Plant disposed of 2,911 dry metric tons of sludge at the following locations:

Location	**Dry Metric Tons**
Solano County Land Application	745
Sacramento County Land Application	58
Landfill Beneficial Use	2,109
Vasco	346
Potrero	1,021

Altamont	712
Central Valley Compost	30
TOTAL	**2,911**

B. List of Approved Analyses
See Attachment A for a list of analyses for which the SFPUC is certified.

1. List of Analyses Performed for the Discharger
   - Dioxin, method EPA 1613, Frontier Analytical
   - Semi-volatile Organic Compounds, EPA 625, Caltest Analytical; and
   - Tributyltin by Gas Chromatography/Mass Spectrometry, Calscience

2. List of Waived Analyses
   - None

C. Facility Information

1. Plan View Drawing or Map of Facility

See Attachment B - OSP Site Plan and Attachment C - OSP Process Diagram.

2. Results of Annual Facility Inspection to Verify Stormwater Pollution Prevention Plan Elements

Oceanside WPCP is exempt from this requirement because it routes all storm water which falls on the facility property to the head works of its wastewater treatment plant. See Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D), Attachment G (2010) at G-3.

3. Results of Annual Facility Report Reviews

- **Contingency Plan and Spill Prevention Plan review**

The SFPUC updated the OSP Contingency Plan in November 2016. An update for OSP's Spill Control Plan is being finalized.

- **O&M Manual Updates**

The O&M Manuals for the Primary Sedimentation, Secondary System, Anaerobic Digestion and Dewatering System were updated in October 2016. An update for the O&M Manual and SOPs for Solids Thickening is being finalized.

- **Wastewater Facilities Status Report**

San Francisco is utilizing a Wastewater Asset Management Program to enhance reliability of the plant process equipment and optimize its maintenance and operations activities by assessing the criticality of the equipment based on which equipment carries the most risk. Based on the risk of the equipment, the appropriate Maintenance, and Repair and Rehabilitation (R&R) Program strategy can be implemented to enhance plant reliability. The highest risk equipment will have the more rigorous maintenance procedures including Routine and Preventive Maintenance, Predictive Maintenance, Condition-based Maintenance, and Reliability-Centered Maintenance. The R&R Program sets priorities based on the

highest risk equipment, and the equipment at the end of its useful life. San Francisco uses a CMMS (Computerized Maintenance Management Software) to plan, schedule, initiate and track preventive and corrective work, and record equipment condition assessments.

- **Status of Special Studies**

All special studies required under the permit have been completed.

- **Collection System Update**

Launched in 2007, the SFGreasecycle program aims to minimize the amount of FOG discharged to the sewer system by providing a free waste grease pickup service for commercial establishments and free drop-off services for residents. The program was developed to address both source control, through collection services and public outreach, and end use, through the production of biodiesel from waste grease. To date, SFGreasecycle has collected approximately 2.4 million gallons of waste grease from 838 participating food service establishments and 8 residential drop-off points located throughout San Francisco. Since 2007, the program has generated over $4 million in revenue for San Francisco and is expected to reduce the annual costs expended on grease related sewer blockages by sewer operations maintenance crews.

The FSEs currently participating in the program represent approximately 35% of the total number of FSEs in San Francisco and new commercial accounts continue to sign up daily. The annual grease collected from commercial FSEs began at 6,000 gallons in 2007, grew to 400,896 gallons in 2013, and has remained steady since. The residential recycling program component has focused on resident outreach and education and now collects over 11,000 gallons a year from 8 convenient drop-off sites located throughout San Francisco at such retail vendors as Whole Foods Market and Costco. In 2016, SFGreasecycle's annual two-month holiday outreach campaign captured over 1,100 gallons of residential grease or roughly 19 gallons a day.

If you have any questions concerning this report, please contact one of the following people: Operations Superintendent, Jeff Yee, 415-242-2225, Acting Supervising Chemist, Lily Chan, 415-242-2220 or Laboratory Manager, Kenneth Lee, 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Jeff Yee

Jeff Yee

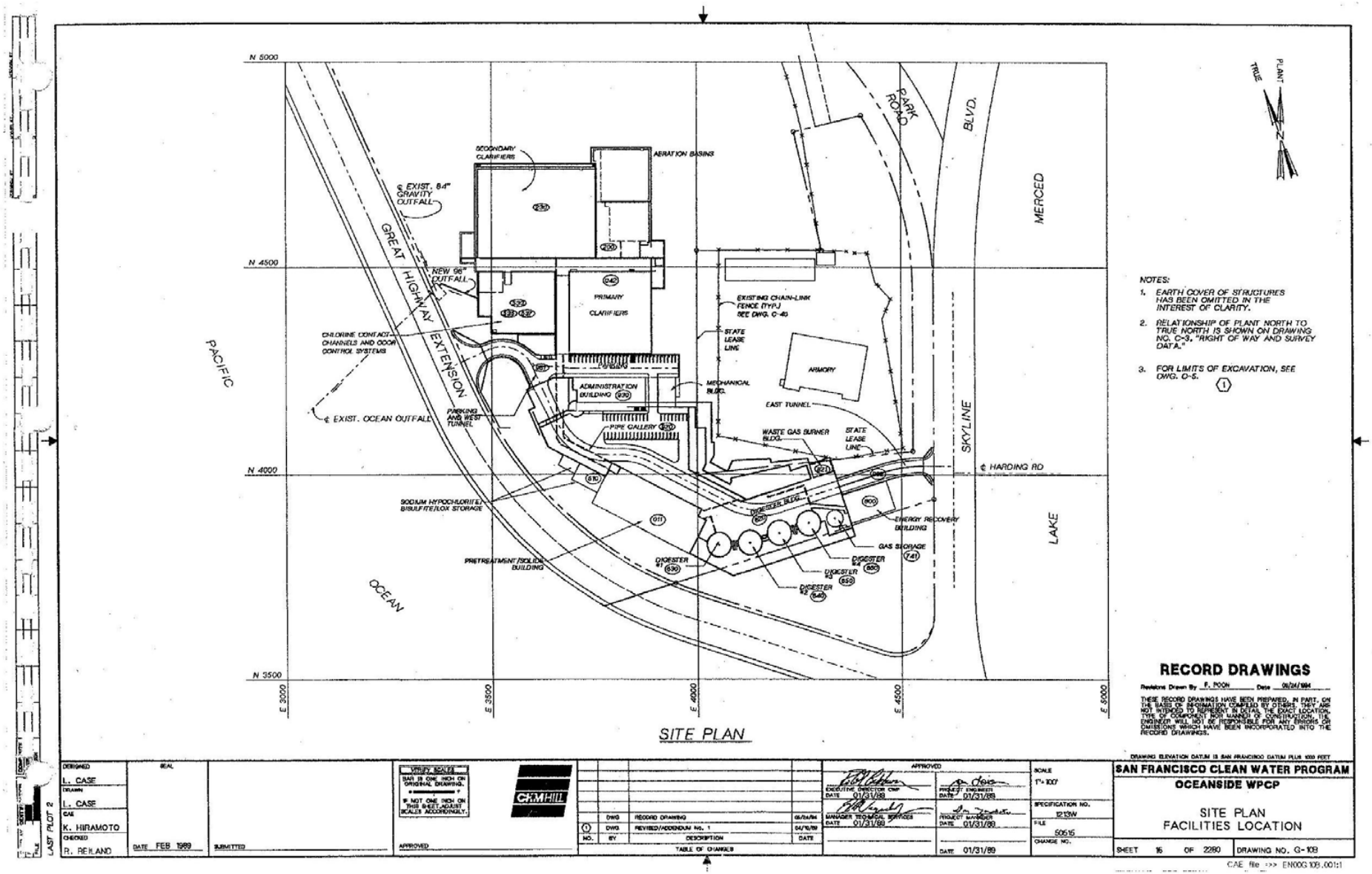
Operations Superintendent,
Oceanside Water Pollution Control Plant
Wastewater Enterprise

Attachments
Attachment A – List of Analyses for which the SFPUC is Certified
Attachment B - OSP Site Plan
Attachment C - OSP Process Diagram

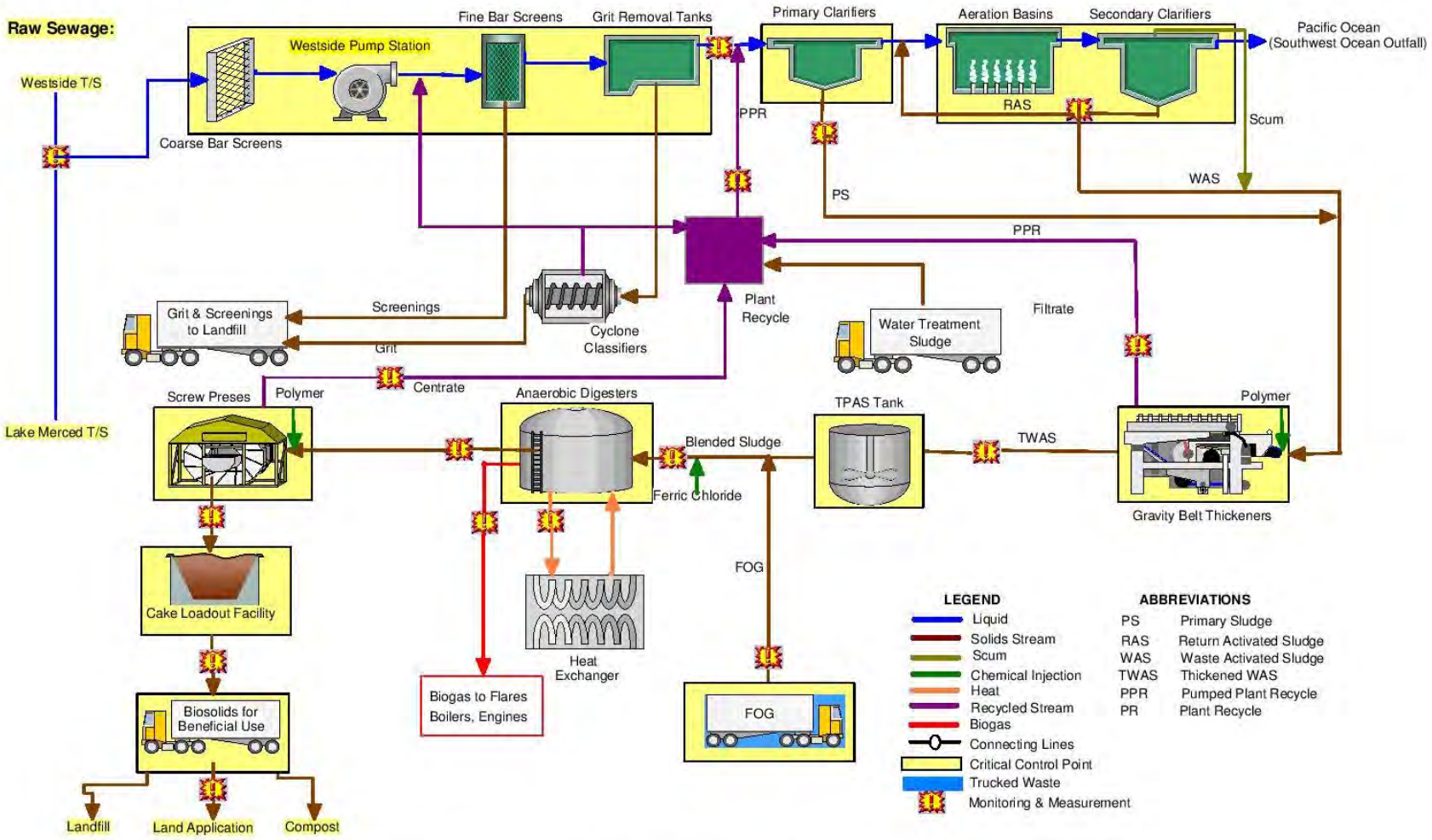
ATTACHMENT A

References for Analyses Cited		
Type of Test	**Reference**	**Method Number**
Ammonia	EPA	4500-NH3B,C
Bioassay	EPA	2019 (EPA-821-R-02-012) 600/R-95/136 Development Test
Biochemical Oxygen Demand	Standard Methods	5210 B
Carbonaceous BOD	Standard Methods	5210 B
Chemical Oxygen Demand	Standard Methods	5220C/HACH8000
Chlorine Residual	Standard Methods	4500-Cl C
Coliform	Standard Methods	9222 B,D
Conductivity	Standard Methods	2510B
Cyanide	Standard Methods	4500-CN C & 4500-CN^- E
Enterococci, IDEX	EPA	Enterolert
Kjeldahl Nitrogen	Standard Methods	4500-NH3C
Mercury	EPA	1631E/245.1
Metals	EPA	200.7/200.8
Nitrate-nitrite	Standard Methods	4500-NO3 E
Nitrite	Standard Methods	4500-NO2 B
Oil & Grease	EPA	1664A
PAH	EPA	610/625
Pesticide/PCBs	EPA	608
pH	EPA/ Standard Methods	150.2/4500-H^+ B
Phosphate, Ortho	Standard Methods	SM4500-P E
Phosphorous, Total	Standard Methods/EPA	SM4500-P E/200.7
Semi-Volatile Organic Compounds	EPA	625
Settleable solids	Standard Methods	2540 F
Temperature	Standard Methods	2550 B
Total Solids	Standard Methods	2540 B
Total Suspended solids	Standard Methods	2540 D
Turbidity	Standard Methods	2130 B
Volatile Organic Compounds	EPA	624

ATTACHMENT B
Site Plan
Oceanside Water Pollution Control Plant



ATTACHMENT C
Plant Flow Diagram
Oceanside Water Pollution Control Plant



Oceanside Plant Critical Control Points Schematic

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

DMR Parameters

Feature - LS: 001-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00610	Nitrogen, ammonia total (as N)					54200.0 ug/L Daily Maximum		Annual	COMP24
1	0	03615	2-Methyl-4,6-dinitrophenol					NODI: B Daily Maximum			
1	0	03824	Tributyltin					NODI: B Daily Maximum			
1	0	22456	Polynuclear Aromatic Hydrocarbons (PAHs)					NODI: B Daily Maximum			
1	0	32101	Dichlorobromo methane					NODI: B Daily Maximum			
1	0	32102	Carbon tetrachloride					NODI: B Daily Maximum			
1	0	32103	1,2-Dichloroethane					NODI: B Daily Maximum			
1	0	32105	Dibromochloro methane					NODI: B Daily Maximum			
1	0	32106	Chloroform					1.08 ug/L Daily Maximum		Annual	COMP24
1	0	34010	Toluene					NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34030	Benzene					NODI: B Daily Maximum			
1	0	34210	Acrolein					NODI: B Daily Maximum			
1	0	34215	Acrylonitrile					NODI: B Daily Maximum			
1	0	34273	Bis(2-chloroethyl) ether					NODI: B Daily Maximum			
1	0	34278	Bis(2-chloroethoxy) methane					NODI: B Daily Maximum			
1	0	34283	Bis(2-chloroisopropyl) ether					NODI: B Daily Maximum			
1	0	34301	Chlorobenzene					NODI: B Daily Maximum			
1	0	34336	Diethyl phthalate					NODI: B Daily Maximum			
1	0	34341	Dimethyl phthalate					NODI: B Daily Maximum			
1	0	34346	1,2-Diphenylhydrazine					NODI: B Daily Maximum			
1	0	34371	Ethylbenzene					NODI: B Daily Maximum			
1	0	34376	Fluoranthene					NODI: B Daily Maximum			
1	0	34386	Hexachlorocyclopentadiene					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34391	Hexachlorobutadiene					NODI: B Daily Maximum			
1	0	34396	Hexachloroethane					NODI: B Daily Maximum			
1	0	34408	Isophorone					NODI: B Daily Maximum			
1	0	34423	Methylene chloride					NODI: Q Daily Maximum			
1	0	34428	N-Nitrosodi-N-propylamine					NODI: B Daily Maximum			
1	0	34433	N-Nitrosodiphenylamine					NODI: B Daily Maximum			
1	0	34438	N-Nitrosodimethylamine (NDMA)					NODI: B Daily Maximum			
1	0	34447	Nitrobenzene					NODI: B Daily Maximum			
1	0	34475	Tetrachloroethylene					NODI: B Daily Maximum			
1	0	34501	1,1-Dichloroethylene					NODI: B Daily Maximum			
1	0	34506	1,1,1-Trichloroethane					NODI: B Daily Maximum			
1	0	34511	1,1,2-Trichloroethane					NODI: B Daily Maximum			
1	0	34516	1,1,2,2-Tetrachloroethane					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34571	1,4-Dichlorobenzene					NODI: B Daily Maximum			
1	0	34611	2,4-Dinitrotoluene					NODI: B Daily Maximum			
1	0	34616	2,4-Dinitrophenol					NODI: B Daily Maximum			
1	0	34621	2,4,6-Trichlorophenol					NODI: B Daily Maximum			
1	0	34631	3,3'-Dichlorobenzidine					NODI: B Daily Maximum			
1	0	39100	Bis(2-ethylhexyl) phthalate					NODI: B Daily Maximum			
1	0	39110	Di-n-butyl phthalate					NODI: B Daily Maximum			
1	0	39120	Benzidine					NODI: B Daily Maximum			
1	0	39175	Vinyl chloride					NODI: B Daily Maximum			
1	0	39180	Trichloroethylene					NODI: B Daily Maximum			
1	0	39330	Aldrin					NODI: B Daily Maximum			
1	0	39350	Chlordane (tech mix. and metabolites)					NODI: B Daily Maximum			
1	0	39379	DDT/DDD/DDE, sum of p,p' & o,p' isomers					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39380	Dieldrin					NODI: B Daily Maximum			
1	0	39388	Endosulfan, total					NODI: B Daily Maximum			
1	0	39390	Endrin					NODI: B Daily Maximum			
1	0	39400	Toxaphene					NODI: B Daily Maximum			
1	0	39410	Heptachlor					NODI: B Daily Maximum			
1	0	39420	Heptachlor epoxide					NODI: B Daily Maximum			
1	0	39516	Polychlorinated biphenyls (PCBs)					NODI: B Daily Maximum			
1	0	39700	Hexachlorobenzene					NODI: B Daily Maximum			
1	0	74015	Phenols, chlorinated					NODI: B Daily Maximum			
1	0	77163	1,3-Dichloropropene					NODI: B Daily Maximum			
1	0	77835	Hexachlorocyclohexane, total					NODI: B Daily Maximum			
1	0	78218	Phenolic compounds, unchlorinated					NODI: B Daily Maximum			
1	0	78456	Halomethanes					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	81524	Dichlorobenzene					NODI: Q Daily Maximum			
1	0	82698	TCDD equivalents					0.0 ug/L Daily Maximum		Annual	COMP24

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	03615	2-Methyl-4,6-dinitrophenol					NODI: B Daily Maximum			
1	0	03824	Tributyltin					NODI: 9 Daily Maximum			
1	0	32101	Dichlorobromomethane					NODI: 9 Daily Maximum			
1	0	32102	Carbon tetrachloride					NODI: 9 Daily Maximum			
1	0	32103	1,2-Dichloroethane					NODI: 9 Daily Maximum			
1	0	32105	Dibromochloromethane					NODI: 9 Daily Maximum			
1	0	32106	Chloroform					NODI: 9 Daily Maximum			
1	0	34010	Toluene					NODI: 9 Daily Maximum			
1	0	34030	Benzene					NODI: 9 Daily Maximum			
1	0	34210	Acrolein					NODI: 9 Daily Maximum			
1	0	34215	Acrylonitrile					NODI: 9 Daily Maximum			
1	0	34273	Bis(2-chloroethyl) ether					NODI: B Daily Maximum			
1	0	34278	Bis(2-chloroethoxy) methane					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34283	Bis(2-chloroisopropyl) ether					NODI: B Daily Maximum			
1	0	34301	Chlorobenzene					NODI: 9 Daily Maximum			
1	0	34336	Diethyl phthalate					NODI: B Daily Maximum			
1	0	34341	Dimethyl phthalate					NODI: B Daily Maximum			
1	0	34346	1,2-Diphenylhydrazine					NODI: B Daily Maximum			
1	0	34371	Ethylbenzene					NODI: 9 Daily Maximum			
1	0	34376	Fluoranthene					NODI: B Daily Maximum			
1	0	34386	Hexachlorocyclopentadiene					NODI: B Daily Maximum			
1	0	34391	Hexachlorobutadiene					NODI: B Daily Maximum			
1	0	34396	Hexachloroethane					NODI: B Daily Maximum			
1	0	34408	Isophorone					NODI: B Daily Maximum			
1	0	34423	Methylene chloride					NODI: 9 Daily Maximum			
1	0	34428	N-Nitrosodi-N-propylamine					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34433	N-Nitrosodiphenylamine					NODI: B Daily Maximum			
1	0	34438	N-Nitrosodimethylamine (NDMA)					NODI: B Daily Maximum			
1	0	34447	Nitrobenzene					NODI: B Daily Maximum			
1	0	34475	Tetrachloroethylene					NODI: 9 Daily Maximum			
1	0	34501	1,1-Dichloroethylene					NODI: 9 Daily Maximum			
1	0	34506	1,1,1-Trichloroethane					NODI: 9 Daily Maximum			
1	0	34511	1,1,2-Trichloroethane					NODI: 9 Daily Maximum			
1	0	34516	1,1,2,2-Tetrachloroethane					NODI: 9 Daily Maximum			
1	0	34571	1,4-Dichlorobenzene					NODI: B Daily Maximum			
1	0	34611	2,4-Dinitrotoluene					NODI: B Daily Maximum			
1	0	34616	2,4-Dinitrophenol					NODI: B Daily Maximum			
1	0	34621	2,4,6-Trichlorophenol					NODI: B Daily Maximum			
1	0	34631	3,3'-Dichlorobenzidine					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39100	Bis(2-ethylhexyl) phthalate					84.7 ug/L Daily Maximum		Annual	COMPOS
1	0	39110	Di-n-butyl phthalate					NODI: B Daily Maximum			
1	0	39120	Benzidine					NODI: B Daily Maximum			
1	0	39175	Vinyl chloride					NODI: 9 Daily Maximum			
1	0	39180	Trichloroethylene					NODI: 9 Daily Maximum			
1	0	39379	DDT/DDD/DDE, sum of p,p' & o,p' isomers					NODI: B Daily Maximum			
1	0	39388	Endosulfan, total					NODI: B Daily Maximum			
1	0	39516	Polychlorinated biphenyls (PCBs)					NODI: B Daily Maximum			
1	0	39700	Hexachlorobenzene					NODI: B Daily Maximum			
1	0	50060	Chlorine, total residual					NODI: 9 Daily Maximum			
1	0	74015	Phenols, chlorinated					NODI: Q Daily Maximum			
1	0	77163	1,3-Dichloropropene					NODI: 9 Daily Maximum			
1	0	77835	Hexachlorocyclohexane, total					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	78218	Phenolic compounds, unchlorinated					NODI: B Daily Maximum			
1	0	78456	Halomethanes					NODI: 9 Daily Maximum			
1	0	81524	Dichlorobenzene					NODI: 9 Daily Maximum			
1	0	82698	TCDD equivalents					NODI: 9 Daily Maximum			

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
415.242.2200

February 28, 2017
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP
NPDES/CA0037681
Self-Monitoring Report January, 2017

Attention: NPDES Division

Transmitted herein is the Oceanside Water Pollution Control Plant (Oceanside Plant) Self-Monitoring Report for January, 2017.

During the month of January there were sixteen days of measurable precipitation totaling 8.40 inches. The Oceanside Plant treated 939.96 million gallons (MG) of wastewater. A total of 606.74 MG of decanted wet weather flow was pumped to the Southwest Ocean Outfall (SWOO). There were four combined sewer discharges (CSDs) during this reporting period.

Drainage Area CSDs	Westside
This Month	4
2016-17 Season	12
Design Criteria	8

If you have any questions concerning this report, please call (415) 920-4600 and enter the appropriate extension number: Superintendent Jeff Yee, x 6-2225, Acting Supervising Chemist Lily Chan, x 6-2220, or Laboratory Manager Kenneth Lee, x 6-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sincerely,

Jeff Yee
Operations Superintendent

cc: Distribution List

Edwin M. Lee
Mayor

Anson Moran
President

Ike Kwon
Vice President

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Francesca Vietor
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Vince Courtney
Commissioner

Harlan L. Kelly, Jr.
General Manager

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681

Facility: OCEANSIDE WWTP

DMR Parameters

Feature - LS: 001-A **Monitoring Period:** 01/01/2017 - 01/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				20.0 mg/L Monthly Average	26.0 mg/L High Weekly Average		Weekly	COMP24
1	0	00400	pH			6.8 SU Minimum		7.2 SU Maximum		Five Per Week	GRAB
1	0	00530	Solids, total suspended				16.0 mg/L Monthly Average	19.0 mg/L High Weekly Average		Five Per Week	COMP24
1	0	50050	Flow, in conduit or thru treatment plant	14.8 Mgal/d Monthly Average	23.6 Mgal/d Daily Maximum					Daily	CONTIN
1	0	71901	Mercury, total recoverable				0.0058 ug/L 6 Month Median	0.0079 ug/L Daily Maximum		Monthly	COMP24
K	0	81010	BOD, 5-day, percent removal			91.0 % Monthly Average Minimum				Monthly	CALCTD
K	0	81011	Solids, suspended percent removal			94.0 % Monthly Average Minimum				Monthly	CALCTD

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2017 - 01/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00400	pH			7.2 SU Minimum		7.4 SU Maximum		Once Every Occurance	COMP24
1	0	00530	Solids, total suspended				30.0 mg/L Monthly Average	30.0 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00610	Nitrogen, ammonia total (as N)				1.7 mg/L Monthly Average	2.0 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00720	Cyanide, total (as CN)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00978	Arsenic, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00981	Selenium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00982	Thallium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)				1.9 ug/L Monthly Average	1.9 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01074	Nickel, total recoverable				1.8 ug/L Monthly Average	1.8 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01079	Silver total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2017 - 01/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01094	Zinc, total recoverable				135.0 ug/L Monthly Average	135.0 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01113	Cadmium, total recoverable				0.3 ug/L Monthly Average	0.3 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01114	Lead, total recoverable				5.9 ug/L Monthly Average	5.9 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01119	Copper, total recoverable				14.9 ug/L Monthly Average	14.9 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01268	Antimony, total recoverable				0.5 ug/L Monthly Average	0.5 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	03582	Oil and grease				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	22456	Polynuclear Aromatic Hydrocarbons (PAHs)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34198	.delta.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34351	Endosulfan sulfate				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34356	.beta.-Endosulfan				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34361	.alpha.-Endosulfan				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34366	Endrin aldehyde				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2017 - 01/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34671	PCB-1016				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39300	4,4'-DDT				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39310	4,4'-DDD				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39320	4,4'-DDE				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39330	Aldrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39336	.alpha.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39338	.beta.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39344	.gamma.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39350	Chlordane (tech mix. and metabolites)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39380	Dieldrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39390	Endrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39400	Toxaphene				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39410	Heptachlor				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2017 - 01/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39420	Heptachlor epoxide				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39488	PCB-1221				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39492	PCB-1232				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39496	PCB-1242				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39500	PCB-1248				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39504	PCB-1254				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39508	PCB-1260				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	50050	Flow, in conduit or thru treatment plant	6.1 Mgal/d Monthly Average	17.4 Mgal/d Daily Maximum					Once Every Occurance	CONTIN
1	0	71901	Mercury, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: INF-A **Monitoring Period:** 01/01/2017 - 01/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
G	0	00310	BOD, 5-day, 20 deg. C				207.0 mg/L Monthly Average	305.0 mg/L Daily Maximum		Weekly	COMP24
G	0	00400	pH			6.8 SU Minimum		8.4 SU Maximum		Five Per Week	GRAB
G	0	00530	Solids, total suspended				251.0 mg/L Monthly Average	1540.0 mg/L Daily Maximum		Five Per Week	COMP24
G	0	50050	Flow, in conduit or thru treatment plant	30.4 Mgal/d Monthly Average	63.6 Mgal/d Daily Maximum					Daily	CONTIN

Westside Drainage Area - Wet Weather Treatment Summary
January 2017

Date	Rainfall Inches	Maximum Hourly Rainfall	Hours of Rainfall	Estimated Rainfall Volume, MG	Flow to Oceanside MG	Decanted Flow to SWOO, MG	Estimated CSD Discharge Vol, MG
1/1/2017	0.05	0.04	8	0.00	13.40	0.00	0.000
1/2/2017	0.04	0.01	14	9.69	23.69	0.00	0.000
1/3/2017	0.31	0.04	24	25.74	39.74	0.00	0.000
1/4/2017	0.67	0.17	23	87.76	53.20	48.56	0.000
1/5/2017	0.00	0.00	0	0.00	23.18	0.00	0.000
1/6/2017	0.00	0.00	0	0.00	13.22	0.00	0.000
1/7/2017	0.75	0.17	24	57.22	43.68	27.53	0.000
1/8/2017	1.36	0.22	24	160.11	63.58	110.53	6.491
1/9/2017	0.15	0.04	16	53.49	44.12	23.37	0.000
1/10/2017	1.62	0.34	24	130.37	59.10	85.27	4.560
1/11/2017	0.19	0.09	17	92.10	48.00	58.10	2.020
1/12/2017	0.36	0.21	14	59.50	37.04	36.47	0.000
1/13/2017	0.00	0.00	0	0.00	16.45	0.00	0.000
1/14/2017	0.00	0.00	0	0.00	13.72	0.00	0.000
1/15/2017	0.00	0.00	0	0.00	13.29	0.00	0.000
1/16/2017	0.00	0.00	0	0.00	14.22	0.00	0.000
1/17/2017	0.00	0.00	0	0.00	13.96	0.00	0.000
1/18/2017	0.69	0.19	21	64.49	39.85	38.64	0.003
1/19/2017	0.03	0.00	13	40.71	42.91	11.80	0.000
1/20/2017	0.72	0.30	22	106.92	54.06	66.86	17.426
1/21/2017	0.29	0.09	8	27.31	32.16	9.15	0.000
1/22/2017	0.74	0.20	24	127.40	57.36	84.04	0.000
1/23/2017	0.43	0.07	22	47.24	54.83	6.41	0.000
1/24/2017	0.00	0.00	0	0.00	21.51	0.00	0.000
1/25/2017	0.00	0.00	0	0.00	15.15	0.00	0.000
1/26/2017	0.00	0.00	0	0.00	15.29	0.00	0.000
1/27/2017	0.00	0.00	0	0.00	15.49	0.00	0.000
1/28/2017	0.00	0.00	0	0.00	15.70	0.00	0.000
1/29/2017	0.00	0.00	0	0.00	14.70	0.00	0.000
1/30/2017	0.00	0.00	0	0.00	14.63	0.00	0.000
1/31/2017	0.00	0.00	0	0.00	12.75	0.00	0.000
Total	***8.40***	***2.20***	298	1090.05	939.96	606.74	30.500
Max	1.62	0.34	0.00	160.11	63.58	110.53	17.426

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Westside Drainage Area - Wet Weather Discharge Summary

January 2017

Date	Lake Merced CSOD #1		Vicente CSOD #2		Lincoln CSOD #3		Mile Rock CSOD #4		Sea Cliff 1 CSOD #5		Sea Cliff O.F. CSOD #6		Sea Cliff 2 CSOD #7		Total Discharge per day	
	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG
1															0:00	0.000
2															0:00	0.000
3															0:00	0.000
4															0:00	0.000
5															0:00	0.000
6															0:00	0.000
7															0:00	0.000
8	2:34	2.78	3:35	0.91	4:35	2.80							0:05	0.00132	10:49	6.491
9															0:00	0.000
10	2:02	3.36	1:54	0.48	2:04	0.71							0:17	0.01	6:17	4.560
11	0:31	1.35	0:36	0.15	0:51	0.52									1:58	2.020
12															0:00	0.000
13															0:00	0.000
14															0:00	0.000
15															0:00	0.000
16															0:00	0.000
17															0:00	0.000
18													0:08	0.003	0:08	0.003
19															0:00	0.000
20	5:25	17.37	0:12	0.05									0:12	0.006	5:49	17.426
21															0:00	0.000
22															0:00	0.000
23															0:00	0.000
24															0:00	0.000
25															0:00	0.000
26															0:00	0.000
27															0:00	0.000
28															0:00	0.000
29															0:00	0.000
30															0:00	0.000
31															0:00	0.000
Total	**10:32**	**24.86**	**6:17**	**1.59**	**7:30**	**4.03**	**0.00**	**0.00**	**0:00**	**0.000**	**0:00**	**0.00**	**0:42**	**0.020**	**25:10**	**30.500**

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Wastewater Enterprise

Westside Drainage Area - Annual Summary
2016-2017

Month	Rainfall Inches	Maximun Hourly Rainfall Inches	Hours of Rainfall Hours	Estimated Rainfall Volume MG	Flow to Oceanside Plant MG	Decanted Flow to SWOO MG	Estimated CSD Discharge Volume MG	Westside Transport CSD Count
Jul	0.02	0.01	8	0.00	385.24	0.0	0.00	0
Aug	0.02	0.01	8	3.26	380.24	0.0	0.00	0
Sep	0.00	0.00	0	0.00	385.56	0.0	0.00	0
Oct	2.92	1.16	132	301.34	518.39	178.5	0.08100	3
Nov	1.82	2.05	90	180.75	544.59	67.0	0.01471	2
Dec	4.98	1.08	126	442.02	628.47	302.5	11.75	3
Jan	8.40	2.20	298	1090.05	939.96	606.7	30.50	4
Feb								
Mar								
April								
May								
Jun								
Total	**18.16**	**6.50**	**662**	**2017.42**	**3782.46**	**1154.7**	**42.35**	12
Maximum	8.40	2.20	298	1090.05	939.96	606.7	30.50	4

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/03	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12	Fri/13	Tue/17
15	1296		842		4160	1291		2851
15EAST	98		145		644	281		1106
16	31		121		1014	426		480
17	< 10		108					327
18	10	**> 24196**	171		504			20
19	52	**> 24196**	586		594	571	31	31
21.1	10	583	148		504			< 10
20		794	247		404			
21		620	309		318			
22		**> 24196**	135	**> 24196**	1872			

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/03	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12	Fri/13	Tue/17
15	10		31		345	86		10
15EAST	< 10		10		231	52		10
16	< 10		< 10		393	31		10
17	< 10		10					< 10
18	10	**> 24196**	< 10		98			< 10
19	31	**> 24196**	63		171	109	< 10	< 10
21.1	< 10	20	< 10		63			< 10
20		75	< 10		63			
21		75	< 10		62			
22		**> 24196**	10	**1658**	110			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Tue/03	Sun/08	Mon/09	Tue/10	Wed/11	Thu/12	Fri/13	Tue/17
15	10		< 10		**146**	52		20
15EAST	< 10		< 10		**121**	20		10
16	< 10		20		**134**	31		< 10
17	< 10		10					< 10
18	< 10	**5794**	< 10		84			< 10
19	< 10	**> 24196**	31		**134**	**233**	< 10	< 10
21.1	< 10	**195**	10		31			< 10
20		**145**	85		62			
21		**122**	31		31			
22		**19863**	**158**	**7701**	20			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
01/01	0.05	01/08	1.36
01/02	0.04	01/09	0.15
01/03	0.31	01/10	1.62
01/04	0.67	01/11	0.19
01/07	0.75	01/12	0.36

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

R Duggan

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2017 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Mon/30	30-day Geometric Mean[2]
15	6488	3448		359	1835	206	1481
15EAST	160	243		563	336	132	278
16	169	426		238	743	52	235
17					638	52	103
18					233	31	163
19					420	10	216
21.1		265			256	< 10	86
20		712					487
21		309					370
22		2247	341				2200

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Mon/30	30-day Geometric Mean[2]
15	364	233		< 10	20	< 10	42
15EAST	< 10	20		< 10	< 10	10	17
16	< 10	< 10		10	20	< 10	17
17					41	< 10	13
18					41	10	52
19					63	< 10	73
21.1		20			41	< 10	18
20		75					43
21		20					31
22		**441**	75				337

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Mon/30	30-day Geometric Mean[2]
15	75	< 10		< 10	41	10	23
15EAST	10	20		20	< 10	< 10	16
16	< 10	10		20	20	< 10	18
17					20	< 10	11
18					< 10	10	34
19					31	< 10	58
21.1		20			20	< 10	20
20		20					63
21		20					39
22		75	41				338

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
01/18	0.69	01/21	0.29
01/19	0.03	01/22	0.74
01/20	0.72	01/23	0.43

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED but no Combined Sewer Discharge occurred

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
T 415.242.2200
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March 28, 2017

Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP (NPDES/CA0037681) 5-Day Written Report for event of March 23, 2017 at Seacliff 1 Pump Station (CDS-005)

Dear Ms. Watkins,

This is the 5-Day Written Report for the Seacliff 1 (CSD-005) discharge that began on Thursday, March 23, 2017 shortly after 9:44 p.m. and ended at approximately 1:45 a.m. on Friday, March 24, 2017. This report follows up on the notification phone call to you from Laura Pagano (Regulatory Program Manager) on March 24th regarding this event.

(1) Event Description and Cause

On Thursday, March 23rd at approximately 9:44 p.m., the Seacliff 1 Pump Station lost power. This caused the lift pumps to fail, which in turn caused wastewater in the sump to overflow into CSD-005 and discharge to China Beach. Staff electricians believe that the outage was caused by a power glitch of unknown origin; PG&E reported no known power outages in the area. The plant was in dry weather at this time.

The loss of power triggered an alarm which was received at the Oceanside Treatment Plant (OSP) at 9:46 p.m. Operations staff noted that the DCS data from the Seacliff 1 Sump had flatlined (indicating a loss of communication) and at 9:50 p.m. sent two staff out to investigate the pump station. They reported the station power loss and that the station sump was overflowing through the outfall.

At approximately 11:00 p.m., OSP Operations reached a staff electrician in the East Bay. The electrician came to the plant, picked up his tools, and went to Seacliff 1 Pump Station. After performing voltage checks, he cycled the power on and off several times which resolved the issue. Power was restored to the station approximately 1:45 a.m. on Friday, March 24th, at which time the sump was pumped down and the discharge ended.

Based on the average dry weather flows to the station at the time of the event, staff calculate that approximately 275-425 gallons of wastewater were discharged through CSD-005 to China Beach.

Bacteria receiving water samples were collected along China Beach at approximately 7:49 a.m. on March 24, 2017. The results indicated that all sample bacterial concentrations were below State standards for recreational waters (Total coliforms 132 mpn; *E. coli* 20 mpn; *Enterococcus* <10 mpn).

Visual observations were made (for erosion, discoloration, impact on aquatic life, flowing or suspended matter, visible sheens, films or coatings, potential nuisance

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General Manager

conditions, or materials of sewage origin) at the same time receiving water samples were collected. No evidence of adverse effects was observed.

China Beach was posted on March 24, 2017 at approximately 8:00 a.m. and the public was notified via email and the web. China Beach was deposted on March 25, 2017, due to the low bacteria sampling results.

(2) Time Period of the Event

The discharge at CSD-005 began shortly after the power loss at 9:44 p.m. on March 23rd and ended at approximately 1:45 a.m. on Friday, March 24, 2017 with 0% recovery. Based on the average dry weather flows to the station at the time of the event, staff calculate that approximately 275-425 gallons of wastewater were discharged through CSD-005 to China Beach.

(3) Anticipated time Event is expected to continue if the Issue has not been resolved

N/A: The issue has been resolved.

(4) Steps taken or planned to reduce, eliminate and prevent reoccurrence

An examination of the Spill Prevention Plan and O&M Manual has been made and staff has determined that no changes are needed. Staff responded appropriately to the Seacliff 1 Pump Station event.

If you have any questions concerning this report, please call Jeff Yee at (415) 242-2225.

Sincerely,

Jeff Yee

Jeff Yee
Operations Superintendent

		(AMEL)					
EFF-CSD	Zinc, Total Recoverable	Maximum Daily (MDEL)	=	470	ug/L	03/04/2017	None
EFF-CSD	Zinc, Total Recoverable	Average Monthly (AMEL)	=	470	ug/L	03/31/2017	None
EFF-CSD	pH	Monthly Minimum	=	6.9	SU	03/04/2017	None
EFF-CSD	pH	Monthly Maximum	=	7.2	SU	03/20/2017	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Maximum Daily (MDEL)	=	264	mg/L	03/15/2017	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	208	mg/L	03/31/2017	None
INF-001	Flow	Maximum Daily (MDEL)	=	55.6	MGD	03/21/2017	None
INF-001	Flow	Average Monthly (AMEL)	=	20.5	MGD	03/31/2017	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	1245	mg/L	03/02/2017	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	265	mg/L	03/31/2017	None
INF-001	pH	Maximum Daily (MDEL)	=	8.4	SU	03/03/2017	None
INF-001	pH	Monthly Minimum	=	6.7	SU	03/24/2017	None

Total Calculated Data Points: 58

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1030362	03/23/2017	Order Conditions	During dry weather, approximately 275-425 gallons were discharged to China Beach	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
OSP Shoreline 201703.pdf	Shoreline Report	39 KB

Total Attachments: 1

Cover Letter

File Name
OSP 3-17 SMR.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 08/26/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
March 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sun/05	Mon/06	Tue/07	Mon/13	Mon/20	Tue/21	Wed/22	Fri/24	Mon/27	30-day Geometric Mean[2]
15	443	8164		616	8664	246	288		1421	1100
15EAST	744	563		63	30	171	345		86	169
16	323	336		10	< 10	52	216		20	59
17		228		20	< 10			132	98	57
18	573	226		10	< 10	228			10	56
19	**> 24196**	512		< 10	10	8164	231		10	218
21.1	2909	201		< 10	< 10	1137			20	105
20	2481					771				
21	**14136**	1782	86			591				
22	1989					1054				

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Sun/05	Mon/06	Tue/07	Mon/13	Mon/20	Tue/21	Wed/22	Fri/24	Mon/27	30-day Geometric Mean[2]
15	< 10	20		< 10	31	41	10		20	18
15EAST	86	20		< 10	< 10	< 10	98		< 10	21
16	52	20		< 10	< 10	< 10	20		10	15
17		41		20	< 10			20	< 10	17
18	52	52		< 10	< 10	10			< 10	17
19	**9804**	52		< 10	< 10	**1081**	31		< 10	78
21.1	231	20		< 10	< 10	52			< 10	25
20	336					20				
21	**2098**	**480**	< 10			20				
22	199					63				

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Sun/05	Mon/06	Tue/07	Mon/13	Mon/20	Tue/21	Wed/22	Fri/24	Mon/27	30-day Geometric Mean[2]
15	< 10	10		< 10	75	< 10	< 10		< 10	13
15EAST	10	< 10		< 10	< 10	< 10	< 10		< 10	10
16	20	< 10		10	< 10	< 10	< 10		< 10	11
17		10		< 10	< 10			< 10	10	10
18	20	< 10		< 10	< 10	< 10			< 10	11
19	**1334**	20		< 10	< 10	**185**	< 10		< 10	34
21.1	**108**	< 10		< 10	< 10	< 10			< 10	15
20	63					31				
21	**309**	41	< 10			< 10				
22	52					< 10				

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
03/04	1.13	03/21	0.32
03/05	0.25	03/22	0.10
03/06	0.35	03/24	0.56
03/16	0.01	03/25	0.01
03/20	0.97	03/26	0.04

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED due to loss of power at pump station; 5-day report submitted

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
415.242.2200

April 27, 2017
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP
NPDES/CA0037681
Self-Monitoring Report March, 2017

Attention: NPDES Division

Transmitted herein is the Oceanside Water Pollution Control Plant (Oceanside Plant) Self-Monitoring Report for March, 2017.

During the month of March there were ten days of measurable precipitation totaling 3.74 inches. The Oceanside Plant treated 634.01 million gallons (MG) of wastewater. A total of 214.77 MG of decanted wet weather flow was pumped to the Southwest Ocean Outfall (SWOO). There were three combined sewer discharges (CSDs) during this reporting period.

An unauthorized discharge incident occurred on Thursday, March 23, 2017 from the Seacliff 1 Pump Station Overflow/Outfall (CSD-005). The estimated amount discharged through the overflow/outfall was approximately 275-425 gallons of wastewater. A 5-Day Written Report was submitted to Jessica Watkins of the San Francisco Bay Regional Water Quality Control Board on March 28, 2017.

Drainage Area CSDs	Westside
This Month	3
2016-17 Season	19
Design Criteria	8

If you have any questions concerning this report, please call (415) 920-4600 and enter the appropriate extension number: Operations Superintendent Jeff Yee, x 6-2225, Supervising Chemist Lily Chan, x 6-2220, or Laboratory Manager Kenneth Lee, x 6-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sincerely,

Jeff Yee

Jeff Yee
Operations Superintendent

cc: Distribution List

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General Manager

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681

Facility: OCEANSIDE WWTP

DMR Parameters

Feature - LS: 001-A **Monitoring Period:** 03/01/2017 - 03/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				14.0 mg/L Monthly Average	18.0 mg/L High Weekly Average		Weekly	COMP24
1	0	00400	pH			6.7 SU Minimum		7.1 SU Maximum		Five Per Week	GRAB
1	0	00530	Solids, total suspended				13.0 mg/L Monthly Average	21.0 mg/L High Weekly Average		Five Per Week	COMP24
1	0	50050	Flow, in conduit or thru treatment plant	15.2 Mgal/d Monthly Average	36.4 Mgal/d Daily Maximum					Daily	CONTIN
1	0	71901	Mercury, total recoverable				0.0068 ug/L 6 Month Median	0.0052 ug/L Daily Maximum		Monthly	COMP24
K	0	81010	BOD, 5-day, percent removal			93.0 % Monthly Average Minimum				Monthly	CALCTD
K	0	81011	Solids, suspended percent removal			95.0 % Monthly Average Minimum				Monthly	CALCTD

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Q **Monitoring Period:** 01/01/2017 - 03/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00070	Turbidity					12.3 NTU Daily Maximum		Quarterly	COMP24
1	0	00610	Nitrogen, ammonia total (as N)					44.1 mg/L Daily Maximum		Quarterly	COMP24
1	0	00720	Cyanide, total (as CN)					NODI: Q Daily Maximum			
1	0	00978	Arsenic, total recoverable					NODI: Q Daily Maximum			
1	0	00981	Selenium, total recoverable					NODI: Q Daily Maximum			
1	0	00982	Thallium, total recoverable					NODI: Q Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)					NODI: B Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)					NODI: Q Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)					1.4 ug/L Daily Maximum		Quarterly	COMP24
1	0	01074	Nickel, total recoverable					3.85 ug/L Daily Maximum		Quarterly	COMP24
1	0	01079	Silver total recoverable					NODI: Q Daily Maximum			
1	0	01094	Zinc, total recoverable					34.9 ug/L Daily Maximum		Quarterly	COMP24
1	0	01113	Cadmium, total recoverable					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Q **Monitoring Period:** 01/01/2017 - 03/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01114	Lead, total recoverable					0.72 ug/L Daily Maximum		Quarterly	COMP24
1	0	01119	Copper, total recoverable					11.4 ug/L Daily Maximum		Quarterly	COMP24
1	0	01268	Antimony, total recoverable					NODI: Q Daily Maximum			
1	0	03582	Oil and grease					NODI: Q Daily Maximum			
1	0	TTJ3L	Static 72Hr Chronic Strongyl. Purpuratus				50.0 tox chronic Average	50.0 tox chronic Daily Maximum		Quarterly	COMP24
1	0	TTJ3N	Static 72Hr Chronic Dendraster Excentri.				NODI: 9 Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 03/01/2017 - 03/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	00400	pH			6.9 SU Minimum		7.2 SU Maximum		Once Every Occurance	COMP24
1	0	00530	Solids, total suspended				89.0 mg/L Monthly Average	126.0 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00610	Nitrogen, ammonia total (as N)				1.3 mg/L Monthly Average	1.3 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00720	Cyanide, total (as CN)				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	00978	Arsenic, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00981	Selenium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00982	Thallium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)				2.9 ug/L Monthly Average	2.9 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01074	Nickel, total recoverable				3.2 ug/L Monthly Average	3.2 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01079	Silver total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 03/01/2017 - 03/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01094	Zinc, total recoverable				470.0 ug/L Monthly Average	470.0 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01113	Cadmium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01114	Lead, total recoverable				11.5 ug/L Monthly Average	11.5 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01119	Copper, total recoverable				28.7 ug/L Monthly Average	28.7 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01268	Antimony, total recoverable				0.8 ug/L Monthly Average	0.8 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	03582	Oil and grease				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	22456	Polynuclear Aromatic Hydrocarbons (PAHs)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34198	.delta.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34351	Endosulfan sulfate				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34356	.beta.-Endosulfan				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34361	.alpha.-Endosulfan				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	34366	Endrin aldehyde				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 03/01/2017 - 03/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34671	PCB-1016				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39300	4,4'-DDT				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39310	4,4'-DDD				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39320	4,4'-DDE				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39330	Aldrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39336	.alpha.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39338	.beta.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39344	.gamma.-BHC				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39350	Chlordane (tech mix. and metabolites)				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39380	Dieldrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39390	Endrin				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39400	Toxaphene				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39410	Heptachlor				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 03/01/2017 - 03/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39420	Heptachlor epoxide				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39488	PCB-1221				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39492	PCB-1232				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39496	PCB-1242				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39500	PCB-1248				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39504	PCB-1254				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	39508	PCB-1260				NODI: 9 Monthly Average	NODI: 9 Daily Maximum			
1	0	50050	Flow, in conduit or thru treatment plant	0.91 Mgal/d Monthly Average	3.0 Mgal/d Daily Maximum					Once Every Occurance	CONTIN
1	0	71901	Mercury, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: INF-A **Monitoring Period:** 03/01/2017 - 03/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
G	0	00310	BOD, 5-day, 20 deg. C				208.0 mg/L Monthly Average	264.0 mg/L Daily Maximum		Weekly	COMP24
G	0	00400	pH			6.7 SU Minimum		8.4 SU Maximum		Five Per Week	GRAB
G	0	00530	Solids, total suspended				265.0 mg/L Monthly Average	1245.0 mg/L Daily Maximum		Five Per Week	COMP24
G	0	50050	Flow, in conduit or thru treatment plant	20.5 Mgal/d Monthly Average	55.6 Mgal/d Daily Maximum					Daily	CONTIN

Westside Drainage Area - Wet Weather Treatment Summary
March 2017

Date	Rainfall Inches	Maximum Hourly Rainfall	Hours of Rainfall	Estimated Rainfall Volume, MG	Flow to Oceanside MG	Decanted Flow to SWOO, MG	Estimated CSD Discharge Vol, MG
3/1/2017	0.00	0.00	0	0.00	16.52	0.00	0.000
3/2/2017	0.00	0.00	0	0.00	14.55	0.00	0.000
3/3/2017	0.00	0.00	0	0.00	15.71	0.00	0.000
3/4/2017	1.13	0.50	8	33.44	25.31	22.13	2.980
3/5/2017	0.25	0.07	22	87.07	47.13	53.94	0.000
3/6/2017	0.35	0.10	19	21.85	35.85	0.00	0.000
3/7/2017	0.00	0.00	0	0.00	24.78	0.00	0.000
3/8/2017	0.00	0.00	0	0.00	16.18	0.00	0.000
3/9/2017	0.00	0.00	0	0.00	16.71	0.00	0.000
3/10/2017	0.00	0.00	0	0.00	14.54	0.00	0.000
3/11/2017	0.00	0.00	0	0.00	15.31	0.00	0.000
3/12/2017	0.00	0.00	0	0.00	14.73	0.00	0.000
3/13/2017	0.00	0.00	0	0.00	14.84	0.00	0.000
3/14/2017	0.00	0.00	0	0.00	15.24	0.00	0.000
3/15/2017	0.00	0.00	0	0.00	14.34	0.00	0.000
3/16/2017	0.01	0.00	8	0.06	14.06	0.00	0.000
3/17/2017	0.00	0.00	0	0.00	13.53	0.00	0.000
3/18/2017	0.00	0.00	0	0.00	13.29	0.00	0.000
3/19/2017	0.00	0.00	0	0.00	15.94	0.00	0.000
3/20/2017	0.97	0.37	15	26.71	26.60	14.10	1.834
3/21/2017	0.32	0.15	16	128.10	55.61	86.49	0.620
3/22/2017	0.10	0.04	10	24.15	32.65	5.50	0.010
3/23/2017	0.00	0.00	1	2.33	16.33	0.00	0.000
3/24/2017	0.56	0.11	19	61.08	42.47	32.61	0.000
3/25/2017	0.01	0.00	7	0.68	14.68	0.00	0.000
3/26/2017	0.04	0.02	9	3.25	17.25	0.00	0.000
3/27/2017	0.00	0.00	0	0.00	14.04	0.00	0.000
3/28/2017	0.00	0.00	0	0.00	13.94	0.00	0.000
3/29/2017	0.00	0.00	0	0.00	13.75	0.00	0.000
3/30/2017	0.00	0.00	0	0.00	14.47	0.00	0.000
3/31/2017	0.00	NA	NA	NA	13.64	0.00	0.000
Total	***3.74***	***1.35***	134	388.70	634.01	214.77	5.444
Max	1.13	0.50	0.00	128.10	55.61	86.49	2.980

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Wastewater Enterprise

Westside Drainage Area - Wet Weather Discharge Summary

March 2017

Date	Lake Merced CSOD #1		Vicente CSOD #2		Lincoln CSOD #3		Mile Rock CSOD #4		Sea Cliff 1 CSOD #5		Sea Cliff O.F. CSOD #6		Sea Cliff 2 CSOD #7		Total Discharge per day	
	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG
1															0:00	0.000
2															0:00	0.000
3															0:00	0.000
4	1:34	1.90	1:14	0.31	1:15	0.76							0:16	0.01	4:19	2.980
5															0:00	0.000
6															0:00	0.000
7															0:00	0.000
8															0:00	0.000
9															0:00	0.000
10															0:00	0.000
11															0:00	0.000
12															0:00	0.000
13															0:00	0.000
14															0:00	0.000
15															0:00	0.000
16															0:00	0.000
17															0:00	0.000
18															0:00	0.000
19															0:00	0.000
20	1:05	1.41	0:17	0.07	0:34	0.35							0:10	0.004	2:06	1.834
21	0:32	0.02	0:09	0.04	0:55	0.56									1:36	0.620
22													0:13	0.010	0:13	0.010
23															0:00	0.000
24															0:00	0.000
25															0:00	0.000
26															0:00	0.000
27															0:00	0.000
28															0:00	0.000
29															0:00	0.000
30															0:00	0.000
31															0:00	0.000
Total	**3:11**	**3.33**	**1:40**	**0.42**	**2:44**	**1.67**	**0.00**	**0.00**	**0:00**	**0.00**	**0:00**	**0.00**	**0:39**	**0.024**	**8:14**	**5.444**

City & County of San Francisco • Public Utilities Commission

Wastewater Enterprise

Westside Drainage Area - Annual Summary
2016-2017

Month	Rainfall Inches	Maximun Hourly Rainfall Inches	Hours of Rainfall Hours	Estimated Rainfall Volume MG	Flow to Oceanside Plant MG	Decanted Flow to SWOO MG	Estimated CSD Discharge Volume MG	Westside Transport CSD Count
Jul	0.02	0.01	8	0.00	385.24	0.0	0.00	0
Aug	0.02	0.01	8	3.26	380.24	0.0	0.00	0
Sep	0.00	0.00	0	0.00	385.56	0.0	0.00	0
Oct	2.92	1.16	132	301.34	518.39	178.5	0.08100	3
Nov	1.82	2.05	90	180.75	544.59	67.0	0.01471	2
Dec	4.98	1.08	126	442.02	628.47	302.5	11.75	3
Jan	8.40	2.20	298	1090.05	939.96	606.7	30.50	4
Feb	7.97	2.31	296	1029.29	858.34	570.8	11.85	4
Mar	3.74	1.35	134	388.70	634.01	214.8	5.44	3
April								
May								
Jun								
Total	**29.87**	**10.16**	**1092**	**3435.41**	**5274.81**	**1940.3**	**59.64**	19
Maximum	8.40	2.31	298	1090.05	939.96	606.7	30.50	4

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
March 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sun/05	Mon/06	Tue/07	Mon/13	Mon/20	Tue/21	Wed/22	Fri/24	Mon/27	30-day Geometric Mean[2]
15	443	8164		616	8664	246	288		1421	1100
15EAST	744	563		63	30	171	345		86	169
16	323	336		10	< 10	52	216		20	59
17		228		20	< 10			132	98	57
18	573	226		10	< 10	228			10	56
19	**> 24196**	512		< 10	10	8164	231		10	218
21.1	2909	201		< 10	< 10	1137			20	105
20	2481					771				
21	**14136**	1782	86			591				
22	1989					1054				

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Sun/05	Mon/06	Tue/07	Mon/13	Mon/20	Tue/21	Wed/22	Fri/24	Mon/27	30-day Geometric Mean[2]
15	< 10	20		< 10	31	41	10		20	18
15EAST	86	20		< 10	< 10	< 10	98		< 10	21
16	52	20		< 10	< 10	< 10	20		10	15
17		41		20	< 10			20	< 10	17
18	52	52		< 10	< 10	10			< 10	17
19	**9804**	52		< 10	< 10	**1081**	31		< 10	78
21.1	231	20		< 10	< 10	52			< 10	25
20	336					20				
21	**2098**	**480**	< 10			20				
22	199					63				

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Sun/05	Mon/06	Tue/07	Mon/13	Mon/20	Tue/21	Wed/22	Fri/24	Mon/27	30-day Geometric Mean[2]
15	< 10	10		< 10	75	< 10	< 10		< 10	13
15EAST	10	< 10		< 10	< 10	< 10	< 10		< 10	10
16	20	< 10		10	< 10	< 10	< 10		< 10	11
17		10		< 10	< 10			< 10	10	10
18	20	< 10		< 10	< 10	< 10			< 10	11
19	**1334**	20		< 10	< 10	**185**	< 10		< 10	34
21.1	**108**	< 10		< 10	< 10	< 10			< 10	15
20	63					31				
21	**309**	41	< 10			< 10				
22	52					< 10				

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
03/04	1.13	03/21	0.32
03/05	0.25	03/22	0.10
03/06	0.35	03/24	0.56
03/16	0.01	03/25	0.01
03/20	0.97	03/26	0.04

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION POSTED due to loss of power at pump station; 5-day report submitted

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

EFF-001	Total Suspended Solids (TSS), Percent Removal	Percent Reduction	=	96	%	06/30/2017	None
EFF-001	pH	Monthly Minimum	=	6.7	SU	06/09/2017	None
EFF-001	pH	Monthly Maximum	=	7.1	SU	06/19/2017	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Maximum Daily (MDEL)	=	299	mg/L	06/28/2017	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	237	mg/L	06/30/2017	None
INF-001	Flow	Maximum Daily (MDEL)	=	23.1	MGD	06/08/2017	None
INF-001	Flow	Average Monthly (AMEL)	=	13.4	MGD	06/30/2017	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	2120	mg/L	06/23/2017	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	390	mg/L	06/30/2017	None
INF-001	pH	Monthly Minimum	=	7.1	SU	06/26/2017	None
INF-001	pH	Maximum Daily (MDEL)	=	8.4	SU	06/30/2017	None

Total Calculated Data Points: 20

Violations

Violation ID	Violation Date	Violation Type	Description(-)	Corrective Action	Created By	Last Modified By
1030360	06/21/2017	Category 1 Pollutant (Effluent Violation for Group 1 Pollutant)	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C) Weekly Average limit is 45 mg/L and reported value was 49 mg/L at EFF-001.	Actions were taken to address the potential presence of nitrifiers in the sample bottle and on the sampling tube biofilm.	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
OSP Shoreline 201706.pdf	Shoreline Report	31 KB

Total Attachments: 1

Cover Letter

File Name
OSP 6-17 SMR.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 08/26/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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Cal/EPA | ARB | DPR | DTSC | OEHHA | **SWRCB**

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
415.242.2200

July 27, 2017
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP
NPDES/CA0037681
Self-Monitoring Report June, 2017

Attention: NPDES Division

Transmitted herein is the Oceanside Water Pollution Control Plant (Oceanside Plant) Self-Monitoring Report for June, 2017.

During the month of June there was one day of measurable precipitation totaling 0.20 inches. The Oceanside Plant treated 398.68 million gallons (MG) of wastewater. There were no wet weather flows or combined sewer discharges (CSDs) during this reporting period.

Drainage Area CSDs	Westside
This Month	0
2016-17 Season	18
Design Criteria	8

The BOD sample taken on June 21st had a high concentration of 49 mg/l. The inhibited BOD concentration, however, was 21 mg/l, indicating normal plant function. Actions were taken to address the possible presence of nitrifyers in the sample bottle and on the sampling tube biofilm. Thorough cleaning of the sampling apparatus was initiated immediately and additional samples were taken during the following weeks. These samples were below permit limits. Please see the table below. The original sample was taken during a plant shutdown.

Date	Final Effluent Total BOD Concentration, mg/L	Final Effluent Inhibited BOD Concentration, mg/L
6/28/17	35.2	20
6/29/17	19.5	10.9
6/30/17	13.6	7
7/5/17	16.3	7.7
7/12/17	14.3	10.2
7/19/17	18.9	12

If you have any questions concerning this report, please call (415) 920-4600 and enter the appropriate extension number: Operations Superintendent Jeff Yee, x 6-2225, Supervising Chemist Lily Chan, x 6-2220, or Laboratory Manager Kenneth Lee, x 6-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sincerely,

Jeff Yee

Jeff Yee
Operations Superintendent

cc: Distribution List

Edwin M. Lee
Mayor

Anson Moran
President

Ike Kwon
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Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Vince Courtney
Commissioner

Harlan L. Kelly, Jr.
General Manager

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681

Facility: OCEANSIDE WWTP

DMR NODIs

Feature - LS	Monitoring Period	NODI Code	NODI Description
CSD-A	06/01/2017 - 06/30/2017	C	No Discharge

DMR Parameters

Feature - LS: 001-A **Monitoring Period:** 06/01/2017 - 06/30/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				28.0 mg/L Monthly Average	49.0 mg/L High Weekly Average		Weekly	COMP24
1	0	00400	pH			6.7 SU Minimum		7.1 SU Maximum		Five Per Week	GRAB
1	0	00530	Solids, total suspended				17.0 mg/L Monthly Average	21.0 mg/L High Weekly Average		Five Per Week	COMP24
1	0	50050	Flow, in conduit or thru treatment plant	14.6 Mgal/d Monthly Average	22.4 Mgal/d Daily Maximum					Daily	CONTIN
1	0	71901	Mercury, total recoverable				0.0052 ug/L 6 Month Median	0.0032 ug/L Daily Maximum		Monthly	COMP24
K	0	81010	BOD, 5-day, percent removal			87.0 % Monthly Average Minimum				Monthly	CALCTD
K	0	81011	Solids, suspended percent removal			96.0 % Monthly Average Minimum				Monthly	CALCTD

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Q **Monitoring Period:** 04/01/2017 - 06/30/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00070	Turbidity					15.0 NTU Daily Maximum		Quarterly	COMP24
1	0	00610	Nitrogen, ammonia total (as N)					48.6 mg/L Daily Maximum		Quarterly	COMP24
1	0	00720	Cyanide, total (as CN)					NODI: Q Daily Maximum			
1	0	00978	Arsenic, total recoverable					NODI: Q Daily Maximum			
1	0	00981	Selenium, total recoverable					NODI: Q Daily Maximum			
1	0	00982	Thallium, total recoverable					NODI: Q Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)					NODI: B Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)					NODI: Q Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)					0.77 ug/L Daily Maximum		Quarterly	COMP24
1	0	01074	Nickel, total recoverable					3.04 ug/L Daily Maximum		Quarterly	COMP24
1	0	01079	Silver total recoverable					NODI: Q Daily Maximum			
1	0	01094	Zinc, total recoverable					20.3 ug/L Daily Maximum		Quarterly	COMP24
1	0	01113	Cadmium, total recoverable					NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Q **Monitoring Period:** 04/01/2017 - 06/30/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01114	Lead, total recoverable					NODI: Q Daily Maximum			
1	0	01119	Copper, total recoverable					11.6 ug/L Daily Maximum		Quarterly	COMP24
1	0	01268	Antimony, total recoverable					NODI: Q Daily Maximum			
1	0	03582	Oil and grease					NODI: Q Daily Maximum			
1	0	TTJ3L	Static 72Hr Chronic Strongyl. Purpuratus				50.0 tox chronic Average	50.0 tox chronic Daily Maximum		Quarterly	COMP24
1	0	TTJ3N	Static 72Hr Chronic Dendraster Excentri.				NODI: 9 Average	NODI: 9 Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: INF-A **Monitoring Period:** 06/01/2017 - 06/30/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
G	0	00310	BOD, 5-day, 20 deg. C				237.0 mg/L Monthly Average	299.0 mg/L Daily Maximum		Weekly	COMP24
G	0	00400	pH			7.1 SU Minimum		8.4 SU Maximum		Five Per Week	GRAB
G	0	00530	Solids, total suspended				390.0 mg/L Monthly Average	2120.0 mg/L Daily Maximum		Five Per Week	COMP24
G	0	50050	Flow, in conduit or thru treatment plant	13.4 Mgal/d Monthly Average	23.1 Mgal/d Daily Maximum					Daily	CONTIN

Westside Drainage Area - Wet Weather Treatment Summary
June 2017

Date	Rainfall Inches	Maximum Hourly Rainfall	Hours of Rainfall	Estimated Rainfall Volume, MG	Flow to Oceanside MG	Decanted Flow to SWOO, MG	Estimated CSD Discharge Vol, MG
6/1/2017	0.00	0.00	0	0.00	12.96	0.00	0.000
6/2/2017	0.00	0.00	0	0.00	13.27	0.00	0.000
6/3/2017	0.00	0.00	0	0.00	12.37	0.00	0.000
6/4/2017	0.00	0.00	0	0.00	13.37	0.00	0.000
6/5/2017	0.00	0.00	0	0.00	13.36	0.00	0.000
6/6/2017	0.00	0.00	0	0.00	12.42	0.00	0.000
6/7/2017	0.00	0.00	0	0.00	13.41	0.00	0.000
6/8/2017	0.20	0.06	18	9.06	23.06	0.00	0.000
6/9/2017	0.00	0.00	0	0.00	16.15	0.00	0.000
6/10/2017	0.00	0.00	0	0.00	12.57	0.00	0.000
6/11/2017	0.00	0.00	0	0.00	11.96	0.00	0.000
6/12/2017	0.00	0.00	0	0.00	12.50	0.00	0.000
6/13/2017	0.00	0.00	0	0.00	13.26	0.00	0.000
6/14/2017	0.00	0.00	0	0.00	11.54	0.00	0.000
6/15/2017	0.00	0.00	0	0.00	14.27	0.00	0.000
6/16/2017	0.00	0.00	0	0.00	12.70	0.00	0.000
6/17/2017	0.00	0.00	0	0.00	12.76	0.00	0.000
6/18/2017	0.00	0.00	0	0.00	12.34	0.00	0.000
6/19/2017	0.00	0.00	0	0.00	13.36	0.00	0.000
6/20/2017	0.00	0.00	0	0.00	12.44	0.00	0.000
6/21/2017	0.00	0.00	0	0.00	8.80	0.00	0.000
6/22/2017	0.00	0.00	0	0.00	17.87	0.00	0.000
6/23/2017	0.00	0.00	0	0.00	12.30	0.00	0.000
6/24/2017	0.00	0.00	0	0.00	13.34	0.00	0.000
6/25/2017	0.00	0.00	0	0.00	13.67	0.00	0.000
6/26/2017	0.00	0.00	0	0.00	13.52	0.00	0.000
6/27/2017	0.00	0.00	0	0.00	12.41	0.00	0.000
6/28/2017	0.00	0.00	0	0.00	10.27	0.00	0.000
6/29/2017	0.00	0.00	0	0.00	14.00	0.00	0.000
6/30/2017	0.00	0.00	0	0.00	12.43	0.00	0.000
Total	***0.20***	***0.06***	18	9.06	398.68	0.00	0.000
Max	0.20	0.06	0.00	9.06	23.06	0.00	0.000

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Wastewater Enterprise

Westside Drainage Area - Wet Weather Discharge Summary

June 2017

Date	Lake Merced CSOD #1		Vicente CSOD #2		Lincoln CSOD #3		Mile Rock CSOD #4		Sea Cliff 1 CSOD #5		Sea Cliff O.F. CSOD #6		Sea Cliff 2 CSOD #7		Total Discharge per day	
	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG
1															0:00	0.000
2															0:00	0.000
3															0:00	0.000
4															0:00	0.000
5															0:00	0.000
6															0:00	0.000
7															0:00	0.000
8															0:00	0.000
9															0:00	0.000
10															0:00	0.000
11															0:00	0.000
12															0:00	0.000
13															0:00	0.000
14															0:00	0.000
15															0:00	0.000
16															0:00	0.000
17															0:00	0.000
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25															0:00	0.000
26															0:00	0.000
27															0:00	0.000
28															0:00	0.000
29															0:00	0.000
30															0:00	0.000
31															0:00	0.000
Total	**0:00**	**0.00**	**0:00**	**0.00**	**0:00**	**0.00**	**0.00**	**0.00**	**0:00**	**0.00**	**0:00**	**0.00**	**0:00**	**0.000**	**0:00**	**0.000**

City & County of San Francisco • Public Utilities Commission

Wastewater Enterprise

Westside Drainage Area - Annual Summary
2016-2017

Month	Rainfall Inches	Maximun Hourly Rainfall Inches	Hours of Rainfall Hours	Estimated Rainfall Volume MG	Flow to Oceanside Plant MG	Decanted Flow to SWOO MG	Estimated CSD Discharge Volume MG	Westside Transport CSD Count
Jul	0.02	0.01	8	0.00	385.24	0.0	0.00	0
Aug	0.02	0.01	8	3.26	380.24	0.0	0.00	0
Sep	0.00	0.00	0	0.00	385.56	0.0	0.00	0
Oct	2.92	1.16	132	301.34	518.39	178.5	0.001	1
Nov	1.82	2.05	90	180.75	544.59	67.0	0.01471	2
Dec	4.98	1.08	126	442.02	628.47	302.5	11.75	3
Jan	8.40	2.20	298	1090.05	939.96	606.7	30.50	4
Feb	7.97	2.31	296	1029.29	858.34	570.8	11.85	4
Mar	3.74	1.35	134	388.70	634.01	214.8	5.44	3
April	2.31	0.83	163	226.57	559.48	84.1	1.05	1
May	0.00	0.00	0	0.00	445.71	0.0	0.00	0
Jun	0.20	0.06	18	9.06	398.68	0.0	0.00	0
Total	**32.38**	**11.05**	**1273**	**3671.04**	**6678.67**	**2024.4**	**60.61**	18
Maximum	8.40	2.31	298	1090.05	939.96	606.7	30.50	4

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
June 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/05	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
15	402	292	932	256	
15EAST	120	< 10	41	96	
16	52	< 10	10	20	
17	20	< 10	84	10	
18	< 10	41	10	10	
19	10	10	10	< 10	
21.1	< 10	10	10	< 10	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/05	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
15	10	< 10	20	20	
15EAST	20	< 10	20	52	
16	10	< 10	< 10	< 10	
17	< 10	< 10	< 10	< 10	
18	< 10	41	10	10	
19	10	< 10	< 10	< 10	
21.1	< 10	< 10	< 10	< 10	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/05	Mon/12	Mon/19	Mon/26	30-day Geometric Mean[2]
15	< 10	20	10	10	
15EAST	< 10	< 10	< 10	< 10	
16	< 10	< 10	< 10	< 10	
17	< 10	< 10	< 10	< 10	
18	< 10	< 10	< 10	< 10	
19	20	< 10	< 10	< 10	
21.1	< 10	< 10	< 10	< 10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	06/08 0.2
China Beach	17	
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

CleanPowerSF
Same Service • Cleaner Energy

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
415.242.2200

November 29, 2017
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP
NPDES/CA0037681
Self-Monitoring Report October, 2017

Attention: NPDES Division

Transmitted herein is the Oceanside Water Pollution Control Plant (Oceanside Plant) Self-Monitoring Report (SMR) for October, 2017.

During the month of October there were two days of measurable precipitation totaling 0.28 inches. The Oceanside Plant treated 427.11 million gallons (MG) of wastewater. There were no wet weather flows or combined sewer discharges (CSDs) during this reporting period.

Drainage Area CSDs	Westside
This Month	0
2017-18 Season	0
Design Criteria	8

Annually required samples were collected on September 27th for Table B Pollutants in the Ocean Plan. The samples are being processed; results are not available to be submitted with this SMR.

If you have any questions concerning this report, please call (415) 920-4600 and enter the appropriate extension number: Operations Superintendent Jeff Yee, x 6-2225, Supervising Chemist Lily Chan, x 6-2220, or Laboratory Manager Kenneth Lee, x 6-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sincerely,

Jeff Yee

Jeff Yee
Operations Superintendent

cc: Distribution List

Edwin M. Lee
Mayor

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CleanPowerSF is a program of the San Francisco Public Utilities Commission (SFPUC), an enterprise department of the City and County of San Francisco.

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681

Facility: OCEANSIDE WWTP

DMR NODIs

Feature - LS	Monitoring Period	NODI Code	NODI Description
CSD-A	10/01/2017 - 10/31/2017	C	No Discharge

DMR Parameters

Feature - LS: 001-A **Monitoring Period:** 10/01/2017 - 10/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				20.0 mg/L Monthly Average	23.0 mg/L High Weekly Average		Weekly	COMP24
1	0	00400	pH			6.7 SU Minimum		7.0 SU Maximum		Five Per Week	GRAB
1	0	00530	Solids, total suspended				13.0 mg/L Monthly Average	18.0 mg/L High Weekly Average		Five Per Week	COMP24
1	0	50050	Flow, in conduit or thru treatment plant	13.7 Mgal/d Monthly Average	16.4 Mgal/d Daily Maximum					Daily	CONTIN
1	0	71901	Mercury, total recoverable				0.0061 ug/L 6 Month Median	0.0081 ug/L Daily Maximum		Monthly	COMP24
K	0	81010	BOD, 5-day, percent removal			92.0 % Monthly Average Minimum				Monthly	CALCTD
K	0	81011	Solids, suspended percent removal			96.0 % Monthly Average Minimum				Monthly	CALCTD

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: INF-A **Monitoring Period:** 10/01/2017 - 10/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
G	0	00310	BOD, 5-day, 20 deg. C				270.0 mg/L Monthly Average	474.0 mg/L Daily Maximum		Weekly	COMP24
G	0	00400	pH			6.8 SU Minimum		8.3 SU Maximum		Five Per Week	GRAB
G	0	00530	Solids, total suspended				383.0 mg/L Monthly Average	1170.0 mg/L Daily Maximum		Five Per Week	COMP24
G	0	50050	Flow, in conduit or thru treatment plant	13.8 Mgal/d Monthly Average	29.6 Mgal/d Daily Maximum					Daily	CONTIN

Westside Drainage Area - Wet Weather Treatment Summary
October 2017

Date	Rainfall Inches	Maximum Hourly Rainfall	Hours of Rainfall	Estimated Rainfall Volume, MG	Flow to Oceanside MG	Decanted Flow to SWOO, MG	Estimated CSD Discharge Vol, MG
10/1/2017	0.00	0.00	0	0.00	15.19	0.00	0.000
10/2/2017	0.00	0.00	0	0.00	13.96	0.00	0.000
10/3/2017	0.00	0.00	0	0.00	12.72	0.00	0.000
10/4/2017	0.00	0.00	0	0.00	14.01	0.00	0.000
10/5/2017	0.00	0.00	0	0.00	14.05	0.00	0.000
10/6/2017	0.00	0.00	0	0.00	13.50	0.00	0.000
10/7/2017	0.00	0.00	0	0.00	12.51	0.00	0.000
10/8/2017	0.00	0.00	0	0.00	13.82	0.00	0.000
10/9/2017	0.00	0.00	0	0.00	14.69	0.00	0.000
10/10/2017	0.00	0.00	0	0.00	12.35	0.00	0.000
10/11/2017	0.00	0.00	0	0.00	12.82	0.00	0.000
10/12/2017	0.00	0.00	0	0.00	12.92	0.00	0.000
10/13/2017	0.00	0.00	0	0.00	12.64	0.00	0.000
10/14/2017	0.00	0.00	0	0.00	12.08	0.00	0.000
10/15/2017	0.00	0.00	0	0.00	13.33	0.00	0.000
10/16/2017	0.00	0.00	0	0.00	14.61	0.00	0.000
10/17/2017	0.00	0.00	0	0.00	12.80	0.00	0.000
10/18/2017	0.00	0.00	0	0.00	12.59	0.00	0.000
10/19/2017	0.18	0.17	8	0.00	13.52	0.00	0.000
10/20/2017	0.10	0.09	9	15.55	29.55	0.00	0.000
10/21/2017	0.00	0.00	0	0.00	13.38	0.00	0.000
10/22/2017	0.00	0.00	0	0.00	13.03	0.00	0.000
10/23/2017	0.00	0.00	0	0.00	13.07	0.00	0.000
10/24/2017	0.00	0.00	0	0.00	13.49	0.00	0.000
10/25/2017	0.00	0.00	0	0.00	13.68	0.00	0.000
10/26/2017	0.00	0.00	0	0.00	12.77	0.00	0.000
10/27/2017	0.00	0.00	0	0.00	12.60	0.00	0.000
10/28/2017	0.00	0.00	0	0.00	12.70	0.00	0.000
10/29/2017	0.00	0.00	0	0.00	11.64	0.00	0.000
10/30/2017	0.00	0.00	0	0.00	14.82	0.00	0.000
10/31/2017	0.00	0.00	0	0.00	12.29	0.00	
Total	**0.28**	**0.26**	**17**	**15.55**	**427.11**	**0.00**	**0.00**
Max	**0.18**	**0.17**	**9.00**	**15.55**	**29.55**	**0.00**	**0.00**

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Westside Drainage Area - Wet Weather Discharge Summary

October 2017

Date	Lake Merced CSOD #1		Vicente CSOD #2		Lincoln CSOD #3		Mile Rock CSOD #4		Sea Cliff 1 CSOD #5		Sea Cliff O.F. CSOD #6		Sea Cliff 2 CSOD #7		Total Discharge per day	
	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG	hh:mm	Vol MG
1															0:00	0.000
2															0:00	0.000
3															0:00	0.000
4															0:00	0.000
5															0:00	0.000
6															0:00	0.000
7															0:00	0.000
8															0:00	0.000
9															0:00	0.000
10															0:00	0.000
11															0:00	0.000
12															0:00	0.000
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24															0:00	0.000
25															0:00	0.000
26															0:00	0.000
27															0:00	0.000
28															0:00	0.000
29															0:00	0.000
30															0:00	0.000
31															0:00	0.000
Total	**0:00**	**0.00**	**0:00**	**0.00**	**0:00**	**0.00**	**0.00**	**0.00**	**0:00**	**0.00**	**0:00**	**0.00**	**0:00**	**0.000**	**0:00**	**0.000**

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Wastewater Enterprise

Westside Drainage Area - Annual Summary
2017-2018

Month	Rainfall Inches	Maximun Hourly Rainfall Inches	Hours of Rainfall Hours	Estimated Rainfall Volume MG	Flow to Oceanside Plant MG	Decanted Flow to SWOO MG	Estimated CSD Discharge Volume MG	Westside Transport CSD Count
Jul	0.00	0.00	0	0.00	389.55	0.0	0.00	0
Aug	0.00	0.00	0	0.00	400.76	0.0	0.00	0
Sep	0.34	0.30	6	2.31	400.23	0.0	0.00	0
Oct	0.28	0.26	17	15.55	427.11	0.0	0.00	0
Nov								
Dec								
Jan								
Feb								
Mar								
April								
May								
Jun								
Total	**0.62**	**0.56**	**23**	**17.86**	**1617.66**	**0.0**	**0.00**	0
Maximum	0.34	0.30	17	15.55	427.11	0.0	0.00	0

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
October 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Tue/03	Tue/10	Mon/16	Mon/23	Mon/30	30-day Geometric Mean[2]
15	2247	213	52	148	119	820	267
15EAST	10	504	63	31	31	41	48
16	10		10	10	31	52	17
17	< 10		31	31	20	10	18
18	< 10		10	< 10	52	41	18
19	< 10		10	< 10	10	41	13
21.1	< 10		20	31	20	52	23

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/02	Tue/03	Tue/10	Mon/16	Mon/23	Mon/30	30-day Geometric Mean[2]
15	41	20	20	20	31	52	28
15EAST	10	20	10	10	10	10	11
16	< 10		10	10	10	20	11
17	< 10		< 10	< 10	10	< 10	10
18	< 10		< 10	< 10	31	31	16
19	< 10		10	< 10	< 10	10	10
21.1	< 10		< 10	10	< 10	20	11

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Tue/03	Tue/10	Mon/16	Mon/23	Mon/30	30-day Geometric Mean[2]
15	**108**	< 10	< 10	10	< 10	20	17
15EAST	< 10	20	63	< 10	< 10	< 10	15
16	< 10		< 10	< 10	< 10	< 10	10
17	< 10		< 10	< 10	< 10	< 10	10
18	< 10		< 10	< 10	< 10	< 10	10
19	< 10		< 10	< 10	< 10	< 10	10
21.1	< 10		31	< 10	< 10	< 10	13

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	10/19 0.18
China Beach	17	10/20 0.10
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R. Duggan

Law Offices of
Thomas N. Lippe, APC

201 Mission Street
12th Floor
San Francisco, CA 94105

Telephone: 415-777-5604
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September 11, 2020

By Email: *EIR@ucsf.edu*
Ms Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Comprehensive Parnassus Heights Plan Draft Environmental Impact Report: Comments on Water Quality, Water Recreation, and Wastewater Public Services – Exhibit 13c

Dear Ms Wong:

This office represents San Franciscans for Balanced and Livable Communities (San Franciscans), a citizen's group composed of San Francisco residents.

We submitted to you by email a letter of today's date under separate cover regarding "Comments on Water Quality, Water Recreation, and Wastewater Public Services."

Due to the file size of Exhibit 13 to that letter, we are transmitting Exhibit 13 to you by email in three (3) separate electronic files, designated "Exhibit 13a," "Exhibit 13b" and "Exhibit 13c."

Attached, hereto, please find Exhibit 13c (page nos. OSP0138 through OSP0320).

Thank you for your attention to this matter.

Sincerely,

Kelly Marie

Kelly Marie Perry

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EXHIBIT 13c

(page nos. OSP0138 through OSP0320)

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2018 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/02	Wed/03	Thu/04	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12
15	816	1334	10	**24196**	4106	3255	4352	52
15EAST	119	< 10	30	175	988	197	86	41
16	97			109	1607			
17	31			1210				
18	< 10			41				
19	< 10			**> 24196**	6488	771		
21.1	31			985	6488	450		
20				3076	691			
21				**> 24196**	**12997**	2755	171	
22				**> 24196**	1565			

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/02	Wed/03	Thu/04	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12
15	135	52	10	**1291**	171	173	158	< 10
15EAST	84	< 10	10	< 10	259	52	41	10
16	63			10	243			
17	10			161				
18	< 10			< 10				
19	< 10			**> 24196**	**1274**	98		
21.1	10			52	**727**	98		
20				**464**	201			
21				**> 24196**	**1607**	**462**	20	
22				**6131**	262			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Tue/02	Wed/03	Thu/04	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12
15	**183**	**836**	20	**2400**	**223**	**256**	**187**	< 10
15EAST	41	10	10	41	52	10	< 10	10
16	10			**110**	52			
17	< 10			52				
18	< 10			< 10				
19	< 10			**> 24196**	**146**	31		
21.1	10			**368**	**199**	< 10		
20				**144**	41			
21				**17329**	**173**	41	< 10	
22				**3609**	52			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	01/03	0.04	01/08	3.67
China Beach	17	01/04	0.02	01/09	0.39
Ocean Beach	18, 19, 20, 21, 21.1	01/05	0.30	01/10	0.01
Ft. Funston	22				

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/16	Mon/22	Tue/23	Wed/24	Thu/25	Mon/29	30-day Geometric Mean[2]
15	288	9804	1607	9208	7701	2755	1598
15EAST	98	85	134	2382	30	52	104
16	173	52		327		41	154
17	10	*	20			< 10	38
18	75	20				52	32
19	31	63				31	257
21.1	135	31				52	212

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/16	Mon/22	Tue/23	Wed/24	Thu/25	Mon/29	30-day Geometric Mean[2]
15	73	98	52	246	10	52	76
15EAST	20	< 10	< 10	63	< 10	10	22
16	10	20		20		< 10	25
17	10	*	10			< 10	17
18	31	< 10				20	14
19	10	10				10	84
21.1	41	20				< 10	44

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Tue/16	Mon/22	Tue/23	Wed/24	Thu/25	Mon/29	30-day Geometric Mean[2]
15	20	**110**	75	**122**	< 10	20	92
15EAST	< 10	10	< 10	20	98	< 10	17
16	74	< 10		20		< 10	26
17	10	*	< 10			< 10	14
18	10	10				< 10	10
19	31	10				20	68
21.1	10	< 10				< 10	26

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	01/18 0.34 01/25 0.04
China Beach	17	01/22 0.23 01/26 0.01
Ocean Beach	18, 19, 20, 21, 21.1	01/24 0.3
Ft. Funston	22	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* No access to site due to locked gate; sample collected the next day

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

3500 Great Highway
San Francisco, CA 94132
T 415.242.2225

February 1, 2018

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland CA 94612

NPDES/ CA 0037681
2017 Annual Report

RE: Oceanside Water Pollution Control Plant 2017 Annual Self-Monitoring Report

Dear Jessica:

Transmitted herewith is the Annual Self-Monitoring Report for the Oceanside Water Pollution Control Plant (WPCP) for the calendar year 2017.

A. Treatment Plant Compliance and Performance

1. Volume Treated

The Oceanside WPCP treated a total of 6.4 billion gallons of wastewater (combined sanitary, industrial and storm water) in 2017. The average dry weather flow was calculated as 12.9 million gallons per day (MGD), calculated using flows from three consecutive dry weather months (July, August and September).

2. Combined Sewer Discharges

The table below shows the frequency of combined sewer discharges (CSDs) during 2017. A complete wet weather annual report covering the wet weather season from July 2017 through June 2018 will be submitted in July 2018 and will include all the wet weather events for that period.

2017 Combined Sewer Discharge Frequency

	Month											
Basin	J	F	M	A	M	J	J	A	S	O	N	D
Westside T/S Boxes	3	2	2	1	0	0	0	0	0	0	1	0
Seacliff Area	4	3	3	0	0	0	0	0	0	0	1	0

3. Discussion of Treatment Plant Performance and Compliance

The San Francisco Public Utilities Commission (SFPUC) is exempt from submittal of an annual compliance summary table and tabular and graphical summaries of monitoring data because all data for the Oceanside WPCP are reported

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General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

electronically. See Regional Standard Provisions and Monitoring and Reporting Requirements (Supplement to Attachment D), Attachment G (2010) at G-19.

Summary of Compliance

On January 8, 2017, during a wet weather event, the Westside Pump Station experienced a power interruption that intermittently inactivated five lift pumps over a period of approximately 11 hours before the plant staff got them fully operational again. As a result of this event, 8.275 MG was discharged as CSDs through the Westside Transport system that would have otherwise been discharged through the SWOO.

On January 10, 2017, sign posting for a discharge at the Seacliff 2 Pump Station occurred late in the day due to miscommunication with the biology staff.

Sampling for CSD discharges at Vicente, Lincoln and the Seacliff 2 Pump Station on February 7, 2017 was performed but did not result in usable data due to the use of unsterilized sample bottles. These stations were sampled again on February 8, 2017.

A dry weather discharge incident occurred on March 23, 2017 from the Seacliff 1 Pump Station Overflow/Outfall (CSD-005) due to a loss of power to the pump station. The estimated amount discharged through the overflow/outfall was approximately 275-425 gallons of wastewater. A 5-Day Written Report was submitted to Jessica Watkins of the San Francisco Bay Regional Water Quality Control Board on March 28, 2017.

The BOD sample taken on June 21, 2017 had a high concentration of 49 mg/L. The inhibited BOD concentration, however, was 21 mg/L, indicating normal plant function. Actions were taken to address the possible presence of nitrifyers in the sample bottle and on the sampling tube biofilm. Thorough cleaning of the sampling apparatus was initiated immediately and additional samples were taken during the following weeks. These samples were below permit limits.

4. Actions Taken or Planned to Improve Plant Performance & Reliability

The following projects are planned for, underway or recently completed for the Oceanside WPCP and associated collection system:

Temperature-Phased Anaerobic Digestion (TPAD) Conversion: The startup is 75% completed. The SFPUC is undergoing Class A certification from the U.S. EPA in 2018.

WW-625 OSP Flare Control and Stack Upgrade (TF46): The existing waste gas burners will be replaced with two Varec Biogas flares to be located outside of the existing Waste Gas Burner Building 821. The project is 89% complete with the startup of the new flares anticipated in February 2018.

WW-570 OSP & WSS HVAC Upgrades (TF48): This project includes replacement of the existing Heating, Ventilating and Air Conditioning units, associated

ductwork and plumbing modifications and duct cleaning, electrical power, instrumentation and controls, and related equipment structural support work at OSP and Westside Pump Station (WSS). The project is expected to be completed in 2018.

WW-643 OSP Building 620 Safety Improvements (TF92): This project is to replace the digester recirculating pumps in OSP Building 620 with associated mechanical and electrical improvements. A contractor was recently selected for this project with NTP to follow shortly.

WW-648 OSP 042 Primary Clarifier Improvements (TF93): This project is to replace the helical scum skimmers, W3 spray water system, compressed air system, bubbler system, primary influent flowmeter signal converters, 30" effluent butterfly valves, lighting system, piping, valves, fittings and appurtenances. The project is scheduled to be released for bid in FY2019.

WW-606R2 OSP Building 930 Exterior and Awning Improvements (TF67): The scope of this project is to repair and replace the original Oceanside Plant Building 930 1st and 2nd floor awning systems as well as OSP 930 HVAC Improvements, corrosion stain removal, corrosion rehabilitation and electrical lighting replacement. Construction of this project is 34% complete with final completion expected in 2018.

WD-2776 Recycled Water Facility: The project scope is to build a new 3-MGD Recycled Water Facility that will include microfiltration, reverse osmosis, and UV disinfection of the OSP final effluent. The NTP has been issued and the contractor is mobilizing on site.

WW-639 Digester Gas Utilization Project: The project will replace the existing (2) Cogen units with (3) new Cogen units, provide a Digester Gas Conditioning System and relocate the existing boilers. The project is at 100% Design and advertisement is anticipated in March 2018.

JOC-51-05 Repair Air Handling Units (2) in Building 620 Digester Basement: The project has been awarded and material is on order. Completion of the project is anticipated in April 2018.

CWWSIPTPOP06 Odor Control Optimization: The project is at 35% Design and is scheduled for advertisement in Phase 2 of the SSIP.

WW-645 Westside Pump Station Reliability Improvements: The project will increase the size of the Wet Weather Wet Well, provide redundancy for Wet Weather Pumping and add a redundant power feed to Westside Pump Station. The project is at 95% Design and the anticipated project advertisement is scheduled for the beginning of FY19.

5. Effluent Characteristics for Selected Constituents

For this evaluation, all constituents with required minimum sampling frequency of less than once a month that were detected above the method Minimum Levels (ML) were evaluated. Estimated concentrations of constituents detected below the MLs

were excluded from this evaluation because the uncertainty in the result when a constituent is detected below the ML prevents useful comparison.

There were eight constituents detected above the method MLs: Antimony, Cadmium, Chloroform, Chromium III, Copper, Lead, Nickel and Zinc. The 2017 maximum detected level of the eight constituents were compared to the Maximum Effluent Concentration (MEC) as presented in Table F-11 of the Oceanside Permit (Reasonable Potential Analysis). The MECs were used as the general indicators of past performance of the detected constituents.

All eight detected constituents showed decreases or no statistically significant changes or increases compared to the corresponding MECs.

The detected constituents and evaluations are summarized below.

Constituent	Method Minimum Level (ML, µg/L)	2017 Maximum Detected Level (µg/L)	Past Performance[1] (µg/L)	Governing Criterion or Objective (µg/L)	Comment
Antimony	0.5	0.665	0.94	1200	Decrease
Cadmium	0.25	0.304	1.9	1	Decrease
Chloroform	0.5	0.936	9.8	130	Decrease
Chromium III	0.5	1.4	5.4	190000	Decrease
Copper	0.5	17.6	70	3	Decrease
Lead	0.5	0.93	8.6	2	Decrease
Nickel	1	3.85	7.2	5	Decrease
Zinc	1	34.9	146	20	Decrease

[1]The Maximum Effluent Concentration (MEC) as listed in Table F-11. Reasonable Potential Analysis Results for the Discharge Point 001 in the Oceanside Permit, NPDES NO. CA0037681, Order No. R2-2009-0062, is used as an indicator for past performance.

6. Biosolids

In 2017, the Oceanside WPCP beneficially reused 2,965 dry metric tons of biosolids at the following locations:

Location	**Dry Metric Tons**
Land Application	1,465
Solano County Land Application	878
Sacramento County Land Application	587
Landfill Beneficial Use	1,253
Vasco	379
Potrero	866
Altamont	7
Lystek – Liquid Biofertilizer	241
Central Valley Compost	5.5
TOTAL	**2,965**

B. LIST OF APPROVED ANALYSES

See Attachment A for a list of analyses for which the SFPUC is certified.

1. List of Analyses Performed for the Discharger
   - Dioxin, method EPA 1613, Frontier Analytical
   - Semi-volatile Organic Compounds, EPA 625, Caltest Analytical; and
   - Tributyltin by Gas Chromatography/Mass Spectrometry, Eurofins Calscience

2. List of Waived Analyses
   - None

C. Facilities Information

1. Plan View Drawing or Map of Facility

See Attachment B (OSP Site Plan) and Attachment C (OSP Process Diagram).

2. Results of Annual Facility Inspection to Verify Stormwater Pollution Prevention Plan Elements

Oceanside WPCP is exempt from this requirement because it routes all stormwater which falls on the facility property to the headworks of its wastewater treatment plant. See Regional Standard Provisions and Monitoring and Reporting Requirements (Supplement to Attachment D), Attachment G (2010) at G-3.

3. Results of Annual Facility Report Reviews

- **Contingency Plan and Spill Prevention Plan Review**

The SFPUC updated the OSP Contingency Plan in April 2017 and includes a finalized Spill Prevention Plan.

- **O&M Manual Updates**

A comprehensive update of the O&M Manual was completed during 2015-16. As the Temperature-Phased Aerobic Digestion Process got underway, new operating procedures were created and documented.

- **Wastewater Facilities Status Report**

San Francisco is implementing a Wastewater Asset Management Program to enhance reliability of the plant process equipment and optimize its maintenance and operations activities by assessing the criticality of the equipment based on which equipment carries the most risk. Based on the risk of the equipment, the appropriate Maintenance and Repair and Rehabilitation (R&R) Program strategy can enhance plant reliability. Under the process being implemented, the highest risk equipment will have the more rigorous maintenance procedures including Routine and Preventive Maintenance, Condition-based Maintenance and Reliability-Centered Maintenance. The R&R Program sets priorities based on the highest risk equipment and the equipment at the end of its useful life. San Francisco uses a CMMS

(Computerized Maintenance Management Software) to plan, schedule, initiate and track preventive and corrective work and record equipment condition assessments.

- **Status of Special Studies**

All special studies required under the permit have been completed.

- **Collection System Fats, Oils, and Grease (FOG) Update**

Launched in 2007, the SFGreasecycle program aims to minimize the amount of FOG discharged to the sewer system by providing a free waste grease pickup service for commercial establishments and free drop-off services for residents. The program was developed to address both source control, through collection services and public outreach, and end use through the production of biodiesel from waste grease. To date, SFGreasecycle has collected approximately 2.9 million gallons of waste grease from over 1,000 participating food service establishments and 7 residential dropoff points located throughout San Francisco. Since 2007, the program has generated over $4.7 million in revenue for San Francisco and is expected to reduce the annual costs expended on grease related sewer blockages by Sewer Operations Maintenance Crews.

The Food Service Establishments (FSE) currently participating in the program represent approximately 35% of the total number of FSEs in San Francisco. The annual grease collected from commercial FSEs began at 6,000 gallons in 2007, grew to 300,000 gallons in 2011 and has remained steady since. The residential recycling program component has focused on resident outreach and education and now collects over 11,000 gallons a year from 8 convenient dropoff sites located throughout San Francisco at such retail vendors as Whole Foods Market and Costco.

If you have any questions concerning this report, please contact one of the following people: Operations Superintendent, Jeff Yee, 415-242-2225, Supervising Chemist, Lily Chan, 415-242-2204 or Laboratory Manager, Kenneth Lee, 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Jeff Yee

Jeff Yee
Operations Superintendent
Oceanside Water Pollution Control Plant
Wastewater Enterprise

Attachments

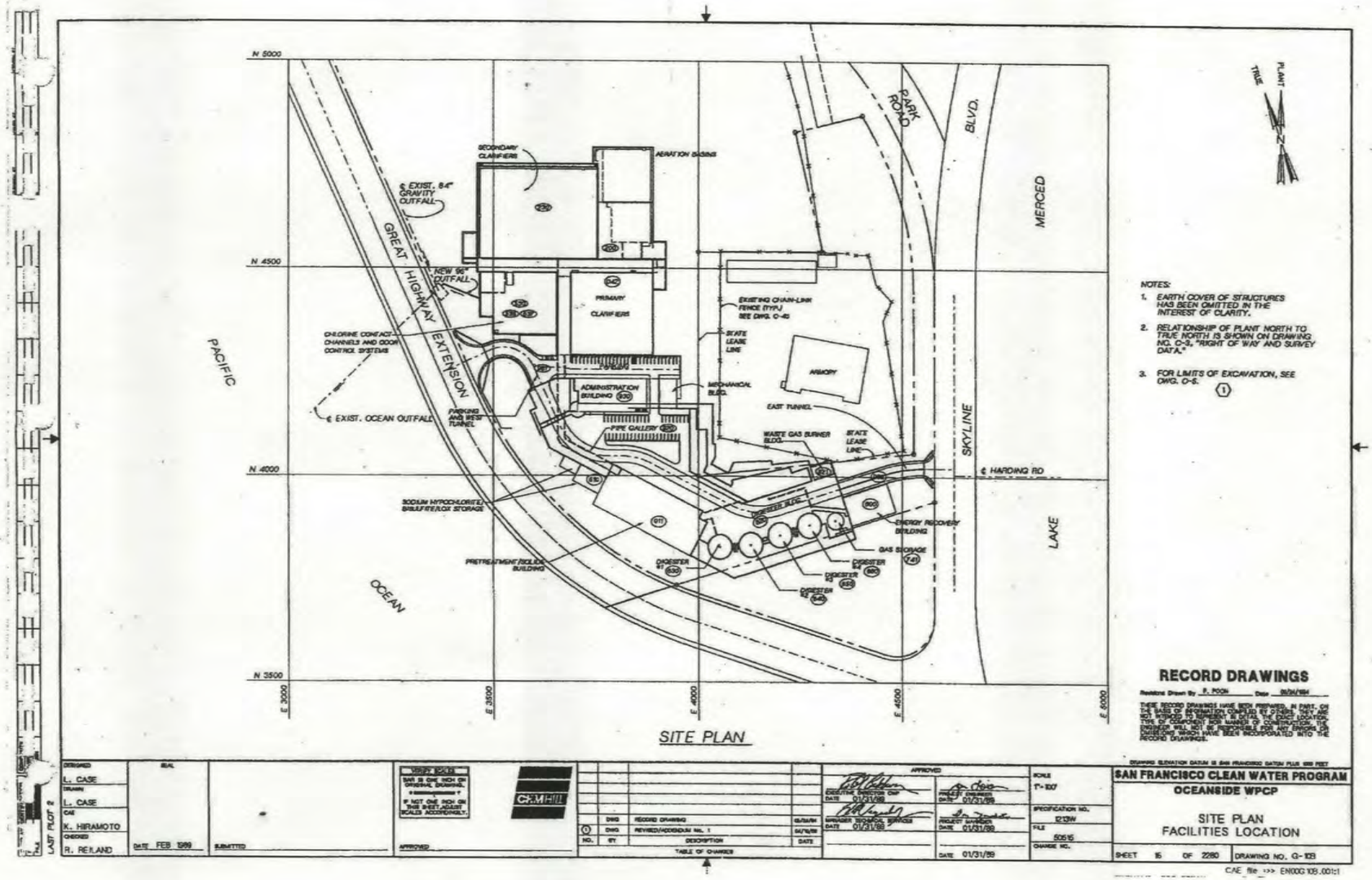
Attachment A – List of Analyses for which the SFPUC is Certified
Attachment B - OSP Site Plan
Attachment C - OSP Process Diagram

References for Analyses Cited

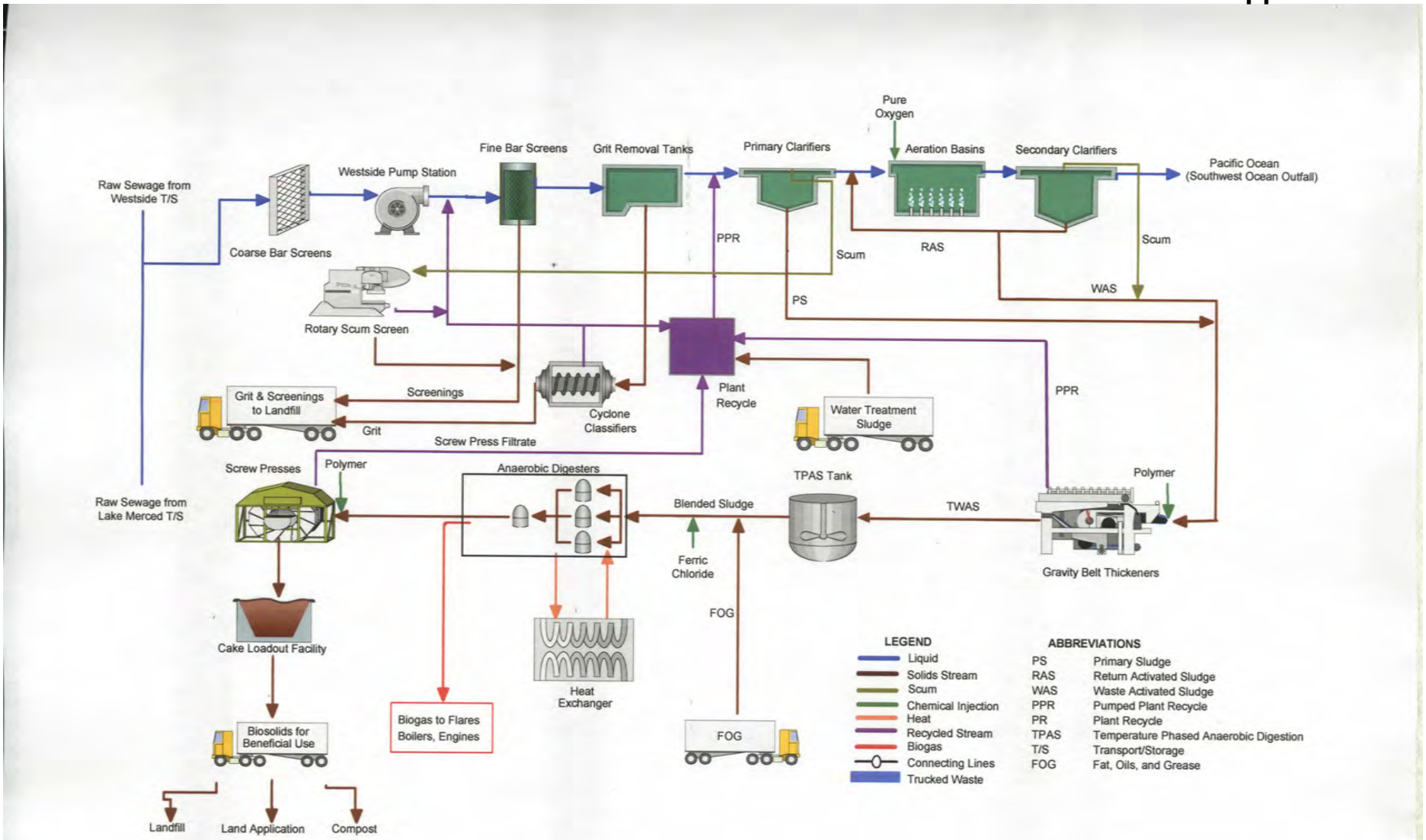
Type of Test	Reference	Method Number
Ammonia	Standard Methods	4500-NH3 B,C
Bioassay	EPA	2019 (EPA-821-R-02-012) 600/R-95/136 Development Test
Biochemical Oxygen Demand	Standard Methods	5210 B
Carbonaceous BOD	Standard Methods	5210 B
Chemical Oxygen Demand	Standard Methods	5220 D/HACH8000
Chlorine Residual	Standard Methods	4500-Cl C
Coliform	Standard Methods	9221 B
Conductivity	Standard Methods	2510 B
Cyanide	Standard Methods	4500-CN^- C & 4500-CN^- E
Enterococci, IDEXX	EPA	Enterolert
Kjeldahl Nitrogen	Standard Methods	4500-NH3 C
Mercury	EPA	1631E/245.1
Metals	EPA	200.7/200.8
Nitrate-nitrite	Standard Methods	4500-$NO3^-$ E
Nitrite	Standard Methods	4500-$NO2^-$ B
Oil & Grease	EPA	1664A
PAH	EPA	625
Pesticide/PCBs	EPA	608
pH	EPA/Standard Methods	150.2/4500-H^+ B
Phosphate, Ortho	Standard Methods	SM4500-P E
Phosphorus, Total	EPA	200.7/HACH8190
Semi -Volatile Organic Compounds	EPA	625
Settleable Solids	Standard Methods	2540 F
Temperature	Standard Methods	2550 B
Total Solids	Standard Methods	2540 B
Total Suspended Solids	Standard Methods	2540 D
Turbidity	Standard Methods	2130 B
Volatile Organic Compounds	EPA	624

Revised 1/8/2018

ATTACHMENT B
Site Plan
Oceanside Water Pollution Control Plant



SITE PLAN



Oceanside Plant Schematic

OSP Process Diagram
Revised August 9, 2017

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681

Facility: OCEANSIDE WWTP

DMR Parameters

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00610	Nitrogen, ammonia total (as N)					52400.0 ug/L Daily Maximum		Annual	COMP24
1	0	03615	2-Methyl-4,6-dinitrophenol					NODI: B Daily Maximum			
1	0	03824	Tributyltin					NODI: B Daily Maximum			
1	0	22456	Polynuclear Aromatic Hydrocarbons (PAHs)					NODI: B Daily Maximum			
1	0	32101	Dichlorobromo methane					NODI: B Daily Maximum			
1	0	32102	Carbon tetrachloride					NODI: B Daily Maximum			
1	0	32103	1,2-Dichloroethane					NODI: B Daily Maximum			
1	0	32105	Dibromochloro methane					NODI: B Daily Maximum			
1	0	32106	Chloroform					0.936 ug/L Daily Maximum		Annual	COMP24
1	0	34010	Toluene					NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34030	Benzene					NODI: B Daily Maximum			
1	0	34210	Acrolein					NODI: B Daily Maximum			
1	0	34215	Acrylonitrile					NODI: B Daily Maximum			
1	0	34273	Bis(2-chloroethyl) ether					NODI: B Daily Maximum			
1	0	34278	Bis(2-chloroethoxy) methane					NODI: B Daily Maximum			
1	0	34283	Bis(2-chloroisopropyl) ether					NODI: B Daily Maximum			
1	0	34301	Chlorobenzene					NODI: B Daily Maximum			
1	0	34336	Diethyl phthalate					NODI: B Daily Maximum			
1	0	34341	Dimethyl phthalate					NODI: B Daily Maximum			
1	0	34346	1,2-Diphenylhydrazine					NODI: B Daily Maximum			
1	0	34371	Ethylbenzene					NODI: B Daily Maximum			
1	0	34376	Fluoranthene					NODI: B Daily Maximum			
1	0	34386	Hexachlorocyclopentadiene					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34391	Hexachlorobutadiene					NODI: B Daily Maximum			
1	0	34396	Hexachloroethane					NODI: B Daily Maximum			
1	0	34408	Isophorone					NODI: B Daily Maximum			
1	0	34423	Methylene chloride					NODI: Q Daily Maximum			
1	0	34428	N-Nitrosodi-N-propylamine					NODI: B Daily Maximum			
1	0	34433	N-Nitrosodiphenylamine					NODI: B Daily Maximum			
1	0	34438	N-Nitrosodimethylamine (NDMA)					NODI: B Daily Maximum			
1	0	34447	Nitrobenzene					NODI: B Daily Maximum			
1	0	34475	Tetrachloroethylene					NODI: B Daily Maximum			
1	0	34501	1,1-Dichloroethylene					NODI: B Daily Maximum			
1	0	34506	1,1,1-Trichloroethane					NODI: B Daily Maximum			
1	0	34511	1,1,2-Trichloroethane					NODI: B Daily Maximum			
1	0	34516	1,1,2,2-Tetrachloroethane					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34571	1,4-Dichlorobenzene					NODI: B Daily Maximum			
1	0	34611	2,4-Dinitrotoluene					NODI: B Daily Maximum			
1	0	34616	2,4-Dinitrophenol					NODI: B Daily Maximum			
1	0	34621	2,4,6-Trichlorophenol					NODI: B Daily Maximum			
1	0	34631	3,3'-Dichlorobenzidine					NODI: B Daily Maximum			
1	0	39100	Bis(2-ethylhexyl) phthalate					NODI: Q Daily Maximum			
1	0	39110	Di-n-butyl phthalate					NODI: B Daily Maximum			
1	0	39120	Benzidine					NODI: B Daily Maximum			
1	0	39175	Vinyl chloride					NODI: B Daily Maximum			
1	0	39180	Trichloroethylene					NODI: B Daily Maximum			
1	0	39330	Aldrin					NODI: B Daily Maximum			
1	0	39350	Chlordane (tech mix. and metabolites)					NODI: B Daily Maximum			
1	0	39379	DDT/DDD/DDE, sum of p,p' & o,p' isomers					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39380	Dieldrin					NODI: B Daily Maximum			
1	0	39388	Endosulfan, total					NODI: B Daily Maximum			
1	0	39390	Endrin					NODI: B Daily Maximum			
1	0	39400	Toxaphene					NODI: B Daily Maximum			
1	0	39410	Heptachlor					NODI: B Daily Maximum			
1	0	39420	Heptachlor epoxide					NODI: B Daily Maximum			
1	0	39516	Polychlorinated biphenyls (PCBs)					NODI: B Daily Maximum			
1	0	39700	Hexachlorobenzene					NODI: B Daily Maximum			
1	0	74015	Phenols, chlorinated					NODI: B Daily Maximum			
1	0	77163	1,3-Dichloropropene					NODI: B Daily Maximum			
1	0	77835	Hexachlorocyclohexane, total					NODI: B Daily Maximum			
1	0	78218	Phenolic compounds, unchlorinated					NODI: B Daily Maximum			
1	0	78456	Halomethanes					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: 001-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	81524	Dichlorobenzene					NODI: B Daily Maximum			
1	0	82698	TCDD equivalents					0.0 ug/L Daily Maximum		Annual	COMP24

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	03615	2-Methyl-4,6-dinitrophenol					NODI: B Daily Maximum			
1	0	03824	Tributyltin					NODI: B Daily Maximum			
1	0	32101	Dichlorobromo methane					NODI: B Daily Maximum			
1	0	32102	Carbon tetrachloride					NODI: B Daily Maximum			
1	0	32103	1,2-Dichloroethane					NODI: B Daily Maximum			
1	0	32105	Dibromochloro methane					NODI: B Daily Maximum			
1	0	32106	Chloroform					NODI: Q Daily Maximum			
1	0	34010	Toluene					0.566 ug/L Daily Maximum		Annual	COMPOS
1	0	34030	Benzene					NODI: B Daily Maximum			
1	0	34210	Acrolein					NODI: B Daily Maximum			
1	0	34215	Acrylonitrile					NODI: B Daily Maximum			
1	0	34273	Bis(2-chloroethyl) ether					NODI: B Daily Maximum			
1	0	34278	Bis(2-chloroethoxy) methane					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34283	Bis(2-chloroisopropyl) ether					NODI: B Daily Maximum			
1	0	34301	Chlorobenzene					NODI: B Daily Maximum			
1	0	34336	Diethyl phthalate					NODI: B Daily Maximum			
1	0	34341	Dimethyl phthalate					NODI: B Daily Maximum			
1	0	34346	1,2-Diphenylhydrazine					NODI: B Daily Maximum			
1	0	34371	Ethylbenzene					NODI: Q Daily Maximum			
1	0	34376	Fluoranthene					NODI: B Daily Maximum			
1	0	34386	Hexachlorocyclopentadiene					NODI: B Daily Maximum			
1	0	34391	Hexachlorobutadiene					NODI: B Daily Maximum			
1	0	34396	Hexachloroethane					NODI: B Daily Maximum			
1	0	34408	Isophorone					NODI: B Daily Maximum			
1	0	34423	Methylene chloride					NODI: Q Daily Maximum			
1	0	34428	N-Nitrosodi-N-propylamine					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34433	N-Nitrosodiphenylamine					NODI: B Daily Maximum			
1	0	34438	N-Nitrosodimethylamine (NDMA)					NODI: B Daily Maximum			
1	0	34447	Nitrobenzene					NODI: B Daily Maximum			
1	0	34475	Tetrachloroethylene					NODI: B Daily Maximum			
1	0	34501	1,1-Dichloroethylene					NODI: B Daily Maximum			
1	0	34506	1,1,1-Trichloroethane					NODI: B Daily Maximum			
1	0	34511	1,1,2-Trichloroethane					NODI: B Daily Maximum			
1	0	34516	1,1,2,2-Tetrachloroethane					NODI: B Daily Maximum			
1	0	34571	1,4-Dichlorobenzene					NODI: B Daily Maximum			
1	0	34611	2,4-Dinitrotoluene					NODI: B Daily Maximum			
1	0	34616	2,4-Dinitrophenol					NODI: B Daily Maximum			
1	0	34621	2,4,6-Trichlorophenol					NODI: B Daily Maximum			
1	0	34631	3,3'-Dichlorobenzidine					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39100	Bis(2-ethylhexyl) phthalate					12.9 ug/L Daily Maximum		Annual	COMPOS
1	0	39110	Di-n-butyl phthalate					NODI: Q Daily Maximum			
1	0	39120	Benzidine					NODI: B Daily Maximum			
1	0	39175	Vinyl chloride					NODI: B Daily Maximum			
1	0	39180	Trichloroethylene					NODI: B Daily Maximum			
1	0	39379	DDT/DDD/DDE, sum of p,p' & o,p' isomers					NODI: B Daily Maximum			
1	0	39388	Endosulfan, total					NODI: B Daily Maximum			
1	0	39516	Polychlorinated biphenyls (PCBs)					NODI: B Daily Maximum			
1	0	39700	Hexachlorobenzene					NODI: B Daily Maximum			
1	0	50060	Chlorine, total residual					NODI: 9 Daily Maximum			
1	0	74015	Phenols, chlorinated					NODI: Q Daily Maximum			
1	0	77163	1,3-Dichloropropene					NODI: B Daily Maximum			
1	0	77835	Hexachlorocyclohexane, total					NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-Y **Monitoring Period:** 01/01/2017 - 12/31/2017

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	78218	Phenolic compounds, unchlorinated					NODI: B Daily Maximum			
1	0	78456	Halomethanes					NODI: B Daily Maximum			
1	0	81524	Dichlorobenzene					NODI: B Daily Maximum			
1	0	82698	TCDD equivalents					0.0 ug/L Daily Maximum		Annual	COMPOS

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

CleanPowerSF
Same Service • Cleaner Energy

Wastewater Enterprise
Oceanside Plant
3500 Great Highway
San Francisco, CA 94132
415.242.2200

March 2, 2018
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Oceanside WPCP
NPDES/CA0037681
Self-Monitoring Report January, 2018

Attention: NPDES Division

Transmitted herein is the Oceanside Water Pollution Control Plant (Oceanside Plant) Self-Monitoring Report (SMR) for January, 2018.

During the month of January, there were eleven days of measurable precipitation totaling 5.35 inches. The Oceanside Plant treated 588.64 million gallons (MG) of wastewater. A total of 221.24 MG of decanted wet weather flow pumped to the Southwest Ocean Outfall (SWOO). The combined sewer discharges (CSDs) during this reporting period are listed below.

Basin	CSDs
Westside T/S Boxes	1
Seacliff Area	1

During the rainstorm on January 8-9, 2018, one of the valves (V3) located between the East and West Transport Storage boxes did not respond to the Distributed Control System and was stuck in an open position. This allowed water to flow between the boxes during the rain event, during which there were CSDs from this Transport/Storage box. On January 10, 2018, staff entered the box and repaired the valve.

If you have any questions concerning this report, please call (415) 920-4600 and enter the appropriate extension number: Operations Superintendent Jeff Yee, x 6-2225, Supervising Chemist Lily Chan, x 6-2220, or Laboratory Manager Kenneth Lee, x 6-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sincerely,

Jeff Yee

Jeff Yee
Operations Superintendent

cc: Distribution List

Mark Farrell
Mayor

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Commissioner

Harlan L. Kelly, Jr.
General Manager

CleanPowerSF is a program of the San Francisco Public Utilities Commission (SFPUC), an enterprise department of the City and County of San Francisco.

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

DMR Parameters

Feature - LS: 001-A **Monitoring Period:** 01/01/2018 - 01/31/2018

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				18.0 mg/L Monthly Average	20.0 mg/L High Weekly Average		Weekly	COMP24
1	0	00400	pH			6.8 SU Minimum		7.2 SU Maximum		Five Per Week	GRAB
1	0	00530	Solids, total suspended				14.0 mg/L Monthly Average	16.0 mg/L High Weekly Average		Five Per Week	COMP24
1	0	50050	Flow, in conduit or thru treatment plant	14.0 Mgal/d Monthly Average	21.1 Mgal/d Daily Maximum					Daily	CONTIN
1	0	71901	Mercury, total recoverable				0.0061 ug/L 6 Month Median	0.0067 ug/L Daily Maximum		Monthly	COMP24
K	0	81010	BOD, 5-day, percent removal			96.0 % Monthly Average Minimum				Monthly	CALCTD
K	0	81011	Solids, suspended percent removal			95.0 % Monthly Average Minimum				Monthly	CALCTD

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2018 - 01/31/2018

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	00310	BOD, 5-day, 20 deg. C				12.0 mg/L Monthly Average	12.0 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00400	pH			7.2 SU Minimum		7.2 SU Maximum		Once Every Occurance	COMP24
1	0	00530	Solids, total suspended				18.0 mg/L Monthly Average	18.0 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00610	Nitrogen, ammonia total (as N)				1.8 mg/L Monthly Average	1.8 mg/L Daily Maximum		Once Every Occurance	COMP24
1	0	00720	Cyanide, total (as CN)				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	00978	Arsenic, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00981	Selenium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	00982	Thallium, total recoverable				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	00998	Beryllium, total recoverable (as Be)				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	01032	Chromium, hexavalent (as Cr)				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01033	Chromium, trivalent (as Cr)				1.1 ug/L Monthly Average	1.1 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01074	Nickel, total recoverable				1.1 ug/L Monthly Average	1.1 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01079	Silver total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2018 - 01/31/2018

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	01094	Zinc, total recoverable				74.8 ug/L Monthly Average	74.8 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01113	Cadmium, total recoverable				NODI: Q Monthly Average	NODI: Q Daily Maximum			
1	0	01114	Lead, total recoverable				3.7 ug/L Monthly Average	3.7 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01119	Copper, total recoverable				13.2 ug/L Monthly Average	13.2 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	01268	Antimony, total recoverable				0.6 ug/L Monthly Average	0.6 ug/L Daily Maximum		Once Every Occurance	COMP24
1	0	03582	Oil and grease				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	22456	Polynuclear Aromatic Hydrocarbons (PAHs)				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	34198	.delta.-BHC				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	34351	Endosulfan sulfate				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	34356	.beta.-Endosulfan				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	34361	.alpha.-Endosulfan				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	34366	Endrin aldehyde				NODI: B Monthly Average	NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2018 - 01/31/2018

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	34671	PCB-1016				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39300	4,4'-DDT				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39310	4,4'-DDD				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39320	4,4'-DDE				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39330	Aldrin				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39336	.alpha.-BHC				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39338	.beta.-BHC				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39344	.gamma.-BHC				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39350	Chlordane (tech mix. and metabolites)				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39380	Dieldrin				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39390	Endrin				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39400	Toxaphene				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39410	Heptachlor				NODI: B Monthly Average	NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: CSD-A **Monitoring Period:** 01/01/2018 - 01/31/2018

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	39420	Heptachlor epoxide				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39488	PCB-1221				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39492	PCB-1232				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39496	PCB-1242				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39500	PCB-1248				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39504	PCB-1254				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	39508	PCB-1260				NODI: B Monthly Average	NODI: B Daily Maximum			
1	0	50050	Flow, in conduit or thru treatment plant	122.32 Mgal/d Monthly Average	244.5 Mgal/d Daily Maximum					Once Every Occurance	CONTIN
1	0	71901	Mercury, total recoverable				NODI: B Monthly Average	NODI: B Daily Maximum			

NPDES Permit #: CA0037681 **Facility:** OCEANSIDE WWTP

Feature - LS: INF-A										**Monitoring Period:** 01/01/2018 - 01/31/2018	
Loc	**Sea**	**Param**	**Param Text**	**Q1**	**Q2**	**C1**	**C2**	**C3**	**Excur Count**	**Analy Freq**	**Sample Type**
G	0	00310	BOD, 5-day, 20 deg. C				417.0 mg/L Monthly Average	769.0 mg/L Daily Maximum		Weekly	COMP24
G	0	00400	pH			6.9 SU Minimum		8.5 SU Maximum		Five Per Week	GRAB
G	0	00530	Solids, total suspended				244.0 mg/L Monthly Average	1155.0 mg/L Daily Maximum		Five Per Week	COMP24
G	0	50050	Flow, in conduit or thru treatment plant	19.0 Mgal/d Monthly Average	56.6 Mgal/d Daily Maximum					Daily	CONTIN

Monthly Wet Weather Summary - Oceanside Basins for January-2018

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.R001	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
1/1/2018	0.00	12.14	12.80	0.00	12.80			0.00		
1/2/2018	0.00	11.82	12.43	0.00	12.43			0.00		
1/3/2018	0.04	16.00	13.72	0.00	13.72			0.09		
1/4/2018	0.02	14.62	15.91	0.00	15.91			0.04		
1/5/2018	0.30	28.05	29.80	8.58	38.39			0.24		
1/6/2018	0.00	18.44	21.13	0.00	21.13			0.00		
1/7/2018	0.00	13.53	14.48	0.00	14.48			0.00		
1/8/2018	3.67	56.55	60.01	104.81	164.82	1	244.50	3.79		
1/9/2018	0.39	42.05	45.85	74.50	120.35			0.31		
1/10/2018	0.01	15.62	16.61	0.00	16.61			0.05		
1/11/2018	0.00	14.77	15.29	0.00	15.29			0.00		
1/12/2018	0.00	11.78	12.30	0.00	12.30			0.00		
1/13/2018	0.00	12.44	12.28	0.00	12.28			0.01		
1/14/2018	0.00	13.46	13.63	0.00	13.63			0.00		
1/15/2018	0.00	11.84	12.07	0.00	12.07			0.00		
1/16/2018	0.00	13.56	13.79	0.00	13.79			0.00		
1/17/2018	0.00	13.31	12.66	0.00	12.66			0.00		
1/18/2018	0.34	35.87	36.20	16.30	52.50			0.38		
1/19/2018	0.00	17.78	19.46	0.00	19.46			0.01		
1/20/2018	0.00	13.96	13.10	0.00	13.10			0.00		
1/21/2018	0.00	14.99	14.21	0.00	14.21			0.01		
1/22/2018	0.23	34.51	36.62	0.00	36.62			0.36		
1/23/2018	0.00	17.47	17.36	0.00	17.36			0.00		
1/24/2018	0.30	30.78	30.85	17.06	47.91			0.65	1	0.13
1/25/2018	0.04	25.44	27.02	0.00	27.02			0.01		
1/26/2018	0.01	12.99	13.39	0.00	13.39			0.00		
1/27/2018	0.00	14.30	13.48	0.00	13.48			0.00		
1/28/2018	0.00	12.19	12.40	0.00	12.40			0.00		
1/29/2018	0.00	14.36	13.68	0.00	13.68			0.00		
1/30/2018	0.00	12.62	12.70	0.00	12.70			0.00		
1/31/2018	0.00	11.40	11.92	0.00	11.92			0.00		

TOTAL MONTHLY	5.35	588.64	607.16	221.24	828.40	1	244.50	5.95	1	0.13
MONTHLY AVERAGE FLOW (MGD)	-	18.99	19.59	44.25	26.72	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	11.40	11.92	0.00	11.92	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	56.55	60.01	104.81	164.82	-	-	-	-	-

Oceanside Basin CSD Summary
Jan-2018

Date	Total Rain (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
1/1/2018	0.00																		
1/2/2018	0.00																		
1/3/2018	0.04																		
1/4/2018	0.02																		
1/5/2018	0.30																		
1/6/2018	0.00																		
1/7/2018	0.00																		
1/8/2018	3.67	8:38 AM	893	13.84	9:14 AM	1154	73.23	9:14 AM	1154	157.43									
1/9/2018	0.39																		
1/10/2018	0.01																		
1/11/2018	0.00																		
1/12/2018	0.00																		
1/13/2018	0.00																		
1/14/2018	0.00																		
1/15/2018	0.00																		
1/16/2018	0.00																		
1/17/2018	0.00																		
1/18/2018	0.34																		
1/19/2018	0.00																		
1/20/2018	0.00																		
1/21/2018	0.00																		
1/22/2018	0.23																		
1/23/2018	0.00																		
1/24/2018	0.30																2:11 PM	15	0.13
1/25/2018	0.04																		
1/26/2018	0.01																		
1/27/2018	0.00																		
1/28/2018	0.00																		
1/29/2018	0.00																		
1/30/2018	0.00																		
1/31/2018	0.00																		
TOTAL	**5.35**	-	**893**	**13.84**	-	**1154**	**73.23**	-	**1154**	**157.43**	-	**0**	**0.00**	-	**0**	**0.00**	-	**15**	**0.13**

Annual Wet Weather Summary - Oceanside Basins for 2017-2018

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	389.59	412.94	0.00	412.94	0	0.00	0.00	0	0.00
August	0.05	401.07	403.01	0.00	403.01	0	0.00	0.03	0	0.00
September	0.40	400.61	419.79	0.00	419.79	0	0.00	0.18	0	0.00
October	0.28	427.07	443.55	0.00	443.55	0	0.00	0.12	0	0.00
November	3.27	546.93	584.18	133.08	717.26	1	14.79	3.01	1	<0.01
December	0.16	413.52	429.51	<0.01	429.51	0	0.00	0.00	0	0.00
January	5.35	588.64	607.16	221.24	828.40	1	244.50	5.95	1	0.13
February										
March										
April										
May										
June										
TOTAL	9.51	3167.43	3300.13	354.33	3654.46	2	259.29	9.29	2	0.14

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2018 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/02	Wed/03	Thu/04	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12
15	816	1334	10	**24196**	4106	3255	4352	52
15EAST	119	< 10	30	175	988	197	86	41
16	97			109	1607			
17	31			1210				
18	< 10			41				
19	< 10			> **24196**	6488	771		
21.1	31			985	6488	450		
20				3076	691			
21				> **24196**	**12997**	2755	171	
22				> **24196**	1565			

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/02	Wed/03	Thu/04	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12
15	135	52	10	**1291**	171	173	158	< 10
15EAST	84	< 10	10	< 10	259	52	41	10
16	63			10	243			
17	10			161				
18	< 10			< 10				
19	< 10			> **24196**	**1274**	98		
21.1	10			52	**727**	98		
20				**464**	201			
21				> **24196**	**1607**	**462**	20	
22				**6131**	262			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Tue/02	Wed/03	Thu/04	Mon/08	Tue/09	Wed/10	Thu/11	Fri/12
15	**183**	**836**	20	**2400**	**223**	**256**	**187**	< 10
15EAST	41	10	10	41	52	10	< 10	10
16	10			**110**	52			
17	< 10			52				
18	< 10			< 10				
19	< 10			> **24196**	**146**	31		
21.1	10			**368**	**199**	< 10		
20				**144**	41			
21				**17329**	**173**	41	< 10	
22				**3609**	52			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	01/03 0.04 01/08 3.67
China Beach	17	01/04 0.02 01/09 0.39
Ocean Beach	18, 19, 20, 21, 21.1	01/05 0.30 01/10 0.01
Ft. Funston	22	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/16	Mon/22	Tue/23	Wed/24	Thu/25	Mon/29	30-day Geometric Mean[2]
15	288	9804	1607	9208	7701	2755	1598
15EAST	98	85	134	2382	30	52	104
16	173	52		327		41	154
17	10	*	20			< 10	38
18	75	20				52	32
19	31	63				31	257
21.1	135	31				52	212

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Tue/16	Mon/22	Tue/23	Wed/24	Thu/25	Mon/29	30-day Geometric Mean[2]
15	73	98	52	246	10	52	76
15EAST	20	< 10	< 10	63	< 10	10	22
16	10	20		20		< 10	25
17	10	*	10			< 10	17
18	31	< 10				20	14
19	10	10				10	84
21.1	41	20				< 10	44

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Tue/16	Mon/22	Tue/23	Wed/24	Thu/25	Mon/29	30-day Geometric Mean[2]
15	20	**110**	75	**122**	< 10	20	92
15EAST	< 10	10	< 10	20	98	< 10	17
16	74	< 10		20		< 10	26
17	10	*	< 10			< 10	14
18	10	10				< 10	10
19	31	10				20	68
21.1	10	< 10				< 10	26

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	01/18 0.34 01/25 0.04
China Beach	17	01/22 0.23 01/26 0.01
Ocean Beach	18, 19, 20, 21, 21.1	01/24 0.30
Ft. Funston	22	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* No access to site due to locked gate; sample collected the next day

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by R Duggan

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2019038

INF-001A	pH	Daily Maximum	=	8.2	SU	03/23/2018	None
INF-001A	pH	Monthly Minimum	=	7	SU	03/26/2018	None
INF-001B	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Daily Maximum	=	230	mg/L	03/12/2018	None
INF-001B	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Monthly Average (Mean)	=	198	mg/L	03/31/2018	None
INF-001B	Flow	Daily Maximum	=	54	MGD	03/01/2018	None
INF-001B	Flow	Monthly Discharge	=	370.02	MGM	03/17/2018	None
INF-001B	Flow	Daily Minimum	=	25.05	MGD	03/17/2018	None
INF-001B	Flow	Monthly Average (Mean)	=	37	MGD	03/31/2018	None
INF-001B	Total Suspended Solids (TSS)	Daily Maximum	=	262	mg/L	03/21/2018	None
INF-001B	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	120	mg/L	03/31/2018	None
INF-001B	pH	Daily Maximum	=	8	SU	03/20/2018	None
INF-001B	pH	Monthly Minimum	=	6.8	SU	03/22/2018	None

Total Calculated Data Points: 42

Violations

Violation ID	Violation Date	Violation Type	Description(-)	Corrective Action	Created By	Last Modified By
1043973	03/17/2018	Category 1 Pollutant (Effluent Violation for Group 1 Pollutant)	Total Suspended Solids (TSS) Weekly Average limit is 45 mg/L and reported value was 67 mg/L at EFF-001A.	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
OSP Shoreline 201803.pdf	Shoreline Report	41 KB

Total Attachments: 1

Cover Letter

File Name
OSP-03-2018_SMR_Final.pdf

Total No. of Cover Letter Files: 1 **Cover Leter Text: No**

The current report was generated with data as of: 08/26/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
Operations Division
3500 Great Highway
San Francisco, CA 94123
T (415) 242-2200

April 30, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Oceanside WPCP
NPDES/CA037681
Monitoring Report
March 2018

Attention: NPDES Division

Transmitted herewith is the Oceanside Water Pollution Control Plant (OSP) March, 2018 Monthly Self-Monitoring Report (SMR) for March, 2018.

The combined sewer discharges (CSDs) during this reporting period are listed below.

During the week of March 11-17, 2018, the Oceanside plant's weekly total suspended solids (TSS) average was 67 mg/L, exceeding the permit limit of 45 mg/L. As part of the Oceanside plant's new flare construction project the current flare had to be shutdown on March 13 to tie in the natural gas line to the new system. During this phase of construction, therefore, the digester gas could not be flared. To minimize the potential for digester gas production that would have required venting directly to the atmosphere, solids were intentionally held back in primary and secondary to avoid minimize the generation of digester biogas. Under normal dry weather flows, the secondary system could have handled the solids accumulation. However, the plant experienced a multiple day wet weather event during which the secondary influent flow was maxed out to 43 MGD. The hydraulic surge led to biological solids entrainment in the final effluent on March 14th. Although these were unusual circumstances, the addition of polymer might have helped reduce TSS, so staff will be further trained on triggers to implement a polymer drip as a measure to help avoid future TSS issues.

Basin	CSDs
Westside T/S Boxes	0
Seacliff Area	1

If you have any questions concerning this report, please call: Superintendent, Dale Miller, at 415-850-6622, Supervising Chemist, Lily Chan, at 415-242-2220, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and

Mark Farrell
Mayor
Ike Kwon
President
Vince Courtney
Vice President
Ann Moller Caen
Commissioner
Francesca Vietor
Commissioner
Anson Moran
Commissioner
Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Superintendent, Operations

cc: Distribution List
File

Annual Wet Weather Summary - Oceanside Basins for 2017-2018											
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	389.59	412.94	0.00	412.94	0	0.00	0.00	0	0.00
August	0.05	401.07	403.01	0.00	403.01	0	0.00	0.03	0	0.00
September	0.40	400.61	419.79	0.00	419.79	0	0.00	0.18	0	0.00
October	0.28	427.07	443.55	0.00	443.55	0	0.00	0.12	0	0.00
November	3.27	546.93	584.18	133.08	717.26	1	14.79	3.01	1	<0.01
December	0.16	413.52	429.51	<0.01	429.51	0	0.00	0.00	0	0.00
January	5.35	588.64	607.16	221.24	828.40	1	244.50	5.95	1	0.13
February	0.45	389.63	395.31	0.00	395.31	0	0.00	0.33	0	0.00
March	4.16	685.02	698.38	199.04	897.43	0	0.00	5.22	1	0.10
April										
May										
June										
TOTAL	14.12	4242.08	4393.83	553.37	4947.20	2	259.29	14.84	3	0.24

Monthly Wet Weather Summary - Oceanside Basins for March-2018

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.R001	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
3/1/2018	0.89	54.04	57.05	71.73	128.78			1.03	1	0.10
3/2/2018	0.18	34.69	37.10	0.00	37.10			0.20		
3/3/2018	0.06	15.33	15.62	0.00	15.62			0.07		
3/4/2018	0.03	17.03	17.04	0.00	17.04			0.02		
3/5/2018	0.00	13.20	12.58	0.00	12.58			0.00		
3/6/2018	0.00	15.03	13.63	0.00	13.63			0.00		
3/7/2018	0.02	12.41	12.24	0.00	12.24			0.04		
3/8/2018	0.06	17.61	17.80	0.00	17.80			0.07		
3/9/2018	0.00	13.80	13.47	0.00	13.47			0.00		
3/10/2018	0.00	11.97	11.72	0.00	11.72			0.01		
3/11/2018	0.00	12.74	12.35	0.00	12.35			0.00		
3/12/2018	0.04	25.36	23.61	0.00	23.61			0.18		
3/13/2018	0.59	40.55	42.42	28.29	70.71			0.62		
3/14/2018	0.04	39.79	42.05	0.00	42.05			0.58		
3/15/2018	0.40	26.04	26.64	8.66	35.30			0.35		
3/16/2018	0.21	35.45	37.77	19.0	56.76			0.16		
3/17/2018	0.22	25.05	25.52	0.00	25.52			0.10		
3/18/2018	0.00	14.30	14.17	0.00	14.17			0.00		
3/19/2018	0.00	12.46	12.50	0.00	12.50			0.00		
3/20/2018	0.61	34.06	34.73	17.45	52.17			0.64		
3/21/2018	0.28	46.06	48.38	31.07	79.46			0.60		
3/22/2018	0.45	48.72	52.41	22.84	75.25			0.43		
3/23/2018	0.00	13.87	13.01	0.00	13.01			0.00		
3/24/2018	0.04	13.36	13.47	0.00	13.47			0.06		
3/25/2018	0.04	17.31	17.80	0.00	17.80			0.06		
3/26/2018	0.00	12.82	13.11	0.00	13.11			0.00		
3/27/2018	0.00	12.23	12.84	0.00	12.84			0.00		
3/28/2018	0.00	5.18	4.35	0.00	4.35			0.00		
3/29/2018	0.00	18.45	18.26	0.00	18.26			0.00		
3/30/2018	0.00	14.06	13.21	0.00	13.21			0.00		
3/31/2018	0.00	12.04	11.55	0.00	11.55			0.00		

TOTAL MONTHLY	4.16	685.02	698.38	199.04	897.43	0	0.00	5.22	1	0.10
MONTHLY AVERAGE FLOW (MGD)	-	22.10	22.53	28.43	28.95	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	5.18	4.35	0.00	4.35	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	54.04	57.05	71.73	128.78	-	-	-	-	-

Oceanside Basin CSD Summary
Mar-2018

Date	Total Rain (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2018	0.89																9:53 AM	13	0.10
3/2/2018	0.18																		
3/3/2018	0.06																		
3/4/2018	0.03																		
3/5/2018	0.00																		
3/6/2018	0.00																		
3/7/2018	0.02																		
3/8/2018	0.06																		
3/9/2018	0.00																		
3/10/2018	0.00																		
3/11/2018	0.00																		
3/12/2018	0.04																		
3/13/2018	0.59																		
3/14/2018	0.04																		
3/15/2018	0.40																		
3/16/2018	0.21																		
3/17/2018	0.22																		
3/18/2018	0.00																		
3/19/2018	0.00																		
3/20/2018	0.61																		
3/21/2018	0.28																		
3/22/2018	0.45																		
3/23/2018	0.00																		
3/24/2018	0.04																		
3/25/2018	0.04																		
3/26/2018	0.00																		
3/27/2018	0.00																		
3/28/2018	0.00																		
3/29/2018	0.00																		
3/30/2018	0.00																		
3/31/2018	0.00																		
TOTAL	**4.16**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**13**	**0.10**

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
Operations Division
3500 Great Highway
San Francisco, CA 94123
T (415) 242-2200

May 25, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Oceanside WPCP
NPDES/CA0037681
Monitoring Report
April 2018

Attention: NPDES Division

Transmitted herewith is the Oceanside Water Pollution Control Plant (OSP) April, 2018 Monthly Self-Monitoring Report (SMR).

The Oceanside Plant treated 524.21 million gallons (MG) of wastewater. An AT&T communications interruption with Sea Cliff 2 pump station occurred prior to the rain event of April 6th. In response, Operations staffed the pump station, beginning in advance of the rain. Logbook entries indicate combined sewer discharges (CSD) occurred on April 6th and April 7th. Although staff recorded the start times of the CSDs, they did not note the end times (which prevented duration and volume estimations). Communications were restored after the rain event using a wireless communication system; in addition, a fiber optics line is in the process of being installed. Prior to the start of next wet weather season, Operations staff will be provided with refresher training regarding the need to have discharge beginning and end times to comply with duration and volume reporting requirements.

During the April 6th combined sewer discharge event, staff collected a sample at Monitoring Point EFF-CSD (located at Westside Pump Station). Sample volume was insufficient to perform all required analyses. Laboratory staff analyzed the sample for BOD5, total suspended solids, ammonia, pH, and Table 1 inorganics, but were unable to analyze for oil & grease, pesticides and PCBs, and PAHs as identified in the NPDES permit. Staff are currently investigating how to modify the current sampler system to retrieve larger sample volumes at an increased frequency.

From April 17th through April 20th, the flow rate data for the final effluent was not collected continuously. Construction for the Westside Enhanced Water Recycling Project required relocation of the data communication lines used for the final effluent flow meter. Continuous flow rate monitoring was re-established on April 20th at 12:00 p.m. Final effluent flow rates have been estimated by using flow rate data for the secondary clarification influent.

The combined sewer discharges (CSDs) during this reporting period are listed below.

Basin	CSDs
Westside T/S Boxes	1
Seacliff Area	2

Mark Farrell
Mayor
Ike Kwon
President
Vince Courtney
Vice President
Ann Moller Caen
Commissioner
Francesca Vietor
Commissioner
Anson Moran
Commissioner
Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

If you have any questions concerning this report, please call: Superintendent, Dale Miller, at 415-850-6622, Supervising Chemist, Lily Chan, at 415-242-2220, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Operations

cc: Distribution List
File

Annual Wet Weather Summary - Oceanside Basins for 2017-2018											
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	389.59	412.94	0.00	412.94	0	0.00	0.00	0	0.00
August	0.05	401.07	403.01	0.00	403.01	0	0.00	0.03	0	0.00
September	0.40	400.61	419.79	0.00	419.79	0	0.00	0.18	0	0.00
October	0.28	427.07	443.55	0.00	443.55	0	0.00	0.12	0	0.00
November	3.27	546.93	584.18	133.08	717.26	1	14.79	3.01	1	<0.01
December	0.16	413.52	429.51	<0.01	429.51	0	0.00	0.00	0	0.00
January	5.35	588.64	607.16	221.24	828.40	1	244.50	5.95	1	0.13
February	0.45	389.63	395.31	0.00	395.31	0	0.00	0.33	0	0.00
March	4.16	685.02	698.38	199.04	897.43	0	0.00	5.22	1	0.10
April	3.81	528.94	524.21	190.78	714.98	1	27.08	4.63	2	N/A See Note 2
May										
June										
TOTAL	17.93	4771.02	4918.04	744.15	5662.19	3	286.37	19.47	5	0.24

Notes:

1. WSPS Pumping to SWOO is set to 0 between 4/11/18 and 4/19/18 as per Ops (Mark Lauer)
2. A communication issue between sensors at CSD 006 and CSD 007 was identified April 1 by Ops . Per Ops (Dale Miller), the site was manned 24/7 and the start time of CSDs was logged. Discharge duration or end time were not logged.
3. OSP Effluent for 4/17 to 4/20 was estimated using a linear regression method approved by Ops (Dale Miller)

Monthly Wet Weather Summary - Oceanside Basins for April-2018

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
4/1/2018	0.00	13.20	11.84	0.00	11.84			0.00		
4/2/2018	0.00	12.36	12.33	0.00	12.33			0.00		
4/3/2018	0.00	12.93	12.20	0.00	12.20			0.00		
4/4/2018	0.00	12.88	11.37	0.00	11.37			0.00		
4/5/2018	0.16	16.36	14.69	0.00	14.69			0.15		
4/6/2018	2.01	60.01	62.85	110.51	173.35	1	27.08	2.79	1	N/A (See Note 2)
4/7/2018	1.13	56.19	59.28	80.27	139.55			1.34	1	N/A (See Note 2)
4/8/2018	0.00	13.82	13.96	0.00	13.96			0.00		
4/9/2018	0.00	16.02	16.16	0.00	16.16			0.00		
4/10/2018	0.00	12.16	12.04	0.00	12.04			0.00		
4/11/2018	0.19	20.51	20.36	0.00	20.36			0.11		
4/12/2018	0.00	20.45	21.14	0.00	21.14			0.00		
4/13/2018	0.00	11.67	11.67	0.00	11.67			0.00		
4/14/2018	0.00	13.16	12.83	0.00	12.83			0.00		
4/15/2018	0.22	26.33	26.16	0.00	26.16			0.17		
4/16/2018	0.10	27.00	28.11	0.00	28.11			0.07		
4/17/2018	0.00	12.41	12.25	0.00	12.25			0.00		
4/18/2018	0.00	12.95	12.55	0.00	12.55			0.00		
4/19/2018	0.00	12.80	12.79	0.00	12.79			0.00		
4/20/2018	0.00	13.55	12.75	0.00	12.75			0.00		
4/21/2018	0.00	13.12	12.62	0.00	12.62			0.00		
4/22/2018	0.00	12.80	12.68	0.00	12.68			0.00		
4/23/2018	0.00	12.86	12.62	0.00	12.62			0.00		
4/24/2018	0.00	11.96	11.71	0.00	11.71			0.00		
4/25/2018	0.00	13.33	13.48	0.00	13.48			0.00		
4/26/2018	0.00	13.28	13.52	0.00	13.52			0.00		
4/27/2018	0.00	12.88	12.90	0.00	12.90			0.00		
4/28/2018	0.00	12.60	11.44	0.00	11.44			0.00		
4/29/2018	0.00	14.75	12.85	0.00	12.85			0.00		
4/30/2018	0.00	14.60	13.07	0.00	13.07			0.00		
TOTAL MONTHLY	3.81	528.94	524.21	190.78	714.98	1	27.08	4.63	2	0.00
MONTHLY AVERAGE FLOW (MGD)	-	17.63	17.47	95.39	23.83	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	11.67	11.37	0.00	11.37	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	60.01	62.85	110.51	173.35	-	-	-	-	-

Notes:

1. WSPS Pumping to SWOO is set to 0 between 4/11/18 and 4/19/18 as per Ops (Mark Lauer)
2. A communication issue between sensors at CSD 006 and CSD 007 was identified April 1 by Ops . Per Ops (Dale Miller), the site was manned 24/7 and the start time of CSDs was logged. Discharge duration or end time were not logged.
3. OSP Effluent for 4/17 to 4/20 was estimated using a linear regression method approved by Ops (Dale Miller)

Oceanside Basin CSD Summary
Apr-2018

Date	Total Rain (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2018	0.00																		
4/2/2018	0.00																		
4/3/2018	0.00																		
4/4/2018	0.00																		
4/5/2018	0.16																		
4/6/2018	2.01	7:40 PM	506	4.77	7:49 PM	325	7.08	7:49 PM	325	15.23							6:49 PM	Not Available	Not Available
4/7/2018	1.13																1:28 AM	Not Available	Not Available
4/8/2018	0.00																		
4/9/2018	0.00																		
4/10/2018	0.00																		
4/11/2018	0.19																		
4/12/2018	0.00																		
4/13/2018	0.00																		
4/14/2018	0.00																		
4/15/2018	0.22																		
4/16/2018	0.10																		
4/17/2018	0.00																		
4/18/2018	0.00																		
4/19/2018	0.00																		
4/20/2018	0.00																		
4/21/2018	0.00																		
4/22/2018	0.00																		
4/23/2018	0.00																		
4/24/2018	0.00																		
4/25/2018	0.00																		
4/26/2018	0.00																		
4/27/2018	0.00																		
4/28/2018	0.00																		
4/29/2018	0.00																		
4/30/2018	0.00																		
	0.00																		
TOTAL	3.81	-	506	4.77	-	325	7.08	-	325	15.23	-	0	0.00	-	0	0.00	-	0	0.00

Notes:

1. WSPS Pumping to SW00 is set to 0 between 4/11/18 and 4/19/18 as per Ops (Mark Lauer)
2. A communication issue between sensors at CSD 006 and CSD 007 was identified April 1 by Ops . Per Ops (Dale Miller), the site was manned 24/7 and the start time of CSDs was logged. Discharge duration or end time were not logged.
3. OSP Effluent for 4/17 to 4/20 was estimated using a linear regression method approved by Ops (Dale Miller)

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
April/May 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon 4/30	Tues/01	Mon/07	Mon/14	Mon/21	Tues/29	30-day Geometric Mean[2]
15	697	5475	5475	3873	457	7701	2565
15EAST	120	20	74	31	121	30	52
16	10		10	10	31	< 10	13
17	< 10		< 10	41	31	< 10	17
18	< 10		< 10	< 10	10	< 10	10
19	20		< 10	< 10	< 10	< 10	11
21.1	20		< 10	< 10	< 10	10	11

Sampling/Posting issues
None

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon 4/30	Tues/01	Mon/07	Mon/14	Mon/21	Tues/29	30-day Geometric Mean[2]
15	10	63	41	75	20	10	27
15EAST	10	< 10	10	< 10	< 10	< 10	10
16	< 10		< 10	10	< 10	< 10	10
17	< 10		< 10	41	20	< 10	15
18	< 10		< 10	< 10	10	< 10	10
19	10		< 10	< 10	< 10	< 10	10
21.1	< 10		< 10	< 10	< 10	< 10	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon 4/30	Tues/01	Mon/07	Mon/14	Mon/21	Tues/29	30-day Geometric Mean[2]
15	**231**	52	41	41	10	20	40
15EAST	< 10	< 10	< 10	< 10	< 10	< 10	10
16	< 10		< 10	< 10	< 10	< 10	10
17	< 10		< 10	< 10	< 10	< 10	10
18	< 10		< 10	< 10	< 10	< 10	10
19	< 10		< 10	< 10	< 10	< 10	10
21.1	< 10		20	< 10	< 10	< 10	11

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Baker Beach	15, 15EAST, 16	05/09 0.01
China Beach	17	05/23 0.01
Ocean Beach	18, 19, 21.1	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: D O'Donohue

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Oceanside Plant
Operations Division
3500 Great Highway
San Francisco, CA 94123
T (415) 242-2200

June 27, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Oceanside WPCP
NPDES/CA037681
Monitoring Report
May 2018

Attention: NPDES Division

Transmitted herewith is the Oceanside Water Pollution Control Plant (OSP) May 2018 Monthly Self-Monitoring Report.

This monthly Shoreline Bacteriological Report contains data for April 30, 2018, which was inadvertently omitted from the April 2018 SMR.

The combined sewer discharges (CSDs) during this reporting period are listed below.

Basin	CSDs
Westside T/S Boxes	0
Seacliff Area	0

If you have any questions concerning this report, please call: Superintendent, Dale Miller, at 415-850-6622, Supervising Chemist, Lily Chan, at 415-242-2220, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Operations

cc: Distribution List
File

Mark Farrell Mayor
Ike Kwon President
Vince Courtney Vice President
Ann Moller Caen Commissioner
Francesca Vietor Commissioner
Anson Moran Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Annual Wet Weather Summary - Oceanside Basins for 2017-2018										
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.R001	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	389.59	412.94	0.00	412.94	0	0.00	0.00	0	0.00
August	0.05	401.07	403.01	0.00	403.01	0	0.00	0.03	0	0.00
September	0.40	400.61	419.79	0.00	419.79	0	0.00	0.18	0	0.00
October	0.28	427.07	443.55	0.00	443.55	0	0.00	0.12	0	0.00
November	3.27	546.93	584.18	133.08	717.26	1	14.79	3.01	1	<0.01
December	0.16	413.52	429.51	<0.01	429.51	0	0.00	0.00	0	0.00
January	5.35	588.64	607.16	221.24	828.40	1	244.50	5.95	1	0.13
February	0.45	389.63	395.31	0.00	395.31	0	0.00	0.33	0	0.00
March	4.16	685.02	698.38	199.04	897.43	0	0.00	5.22	1	0.10
April	3.81	528.94	524.21	190.78	714.98	1	27.08	4.63	2	N/A See Note1
May	0.02	401.60	393.21	0.00	393.21	0	0.00	0.03	0	0.00
June										
TOTAL	17.95	5172.62	5311.25	744.15	6055.40	3	286.37	19.50	5	0.24

Notes:

1 A communication issue between sensors at CSD 006 and CSD 007 was identified April 1 by Ops . Per Ops (Dale Miller), the site was manned 24/7 and the start time of CSDs was logged. Discharge duration or end time were not logged.

Monthly Wet Weather Summary - Oceanside Basins for May-2018

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff .Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
5/1/2018	0.00	14.78	12.43	0.00	12.43			0.00		
5/2/2018	0.00	14.02	12.75	0.00	12.75			0.00		
5/3/2018	0.00	13.34	12.38	0.00	12.38			0.00		
5/4/2018	0.00	13.47	13.03	0.00	13.03			0.00		
5/5/2018	0.00	13.28	12.09	0.00	12.09			0.00		
5/6/2018	0.00	12.79	12.74	0.00	12.74			0.00		
5/7/2018	0.00	13.75	13.83	0.00	13.83			0.00		
5/8/2018	0.00	12.09	12.74	0.00	12.74			0.00		
5/9/2018	0.01	12.94	12.91	0.00	12.91			0.00		
5/10/2018	0.00	13.57	12.56	0.00	12.56			0.00		
5/11/2018	0.00	12.70	12.61	0.00	12.61			0.00		
5/12/2018	0.00	12.87	12.43	0.00	12.43			0.00		
5/13/2018	0.00	13.89	12.73	0.00	12.73			0.00		
5/14/2018	0.00	12.46	12.74	0.00	12.74			0.00		
5/15/2018	0.00	13.56	12.30	0.00	12.30			0.00		
5/16/2018	0.00	12.25	12.26	0.00	12.26			0.00		
5/17/2018	0.00	12.43	12.25	0.00	12.25			0.00		
5/18/2018	0.00	13.96	12.55	0.00	12.55			0.00		
5/19/2018	0.00	12.29	12.79	0.00	12.79			0.00		
5/20/2018	0.00	13.15	12.75	0.00	12.75			0.00		
5/21/2018	0.00	12.21	12.66	0.00	12.66			0.00		
5/22/2018	0.00	12.94	13.48	0.00	13.48			0.00		
5/23/2018	0.01	14.54	14.98	0.00	14.98			0.03		
5/24/2018	0.00	13.15	12.65	0.00	12.65			0.00		
5/25/2018	0.00	12.78	12.38	0.00	12.38			0.00		
5/26/2018	0.00	12.64	13.07	0.00	13.07			0.00		
5/27/2018	0.00	10.79	11.24	0.00	11.24			0.00		
5/28/2018	0.00	12.35	12.54	0.00	12.54			0.00		
5/29/2018	0.00	12.32	12.39	0.00	12.39			0.00		
5/30/2018	0.00	12.17	12.46	0.00	12.46			0.00		
5/31/2018	0.00	12.10	12.52	0.00	12.52			0.00		

TOTAL MONTHLY	0.02	401.60	393.21	0.00	393.21	0	0.00	0.03	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	12.95	12.68	0.00	12.68	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	10.79	11.24	0.00	11.24	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	14.78	14.98	0.00	14.98	-	-	-	-	-

Oceanside Basin CSD Summary
May-2018

Date	Total Rain (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2018	0.00																		
5/2/2018	0.00																		
5/3/2018	0.00																		
5/4/2018	0.00																		
5/5/2018	0.00																		
5/6/2018	0.00																		
5/7/2018	0.00																		
5/8/2018	0.00																		
5/9/2018	0.01																		
5/10/2018	0.00																		
5/11/2018	0.00																		
5/12/2018	0.00																		
5/13/2018	0.00																		
5/14/2018	0.00																		
5/15/2018	0.00																		
5/16/2018	0.00																		
5/17/2018	0.00																		
5/18/2018	0.00																		
5/19/2018	0.00																		
5/20/2018	0.00																		
5/21/2018	0.00																		
5/22/2018	0.00																		
5/23/2018	0.01																		
5/24/2018	0.00																		
5/25/2018	0.00																		
5/26/2018	0.00																		
5/27/2018	0.00																		
5/28/2018	0.00																		
5/29/2018	0.00																		
5/30/2018	0.00																		
5/31/2018	0.00																		
TOTAL	0.02	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

October 26, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: September 2018 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report for the month of September 2018 for the Oceanside Water Pollution Control Plant.

Compliance with Effluent Limitations. Compliance with the effluent limitation was achieved during this monitoring period.

Compliance with Monitoring Requirements. Compliance monitoring was completed as required by the NPDES permit. All results have been submitted in CIWQS except for the result of a final effluent (EFF-001A) sample for 5-day biochemical oxygen demand (BOD_5) collected on September 12, which did not meet quality assurance/quality control (QA/QC) specifications. On September 18, upon test completion, laboratory staff discovered that the sample did not meet a QA/QC specification for method SM5210B (i.e., dissolved oxygen depletion criteria of 2.0 mg/L). Staff subsequently analyzed a composite sample for September 17 (16.9 mg/L). An additional sample that week was collected and analyzed for September 18 (13.5 mg/L).

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Count of Drainage Areas CSDs	Westside T/S Boxes	Seacliff Area	Westside Total
This reporting period	0	0	0
Total for 2018-2019 Wet Weather Season	0	0	0

London N. Breed
Mayor
Vince Courtney
President
Ann Moller Caen
Vice President
Francesca Vietor
Commissioner
Anson Moran
Commissioner
Ike Kwon
Commissioner
Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

If you have any questions concerning this report, please contact Superintendent, Dale Miller at (415) 242-2225 or Dmiller@sfwater.org; Laboratory Director, Kenneth Lee at (415) 920-4965 or KLee@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Westside Operations

Annual Wet Weather Summary - Oceanside Basins for 2018-2019											
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	380.29	376.04	0.00	376.04	0	0.00	0.00	0	0.00
August	0.01	394.28	385.68	0.00	385.68	0	0.00	0.00	0	0.00
September	0.00	369.70	388.61	0.00	388.61	0	0.00	0.00	0	0.00
October										
November										
December										
January										
February										
March										
April										
May										
June										
TOTAL	0.01	1144.26	1150.32	0.00	1150.32	0	0.00	0.00	0	0.00

Monthly Wet Weather Summary - Oceanside Basins for September-2018										
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
9/1/2018	0.00	10.76	13.17	0.00	13.17			0.00		
9/2/2018	0.00	12.86	12.91	0.00	12.91			0.00		
9/3/2018	0.00	12.05	13.23	0.00	13.23			0.00		
9/4/2018	0.00	13.31	14.14	0.00	14.14			0.00		
9/5/2018	0.00	12.11	13.63	0.00	13.63			0.00		
9/6/2018	0.00	11.97	12.83	0.00	12.83			0.00		
9/7/2018	0.00	12.81	13.81	0.00	13.81			0.00		
9/8/2018	0.00	12.08	13.38	0.00	13.38			0.00		
9/9/2018	0.00	13.55	14.05	0.00	14.05			0.00		
9/10/2018	0.00	13.11	14.57	0.00	14.57			0.00		
9/11/2018	0.00	11.88	13.11	0.00	13.11			0.00		
9/12/2018	0.00	11.05	12.17	0.00	12.17			0.00		
9/13/2018	0.00	12.81	13.74	0.00	13.74			0.00		
9/14/2018	0.00	11.94	12.79	0.00	12.79			0.00		
9/15/2018	0.00	13.31	13.42	0.00	13.42			0.00		
9/16/2018	0.00	12.09	12.66	0.00	12.66			0.00		
9/17/2018	0.00	11.82	12.28	0.00	12.28			0.00		
9/18/2018	0.00	13.64	13.15	0.00	13.15			0.00		
9/19/2018	0.00	5.10	5.81	0.00	5.81			0.00		
9/20/2018	0.00	18.84	20.13	0.00	20.13			0.00		
9/21/2018	0.00	13.04	13.21	0.00	13.21			0.00		
9/22/2018	0.00	11.72	12.30	0.00	12.30			0.00		
9/23/2018	0.00	12.56	12.48	0.00	12.48			0.00		
9/24/2018	0.00	12.31	11.81	0.00	11.81			0.00		
9/25/2018	0.00	12.67	13.86	0.00	13.86			0.00		
9/26/2018	0.00	12.13	11.92	0.00	11.92			0.00		
9/27/2018	0.00	12.15	12.96	0.00	12.96			0.00		
9/28/2018	0.00	12.37	11.98	0.00	11.98			0.00		
9/29/2018	0.00	12.83	12.57	0.00	12.57			0.00		
9/30/2018	0.00	10.84	10.52	0.00	10.52			0.00		
TOTAL MONTHLY	0.00	369.70	388.61	0.00	388.61	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	12.32	12.95	0.00	12.95	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	5.10	5.81	0.00	5.81	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	18.84	20.13	0.00	20.13	-	-	-	-	-

Notes:
Instrumentation anomalies occurring on 9/6 were zeroed out.
OSP Plant Shutdown on 9/19

Oceanside Basin CSD Summary
Sep-2018

Date	Total Rain (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
9/1/2018	0.00																		
9/2/2018	0.00																		
9/3/2018	0.00																		
9/4/2018	0.00																		
9/5/2018	0.00																		
9/6/2018	0.00																		
9/7/2018	0.00																		
9/8/2018	0.00																		
9/9/2018	0.00																		
9/10/2018	0.00																		
9/11/2018	0.00																		
9/12/2018	0.00																		
9/13/2018	0.00																		
9/14/2018	0.00																		
9/15/2018	0.00																		
9/16/2018	0.00																		
9/17/2018	0.00																		
9/18/2018	0.00																		
9/19/2018	0.00																		
9/20/2018	0.00																		
9/21/2018	0.00																		
9/22/2018	0.00																		
9/23/2018	0.00																		
9/24/2018	0.00																		
9/25/2018	0.00																		
9/26/2018	0.00																		
9/27/2018	0.00																		
9/28/2018	0.00																		
9/29/2018	0.00																		
9/30/2018	0.00																		
	0.00																		
TOTAL	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

November 30, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: October 2018 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report for the month of October 2018 for the Oceanside Water Pollution Control Plant.

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Compliance monitoring was completed as required by the NPDES permit. October 2 was a wet weather day as defined by the levels in the East Box exceeding 18 feet because of rainfall. Accordingly, data collected on this day is being reported for INF-001B and EFF-001B.

All results have been submitted in CIWQS except for the result of a final effluent (EFF-001A) sample for 5-day biochemical oxygen demand (BOD_5) collected on October 24, which did not meet quality assurance/quality control (QA/QC) specifications. The test results, which were available on October 30, did not meet a QA/QC specification for method SM5210B (i.e., an average standard recovery of 77%, outside of the acceptable QC range of 85-115%). Staff subsequently analyzed a composite sample collected on October 31 (17.3 mg/L). An additional sample that week was collected and analyzed on November 1; the results of which will be submitted on with the November 2018 Self-Monitoring Report.

During the first week of October, only four INF-001A and EFF-001 samples were collected and analyzed for total suspended solids because plant shutdowns on

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Vice President
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Commissioner
Anson Moran
Commissioner
Ike Kwon
Commissioner
Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

October 3, 5, and 6 prevented the collection of 24-hour representative composite samples on those days.

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Count of Drainage Areas CSDs	Westside T/S Boxes	Seacliff Area	Westside Total
This reporting period	0	0	0
Total for 2018-2019 Wet Weather Season	0	0	0

If you have any questions concerning this report, please contact Superintendent, Dale Miller at (415) 920-4948 or Dmiller@sfwater.org; Laboratory Director, Kenneth Lee at (415) 920-4965 or KLee@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Westside Operations

Annual Wet Weather Summary - Oceanside Basins for 2018-2019											
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA			
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges		
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007		
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume	
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-	
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG	
July	0.00	380.29	376.04	0.00	376.04	0	0.00	0.00	0	0.00	
August	0.01	394.28	385.68	0.00	385.68	0	0.00	0.00	0	0.00	
September	0.00	369.70	388.61	0.00	388.61	0	0.00	0.00	0	0.00	
October	1.39	413.02	388.77	0.00	388.77	0	0.00	0.00	0	0.00	
November											
December											
January											
February											
March											
April											
May											
June											
TOTAL	1.40	1557.28	1539.09	0.00	1539.09	0	0.00	0.00	0	0.00	

Monthly Wet Weather Summary - Oceanside Basins for October-2018										
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
10/1/2018	0.00	16.15	12.70	0.00	12.70			0.00		
10/2/2018	0.37	34.99	36.62	0.00	36.62			0.00		
10/3/2018	0.00	14.47	15.73	0.00	15.73			0.00		
10/4/2018	0.00	13.81	15.58	0.00	15.58			0.00		
10/5/2018	1.02	13.58	13.28	0.00	13.28			0.00		
10/6/2018	0.00	12.98	12.31	0.00	12.31			0.00		
10/7/2018	0.00	12.87	12.50	0.00	12.50			0.00		
10/8/2018	0.00	12.33	11.47	0.00	11.47			0.00		
10/9/2018	0.00	12.52	11.88	0.00	11.88			0.00		
10/10/2018	0.00	14.04	11.69	0.00	11.69			0.00		
10/11/2018	0.00	13.64	12.21	0.00	12.21			0.00		
10/12/2018	0.00	13.06	11.15	0.00	11.15			0.00		
10/13/2018	0.00	12.84	10.74	0.00	10.74			0.00		
10/14/2018	0.00	13.50	12.27	0.00	12.27			0.00		
10/15/2018	0.00	12.03	12.48	0.00	12.48			0.00		
10/16/2018	0.00	11.27	10.83	0.00	10.83			0.00		
10/17/2018	0.00	12.65	11.68	0.00	11.68			0.00		
10/18/2018	0.00	11.73	11.53	0.00	11.53			0.00		
10/19/2018	0.00	12.70	10.95	0.00	10.95			0.00		
10/20/2018	0.00	11.88	11.63	0.00	11.63			0.00		
10/21/2018	0.00	13.13	11.82	0.00	11.82			0.00		
10/22/2018	0.00	13.13	12.11	0.00	12.11			0.00		
10/23/2018	0.00	13.51	12.03	0.00	12.03			0.00		
10/24/2018	0.00	11.83	11.66	0.00	11.66			0.00		
10/25/2018	0.00	12.55	11.38	0.00	11.38			0.00		
10/26/2018	0.00	13.12	11.59	0.00	11.59			0.00		
10/27/2018	0.00	13.59	11.95	0.00	11.95			0.00		
10/28/2018	0.00	12.15	12.11	0.00	12.11			0.00		
10/29/2018	0.00	13.26	12.31	0.00	12.31			0.00		
10/30/2018	0.00	13.72	12.59	0.00	12.59			0.00		
TOTAL MONTHLY	1.39	413.02	388.77	0.00	388.77	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	13.77	12.96	0.00	12.96	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	11.27	10.74	0.00	10.74	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	34.99	36.62	0.00	36.62	-	-	-	-	-

Notes:

Oceanside Basin CSD Summary
Oct-2018

Date	Total Rain (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
10/1/2018	0.00																		
10/2/2018	0.37																		
10/3/2018	0.00																		
10/4/2018	0.00																		
10/5/2018	1.02																		
10/6/2018	0.00																		
10/7/2018	0.00																		
10/8/2018	0.00																		
10/9/2018	0.00																		
10/10/2018	0.00																		
10/11/2018	0.00																		
10/12/2018	0.00																		
10/13/2018	0.00																		
10/14/2018	0.00																		
10/15/2018	0.00																		
10/16/2018	0.00																		
10/17/2018	0.00																		
10/18/2018	0.00																		
10/19/2018	0.00																		
10/20/2018	0.00																		
10/21/2018	0.00																		
10/22/2018	0.00																		
10/23/2018	0.00																		
10/24/2018	0.00																		
10/25/2018	0.00																		
10/26/2018	0.00																		
10/27/2018	0.00																		
10/28/2018	0.00																		
10/29/2018	0.00																		
10/30/2018	0.00																		
10/31/2018	0.00																		
TOTAL	**1.39**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**

INF-001A	Total Suspended Solids (TSS)	Daily Maximum	=	657	mg/L	11/25/2018	None
INF-001A	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	325	mg/L	11/30/2018	None
INF-001A	pH	Daily Maximum	=	8.4	SU	11/07/2018	None
INF-001A	pH	Monthly Minimum	=	6.5	SU	11/17/2018	None
INF-001B	Flow	Daily Maximum	=	51.2	MGD	11/23/2018	None
INF-001B	Flow	Monthly Discharge	=	223.92	MGM	11/28/2018	None
INF-001B	Flow	Daily Minimum	=	25.23	MGD	11/28/2018	None
INF-001B	Flow	Monthly Average (Mean)	=	37.3	MGD	11/30/2018	None
INF-001B	Total Suspended Solids (TSS)	Daily Maximum	=	184	mg/L	11/28/2018	None
INF-001B	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	104	mg/L	11/30/2018	None
INF-001B	pH	Monthly Minimum	=	6.8	SU	11/21/2018	None
INF-001B	pH	Daily Maximum	=	8.2	SU	11/28/2018	None

Total Calculated Data Points: 150

Violations

Violation ID	Violation Date	Violation Type	Description(-)	Corrective Action	Created By	Last Modified By
1054392	11/24/2018	Category 1 Pollutant (Effluent Violation for Group 1 Pollutant)	Total Suspended Solids (TSS) Weekly Average limit is 45 mg/L and reported value was 55 mg/L at EFF-001A.	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
OSP Shoreline 201811.pdf	Shoreline Report	81 KB

Total Attachments: 1

Cover Letter

File Name
2018-11 FINAL OSP TSS 2019.02.14.pdf
2018-11 OSP SMR FINAL.pdf

Total No. of Cover Letter Files: 2 Cover Leter Text: No

The current report was generated with data as of: 08/26/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

December 28, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: November 2018 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681], Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report for the month of November 2018 for the Oceanside Water Pollution Control Plant.

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period with one exception. The average of four total suspended sediment (TSS) samples collected at EFF-001A during the week of November 18-24 was 55 mg/L, which exceeds the average weekly effluent limitation of 45 mg/L. TSS concentrations were elevated on November 18 and 19.

Date	Monitoring Location	TSS (mg/L)	Effluent Flow (mgd)	Rainfall (in)
11/18/2018	EFF-001A	97	11.23	0.00
11/19/2018	EFF-001A	96	12.84	0.00
11/20/2018	EFF-001A	14.8	15.32	0.00
11/21/2018	EFF-001B	62.5	44.73	0.95
11/22/2018	EFF-001B	30	29.30	0.79
11/23/2018	EFF-001B	56	56.69	0.40
11/24/2018	EFF-001A	13	23.23	0.02

An investigation was initiated on the morning of November 19, after receipt of the TSS results for November 18. The investigation confirmed that elevated TSS concentrations were caused by accumulation of sludge in a secondary clarifier. This accumulation was the result of an uneven withdrawal of return activated sludge (RAS) across the secondary clarifiers due to improper valve position on the RAS pumps. The issue was corrected, and daily sampling was performed. TSS

London N. Breed, Mayor
Vince Courtney, President
Ann Moller Caen, Vice President
Francesca Vietor, Commissioner
Anson Moran, Commissioner
Ike Kwon, Commissioner
Harlan L. Kelly, Jr., General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

concentrations returned to more typical values by November 20, but wet weather prevented sampling again at EFF-001A until November 24. Subsequent EFF-001A TSS monitoring during the week of November 25-December 1 were in compliance with the average weekly effluent limitations.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Wet Weather Operations and Monitoring

Combined Sewer Discharges. There were three combined sewer discharge events during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Count of Drainage Areas CSDs	Westside T/S Boxes	Seacliff Area	Westside Total
This reporting period	3	2	3
Total for 2018-2019 Wet Weather Season	3	2	3

System Operations of Wet Weather Facilities. The operation of wet weather facilities during the storm event was consistent with the requirements in NPDES permit Provision VI.C.6.c(3) - VI.C.6.c(4).

OSP Wet Weather Monitoring. The Westside system experienced wet weather days on November 21, 22, 23, 27, 28, and 29. Required monitoring occurred at INF-001B and EFF-001B.

CSD Monitoring. Samples were collected at monitoring location EFF-CSD on November 22 and 29, the dates on which discharges occurred from CSD-002 and 003. The November 22 sample was analyzed for all parameters except for Biological Oxygen Demand (BOD). The hold time for BOD analysis was exceeded due to the Thanksgiving holiday. Results for EPA 625 (SVOC) are not yet available; data will be uploaded with the December 2018 SMR.

The November 29 sample was analyzed for BOD_5, pH, and inorganic Table 1 pollutants but sample volume was insufficient for other analyses due to the short CSD duration (i.e., CSD duration less than one hour).

Shoreline Monitoring and Posting. There were no issues with shoreline monitoring and posting with one exception. On November 21 CSD-001 (Lake Merced) discharged for appropriately 14 minutes. Operations staff did not notify the on-call biologists of this CSD and back-up automatic notifications generated by PI Coresight had been disabled during summertime maintenance of the sensors at CSD-001. Operations staff have been reminded of notification procedures and the PI notifications for this location have been re-enabled.

If you have any questions concerning this report, please contact Superintendent, Dale Miller at (415) 920-4948 or Dmiller@sfwater.orgor Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew M. Clark
Superintendent, Operations

Annual Wet Weather Summary - Oceanside Basins for 2018-2019											
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	380.29	376.04	0.00	376.04	0	0.00	0.00	0	0.00
August	0.01	394.28	385.68	0.00	385.68	0	0.00	0.00	0	0.00
September	0.00	369.70	388.61	0.00	388.61	0	0.00	0.00	0	0.00
October	0.37	425.10	400.81	0.00	400.81	0	0.00	0.00	0	0.00
November	3.24	542.39	561.45	230.17	791.63	3	5.83	4.07	2	0.34
December										
January										
February										
March										
April										
May										
June										
TOTAL	3.62	2111.75	2112.58	230.17	2342.76	3	5.83	4.07	2	0.34

Monthly Wet Weather Summary - Oceanside Basins for November-2018

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
11/1/2018	0.00	12.48	11.28	0.00	11.28			0.00		
11/2/2018	0.00	11.87	11.98	0.00	11.98			0.00		
11/3/2018	0.00	14.11	13.45	0.00	13.45			0.00		
11/4/2018	0.00	12.83	12.13	0.00	12.13			0.00		
11/5/2018	0.00	13.32	12.37	0.00	12.37			0.00		
11/6/2018	0.00	13.27	13.48	0.00	13.48			0.00		
11/7/2018	0.00	11.44	11.83	0.00	11.83			0.00		
11/8/2018	0.00	12.40	13.09	0.00	13.09			0.00		
11/9/2018	0.00	12.73	13.48	0.00	13.48			0.00		
11/10/2018	0.00	11.32	11.83	0.00	11.83			0.00		
11/11/2018	0.00	12.50	13.03	0.00	13.03			0.00		
11/12/2018	0.00	12.92	13.06	0.00	13.06			0.00		
11/13/2018	0.00	11.50	11.45	0.00	11.45			0.00		
11/14/2018	0.00	11.78	11.76	0.00	11.76			0.00		
11/15/2018	0.00	12.11	11.02	0.00	11.02			0.00		
11/16/2018	0.00	12.82	11.36	0.00	11.36			0.00		
11/17/2018	0.00	12.17	10.98	0.00	10.98			0.00		
11/18/2018	0.00	10.96	11.23	0.00	11.23			0.00		
11/19/2018	0.00	14.03	12.84	0.00	12.84			0.00		
11/20/2018	0.00	15.29	15.32	0.00	15.32			0.00		
11/21/2018	0.95	42.91	44.73	70.01	114.74	1	<0.01	1.13		
11/22/2018	0.79	26.73	29.30	19.67	48.97	1	3.55	1.05	1	0.15
11/23/2018	0.40	51.22	56.69	73.13	129.82			0.57		
11/24/2018	0.02	20.86	23.23	0.00	23.23			0.03		
11/25/2018	0.00	13.22	14.10	0.00	14.10			0.00		
11/26/2018	0.00	17.39	18.01	0.00	18.01			0.00		
11/27/2018	0.09	29.22	30.89	0.00	30.89			0.34		
11/28/2018	0.69	25.23	27.54	7.82	35.36			0.76	1	0.19
11/29/2018	0.30	48.61	52.88	59.54	112.42	1	2.28	0.19		
11/30/2018	0.00	15.14	17.10	0.00	17.10			0.00		

TOTAL MONTHLY	3.24	542.39	561.45	230.17	791.63	3	5.83	4.07	2	0.34
MONTHLY AVERAGE FLOW (MGD)	-	18.08	18.72	46.03	26.39	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	10.96	10.98	0.00	10.98	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	51.22	56.69	73.13	129.82	-	-	-	-	-

Notes:

Oceanside Basin CSD Summary
Nov-2018

Date	Total Rain (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2018	0.00																		
11/2/2018	0.00																		
11/3/2018	0.00																		
11/4/2018	0.00																		
11/5/2018	0.00																		
11/6/2018	0.00																		
11/7/2018	0.00																		
11/8/2018	0.00																		
11/9/2018	0.00																		
11/10/2018	0.00																		
11/11/2018	0.00																		
11/12/2018	0.00																		
11/13/2018	0.00																		
11/14/2018	0.00																		
11/15/2018	0.00																		
11/16/2018	0.00																		
11/17/2018	0.00																		
11/18/2018	0.00																		
11/19/2018	0.00																		
11/20/2018	0.00																		
11/21/2018	0.95	1:02 PM	14	<0.01															
11/22/2018	0.79	10:44 PM	35	0.05	10:38 PM	45	0.37	10:52 PM	63	3.13							10:07 PM	16	0.15
11/23/2018	0.40																		
11/24/2018	0.02																		
11/25/2018	0.00																		
11/26/2018	0.00																		
11/27/2018	0.09																		
11/28/2018	0.69																10:04 PM	22	0.19
11/29/2018	0.30	12:24 AM	27	0.09	12:20 AM	38	0.09	12:34 AM	52	2.09									
11/30/2018	0.00																		
	0.00																		
TOTAL	**3.24**	-	**76**	**0.15**	-	**83**	**0.46**	-	**115**	**5.23**	-	**0**	**0.00**	-	**0**	**0.00**	-	**38**	**0.34**

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
December 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/11	Mon/17	Tue/18	Wed/19	Mon/24	Mon/31	30-day Geometric Mean[2]
15	4106	7270		857	576		2603	860	1791
15EAST	41	63		379	63		86	10	61
16	144	109		1160	135	52	10	86	101
17	63	31		327			*	*	
18	31	20		121			10	20	27
19	63	< 10		345	72		10	20	38
21.1	52	30	< 10	110			< 10	41	30

Sampling/Posting issues

* No access to site due to locked gate
Partial govt shutdown

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/11	Mon/17	Tue/18	Wed/19	Mon/24	Mon/31	30-day Geometric Mean[2]
15	75	10		63	41		41	31	37
15EAST	< 10	20		52	10		10	< 10	15
16	< 10	< 10		156	20	20	< 10	< 10	18
17	10	20		30			*	*	
18	10	10		20			10	< 10	11
19	10	< 10		97	20		10	< 10	16
21.1	10	10	< 10	10			< 10	10	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/03	Mon/10	Tue/11	Mon/17	Tue/18	Wed/19	Mon/24	Mon/31	30-day Geometric Mean[2]
15	31	52		**512**	84		63	< 10	59
15EAST	< 10	20		**155**	10		10	10	18
16	20	< 10		**364**	**148**	< 10	< 10	< 10	27
17	< 10	10		85			*	*	
18	10	< 10		41			< 10	< 10	13
19	< 10	< 10		**146**	< 10		< 10	10	16
21.1	< 10	**450**	10	30			< 10	< 10	23

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	12/01	0.12	12/16	0.73
China Beach	17	12/04	0.02	12/17	0.02
Ocean Beach	18, 19, 20, 21, 21.1	12/05	0.28	12/21	0.08
Ft. Funston	22	12/14	0.08	12/24	0.46

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to partial government shutdown

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.
Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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January 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: December 2018 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681], Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report for the month of December 2018 for the Oceanside Water Pollution Control Plant (OSP).

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges. There was one combined sewer discharge (CSD) event during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Count of Drainage Areas CSDs	Westside T/S Boxes	Seacliff Area	Westside Total
This reporting period	0	1	1
Total for 2018-2019 Wet Weather Season	3	3	4

System Operations of Wet Weather Facilities. The operation of wet weather facilities was consistent with the requirements in NPDES permit Provision VI.C.6.c(3) - VI.C.6.c(4).

London N. Breed
Mayor
Vince Courtney
President
Ann Moller Caen
Vice President
Francesca Vietor
Commissioner
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Commissioner
Ike Kwon
Commissioner
Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Wet Weather Monitoring. The Westside system experienced wet weather days on December 5, 16, 17, 24, and 25. Required monitoring occurred at INF-001B and EFF-001B.

CSD Monitoring. Results for EPA Method 625 (SVOC) for the November 22, 2018 EFF-CSD samples were not available for the November 2018 SMR submission; these data have been uploaded with this SMR.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit, except from December 24-31 at SRF-17 (China Beach). This shoreline monitoring location was not accessible (i.e., locked gate) during this time due to partial federal government shutdown.

If you have any questions concerning this report, please contact Superintendent, Dale Miller at (415) 920-4948 or Dmiller@sfwater.org or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Westside Operations

Annual Wet Weather Summary - Oceanside Basins for 2018-2019											
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA			
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges		
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007		
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume	
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-	
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG	
July	0.00	380.29	376.04	0.00	376.04	0	0.00	0.00	0	0.00	
August	0.01	394.28	385.68	0.00	385.68	0	0.00	0.00	0	0.00	
September	0.00	369.70	388.61	0.00	388.61	0	0.00	0.00	0	0.00	
October	0.37	425.10	400.81	0.00	400.81	0	0.00	0.00	0	0.00	
November	3.24	542.39	561.45	230.17	791.63	3	5.83	4.07	2	0.34	
December	1.81	518.60	533.64	78.41	612.05	0	0.00	1.77	1	0.08	
January											
February											
March											
April											
May											
June											
TOTAL	5.43	2630.35	2646.23	308.58	2954.81	3	5.83	5.84	3	0.42	

Monthly Wet Weather Summary - Oceanside Basins for December-2018

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff .Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
12/1/2018	0.12	25.36	27.15	0.00	27.15			0.08		
12/2/2018	0.00	12.46	13.29	0.00	13.29			0.00		
12/3/2018	0.00	14.27	15.05	0.00	15.05			0.00		
12/4/2018	0.02	14.37	14.69	0.00	14.69			0.03		
12/5/2018	0.28	33.44	35.84	7.02	42.86			0.26		
12/6/2018	0.00	12.98	13.44	0.00	13.44			0.00		
12/7/2018	0.00	12.81	13.48	0.00	13.48			0.00		
12/8/2018	0.00	12.78	12.49	0.00	12.49			0.00		
12/9/2018	0.00	13.12	13.27	0.00	13.27			0.00		
12/10/2018	0.01	14.78	13.07	0.00	13.07			0.00		
12/11/2018	0.01	12.84	12.32	0.00	12.32			0.00		
12/12/2018	0.00	13.44	13.17	0.00	13.17			0.00		
12/13/2018	0.00	12.51	12.57	0.00	12.57			0.00		
12/14/2018	0.08	17.59	17.79	0.00	17.79			0.07		
12/15/2018	0.00	14.14	13.76	0.00	13.76			0.00		
12/16/2018	0.73	29.28	29.97	28.14	58.11			0.59	1	0.08
12/17/2018	0.02	29.50	32.60	20.18	52.78			0.01		
12/18/2018	0.00	13.18	13.58	0.00	13.58			0.00		
12/19/2018	0.00	13.80	13.22	0.00	13.22			0.00		
12/20/2018	0.00	14.22	13.13	0.00	13.13			0.00		
12/21/2018	0.08	22.42	22.58	0.00	22.58			0.18		
12/22/2018	0.00	12.97	13.28	0.00	13.28			0.00		
12/23/2018	0.00	13.13	12.98	0.00	12.98			0.01		
12/24/2018	0.46	35.76	37.46	23.07	60.53			0.54		
12/25/2018	0.00	22.63	25.17	0.00	25.17			0.00		
12/26/2018	0.00	13.90	16.07	0.00	16.07			0.00		
12/27/2018	0.00	13.35	13.86	<0.01	13.86			0.00		
12/28/2018	0.00	9.59	9.92	0.00	9.92			0.00		
12/29/2018	0.00	12.57	13.00	0.00	13.00			0.00		
12/30/2018	0.00	12.06	11.72	0.00	11.72			0.00		
12/31/2018	0.00	13.34	13.73	0.00	13.73			0.00		
TOTAL MONTHLY	1.81	518.60	533.64	78.41	612.05	0	0.00	1.77	1	0.08
MONTHLY AVERAGE FLOW (MGD)	-	16.73	17.21	15.68	19.74	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	9.59	9.92	0.00	9.92	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	35.76	37.46	28.14	60.53	-	-	-	-	-

Notes:

1) Maintenance was performed on the OSP effluent meter on 12/20 from 9:20 AM to 9:50 AM . The sensor was placed in manual (meaning flow reading will not change from last auto reading) so that the I&C group can perform maintenance on the flow meter.
2) Instrumentation anomalies occured on 12/5 from 2:07 PM to 2:11 PM. Influent to OSP, OSP Effluent and WSPS Pumping to SWOO volumes during this timeframe were estimated using interpolated values.
3) Instrumentation anomalies occured on 12/17 from 10:14 AM to 12:16 PM for the OSP Effluent Meter. The OSP Effluent Volume during this time period was estimated from the Influent to OSP sensor reading assuming a 20 minute time shift

Oceanside Basin CSD Summary
Dec-2018

Date	Total Rain OSP (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
12/1/2018	0.12																		
12/2/2018	0.00																		
12/3/2018	0.00																		
12/4/2018	0.02																		
12/5/2018	0.28																		
12/6/2018	0.00																		
12/7/2018	0.00																		
12/8/2018	0.00																		
12/9/2018	0.00																		
12/10/2018	0.01																		
12/11/2018	0.01																		
12/12/2018	0.00																		
12/13/2018	0.00																		
12/14/2018	0.08																		
12/15/2018	0.00																		
12/16/2018	0.73																8:30 PM	10	0.08
12/17/2018	0.02																		
12/18/2018	0.00																		
12/19/2018	0.00																		
12/20/2018	0.00																		
12/21/2018	0.08																		
12/22/2018	0.00																		
12/23/2018	0.00																		
12/24/2018	0.46																		
12/25/2018	0.00																		
12/26/2018	0.00																		
12/27/2018	0.00																		
12/28/2018	0.00																		
12/29/2018	0.00																		
12/30/2018	0.00																		
12/31/2018	0.00																		
TOTAL	**1.81**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**10**	**0.08**

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

2018 Annual Self-Monitoring Report

San Francisco Public Utilities Commission
Oceanside Water Pollution Control Plant

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Attachments
Attachment A: List of Analyses for which the SFPUC is Certified
Attachment B: Plant Site Plan
Attachment C: Plant Process Schematic

1 Treatment Plant Performance

1.1 Volume Treated

The Oceanside Water Pollution Control Plant (OSP) is permitted to discharge an average dry weather flow of 43 million gallons per day (MGD). The 2018 average dry weather flow was 12.4 MGD, calculated using flows from three consecutive dry weather months (June, July, and August). The facility treated an estimated 5.6 billion gallons of combined wastewater and stormwater in 2018.

1.2 Permit Compliance and Actions Taken or Planned

The San Francisco Public Utilities Commission (SFPUC) is exempt from submittal of an annual compliance summary table and tabular and graphical summaries of monitoring data because all data for the OSP are reported electronically. See Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D), Attachment G (2010) at G-19.

1.2.1 Effluent Limitation Exceedances and Unauthorized Discharges

The SFPUC reported two exceedances of the Average Weekly Effluent Limitation (AWEL) for total suspended solids (TSS) in 2018.

During the week of March 11-17, 2018, the weekly total suspended solids (TSS) average was 67 mg/L because of a March 14 sample with a TSS concentration of 121 mg/L. The elevated concentration was inadvertently caused by implementation of an operational strategy intended to minimize biogas production. On March 13, the OSP biogas flare was shutdown to tie a natural gas line into the new system. In anticipation of this shutdown, solids were retained in the primary and secondary clarifiers to reduce biogas production. On March 14 influent flow to OSP reached capacity (42 mgd) because of rainfall, resulting in entrainment of solids into the final effluent.

During the week of November 18-24, the weekly TSS average was 55 mg/L because of samples collected on November 18 and 19, which had concentrations of 97 and 96 mg/L respectively. The elevated TSS concentrations are believed to be have been due to an accumulation of sludge in a secondary clarifier, which was the result of human error in configuring the valves connecting the clarifiers and return activated sludge (RAS) pumps. Further investigations and identification of potential corrective actions are ongoing. More information will be provided in future reports.

1.2.2 Monitoring Issues

During the week of September 9-15, the 5-day biochemical oxygen demand (BOD_5) sample was collected on September 12 for EFF-001A. The results, available September 18, did not meet the method SM5210B quality assurance/quality control requirement related to dissolved oxygen depletion. Staff subsequently analyzed samples collected on September 17 (16.9 mg/L) and September 18 (13.5 mg/L).

In 2018, there were four identified issues with implementation of combined sewer discharge (CSD) triggered monitoring requirements. First, the estimated duration and volume of an April 6 discharge at CSD-007 (Sea Cliff 2) was not reported because the CSD end time was unavailable due to a disruption in AT&T communications between the Sea Cliff 2 pump station and the Distributed Control System (DCS). Communications have been restored via installation of a new fiber optics communications line.

Second, on November 21, Operations staff did not notify on-call biologists of a fourteen-minute CSD at CSD-001 (Lake Merced) and, as a result, the required beach sampling and public notifications did not occur. This error was compounded by the disabling of back-up automatic notifications (via PI Coresight) during summer maintenance of the sensors at CSD-001. Operations staff were verbally reminded of notification procedures, and the automatic notifications for this location have been re-enabled.

Third, a November 22 EFF-CSD sample was analyzed for all parameters except for Biological Oxygen Demand (BOD); the hold time for BOD analysis was exceeded due to the Thanksgiving holiday.

Finally, due to the partial federal government shutdown (December 22, 2018 - January 25, 2019), shoreline monitoring and posting could not be conducted from December 24-31 at SRF-17 (China Beach) as the monitoring location was not accessible (i.e., locked gate).

1.3 Effluent Characterization Study

For this evaluation, all constituents with required minimum sampling frequency of less than once a month that were detected above the method Minimum Levels (MLs) were evaluated. Estimated concentrations of constituents detected below the MLs were excluded from this evaluation because the uncertainty in the result when a constituent is detected below the ML prevents useful comparison.

Nine of the tested constituents were detected above the method MLs: Antimony, Cadmium, Chloroform, Chromium III, Copper, Lead, Nickel, chlorinated phenolics, and Zinc. The 2018 maximum detected level of the nine constituents were compared to the Maximum Effluent Concentration (MEC) as presented in Table F-11 of the OSP Permit (Reasonable Potential Analysis). The MECs were used as the general indicators of past performance of the detected constituents.

Eight of the nine detected constituents showed decreases or no statistically significant changes or increases compared to past performance (the corresponding MECs are used as an indicator of past performance). Chlorinated phenolics is a sum of four constituents; of those constituents, only pentachlorophenol was detected. Although the maximum detected level is greater than the most stringent water quality objective, the concentration after mixing is well below the water quality objective. Monitoring for chlorinated phenolics will continue to be conducted as required.

The detected constituents and evaluations are summarized below.

Trends for Selected Constituents

Constituent	Method Minimum Level (ML, µg/L)	2018 Maximum Detected Level (µg/L)[1]	Past Performance[2] (µg/L)	Criterion or Objective (µg/L)	Statistically Significant Increase
Antimony	0.5	0.55	0.94	1200	No
Cadmium	0.25	0.45	1.9	1	No
Chloroform	0.5	0.89	9.8	130	No
Chromium III	0.5	2.5	5.4	190,000	No
Copper	0.5	18	70	3	No
Lead	0.5	1.2	8.6	2	No
Nickel	1	3.6	7.2	5	No
Chlorinated Phenolic s	NA[3]	1.3[4]	ND	1	Potential, continue to monitor
Zinc	1	30	146	20	No

Note:

1. Results have been rounded to two significant figures.
2. The Maximum Effluent Concentration (MEC) as listed in Table F-11. Reasonable Potential Analysis Results for the Discharge Point No. 001 in the OSP Permit, NPDES NO. CA0037681, Order No. R2-2009-0062, is used as an indicator for past performance.
3. This Ocean Plan Table 1 pollutant is the summation of four constituents and does not have an applicable method ML.
4. The only constituent detected was pentachlorophenol.

1.4 Biosolids

In 2018, the OSP beneficially re-used 2,760 dry metric tons of biosolids at the following locations:

Location	Dry Metric Tons[1]
Land Application	
Solano County Land Application	900
Sacramento County Land Application	440
Landfill Beneficial Use	
Vasco	180
Potrero	480
Lystek – Liquid Biofertilizer	760
TOTAL	**2,760**

Note:

1. Tonnage has been rounded to two significant figures.

2 Approved Laboratory Analyses

List of approved analyses include the following:

1. List of analyses for which SFPUC is certified: See **Attachment A**.
2. List of analyses performed for SFPUC by a separate certified laboratory (copies of reports signed by the laboratory director of the separate certified laboratories are not included with the annual report but are retained onsite and available upon request):
    a. Dioxin, method EPA 1613, is performed by Frontier Analytical; and
    b. Semi-volatile Organic Compounds, method EPA 625, is performed by Caltest Analytical.
3. List of waived analyses: None.

3 Facility Information

3.1 Plan View Drawing or Map of Facility

A Plant Site Plan is included in **Attachment B**, and a Plant Process Schematic is included in **Attachment C**.

3.2 Results of Annual Facility Report Reviews

3.2.1 Contingency Plan and Spill Prevention Plan

The OSP's Contingency Plan was reviewed throughout 2018 and made available on SharePoint in December 2018. Updates to the plan include:

- Changes in staffing and roles and responsibilities;
- Spill Prevention Plan addendum;
- Process management updates; and
- Updates to the listed emergency contacts.

3.2.2 Operations and Maintenance Manual

Review of OSP related manuals, training, and other guidance materials was completed, resulting in updates to and development of the materials described in the table below.

Document	Sections
SOPs Developed	• Polymer Super Sac Changeout • Cogeneration Plant Emergency Shutdown • Temperature-Phased Anaerobic Digestion (TPAD) Operation Guide
Other Guidance & Training Materials Developed	• 2018 Biosolids Spill Packet • TPAD Process Classroom Videos, Chapters 1 & 2 • Personal Protective Equipment and Atmospheric Hazards Monitoring and Safety Awareness Posters • Atmospheric Hazards Monitoring and Safety Awareness Video • OSP Waste Gas Flare Operation Classroom PowerPoint Presentation • Awareness Quick Guide Posters for Plant and Pump Station Control Rooms • Confined Space Entry & Rescue Awareness Classroom Presentation
Associated Training Conducted	• Annual Wet Weather Training • Semi-annual Wet Weather Training Refresher

3.2.3 Wastewater Facilities Status

The table below summarizes key construction activities related to the Westside facilities. The projects listed below do not comprise a comprehensive list of all upgrades completed or underway. Planning, design and construction of numerous other mechanical, electrical, structural, and communications improvements are ongoing.

Facility/Process	Project Description	Construction Update
OSP Secondary	Upgrade and repair oxygen generation compressors and associated mechanical, instrumentation and controls.	Construction was substantially completed in 2018 and expected to be complete in 2019.
OSP Solids Handling	Replace pumps and make associated mechanical and electrical improvements.	Construction expected to be complete in 2019.
OSP Digester Gas Management	Replace existing waste gas burners with two low-emission, natural-draft type biogas flare burner assemblies.	Construction was substantially completed in 2018 and expected to complete in 2019.
Recycled Water Facility	Construct a recycled water facility that will include microfiltration, reverse osmosis, and UV disinfection of the OSP final effluent.	Construction began in 2018.
Westside Pump Station (WSS)	Make multiple improvements to the pump station, including replacement of existing bar screens and wet weather pumps, and providing a redundant power source.	Construction was expected to begin in 2019, but bids received substantially exceeded the project budget. The SFPUC is evaluating the bids and the financial viability of the original scope.

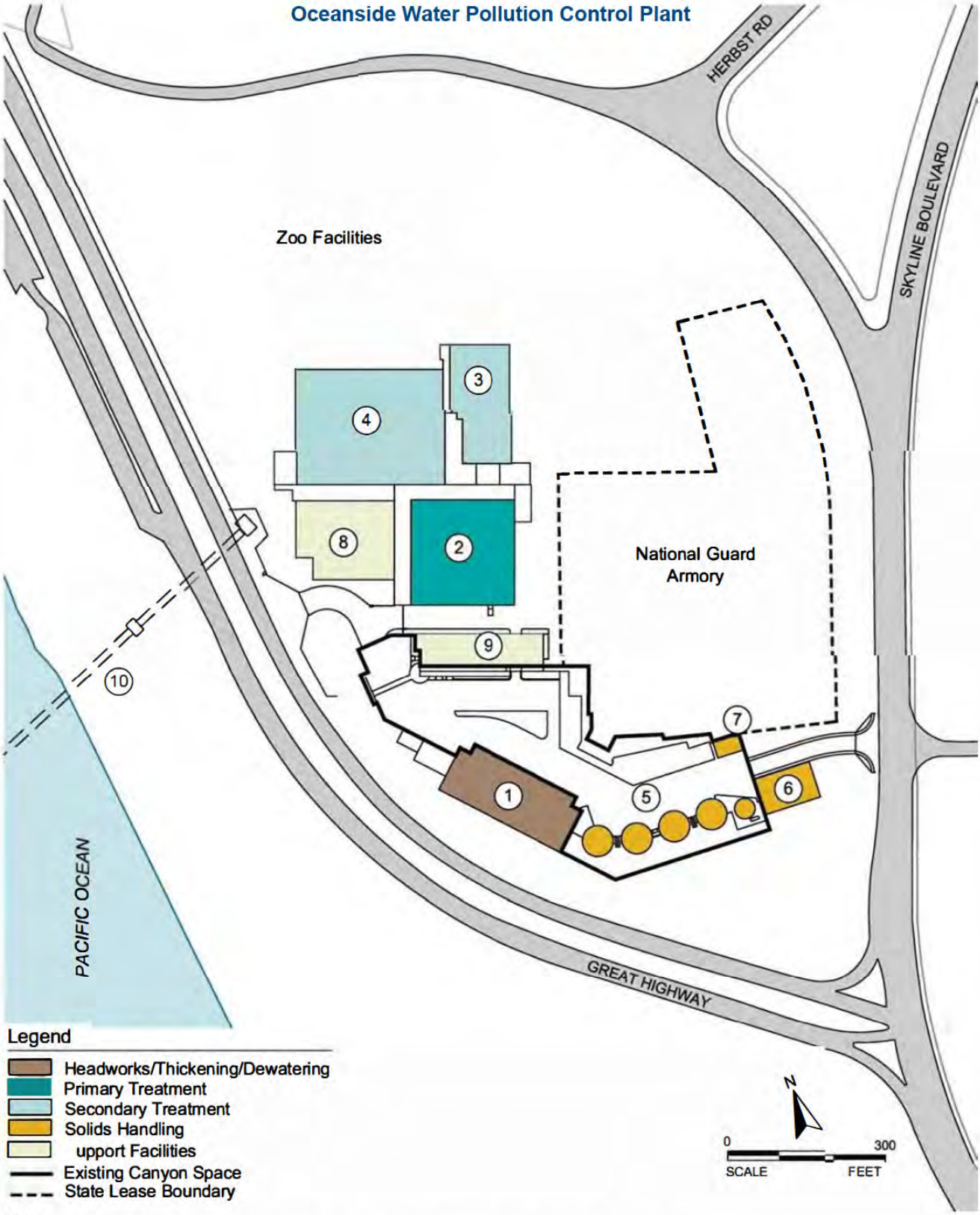
Facility/Process	Project Description	Construction Update
	Replace existing dry weather pumps' variable frequency drives.	Construction expected to be complete in 2019.

ATTACHMENT A

List of Analyses for which the SFPUC is Certified

Type of Test	Reference	Method Number
Ammonia	Standard Methods	4500-NH3 B,C
Bioassay	EPA	2019 (EPA-821-R-02-012) 600/R-95/136 Development Test
Biochemical Oxygen Demand	Standard Methods	5210 B
Carbonaceous BOD	Standard Methods	5210 B
Chemical Oxygen Demand	Standard Methods	5220 D/HACH8000
Chlorine Residual	Standard Methods	4500-Cl C
Coliform	Standard Methods	9221 B
Conductivity	Standard Methods	2510 B
Cyanide	Standard Methods	4500-CN^- C & 4500-CN^- E
Enterococci, IDEXX	EPA	Enterolert
Kjeldahl Nitrogen	Standard Methods	4500 Norg B & 4500-NH3 C
Mercury	EPA	1631E/245.1
Metals	EPA	200.7/200.8
Nitrate-nitrite	Standard Methods	4500-$NO3^-$ E
Nitrite	Standard Methods	4500-$NO2^-$ B
Oil & Grease	EPA	1664A
PAH	EPA	625
Pesticide/PCBs	EPA	608
pH	EPA/Standard Methods	150.2/4500-H^+ B
Phosphate, Ortho	Standard Methods	SM4500-P E
Phosphorus, Total	EPA	200.7/HACH8190
Semi -Volatile Organic Compounds	EPA	625
Settleable Solids	Standard Methods	2540 F
Temperature	Standard Methods	2550 B
Total Solids	Standard Methods	2540 B
Total Suspended Solids	Standard Methods	2540 D
Turbidity	Standard Methods	2130 B
Volatile Organic Compounds	EPA	624

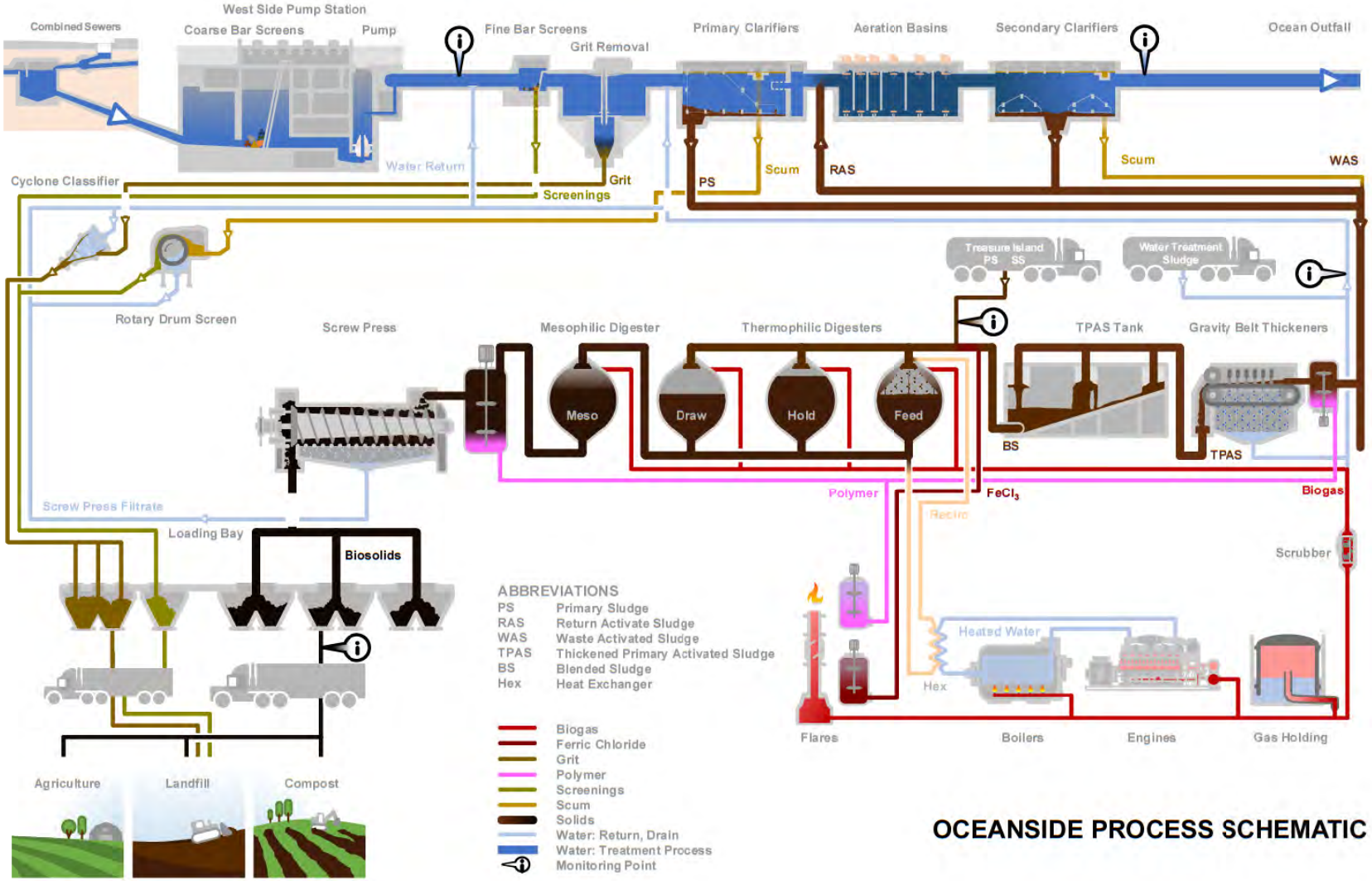
ATTACHMENT B
Plant Site Plan
Oceanside Water Pollution Control Plant



Key

. Headworks/Oxygen Plant/Solids Handling
. Primary Clarifiers
. Aeration Basins
. Secondary Clarifiers
. Anaerobic Digesters
6. Cogeneration/Hot Water Boilers
7. Waste Gas Burners
8. Chlorination and Dechlorination (not in service)/Odor Control
9. Administration
10. Southwest Ocean Outfall

ATTACHMENT C
Plant Process Schematic
Oceanside Water Pollution Control Plant



OCEANSIDE PROCESS SCHEMATIC

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
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January 31, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: Annual Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681], Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the annual self-monitoring report (SMR) for the calendar year of 2018 for the Southeast Water Pollution Control Plant (SEP).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Westside Operations

Attachments

London N. Breed Mayor
Vince Courtney President
Ann Moller Caen Vice President
Francesca Vietor Commissioner
Anson Moran Commissioner
Ike Kwon Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2019051

INF-001A	pH	Daily Maximum	=	8.4	SU	01/14/2019	None
INF-001B	Flow	Daily Maximum	=	55.6	MGD	01/17/2019	None
INF-001B	Flow	Daily Minimum	=	17.06	MGD	01/30/2019	None
INF-001B	Flow	Monthly Discharge	=	324.17	MGM	01/30/2019	None
INF-001B	Flow	Monthly Average (Mean)	=	36	MGD	01/31/2019	None
INF-001B	Total Suspended Solids (TSS)	Daily Maximum	=	956	mg/L	01/30/2019	None
INF-001B	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	221	mg/L	01/31/2019	None
INF-001B	pH	Daily Maximum	=	8.3	SU	01/16/2019	None
INF-001B	pH	Monthly Minimum	=	7.3	SU	01/30/2019	None

Total Calculated Data Points: 197

Violations

Violation ID	Violation Date	Violation Type	Description(-)	Corrective Action	Created By	Last Modified By
1064928	01/25/2019	Unauthorized Discharge	Three discharges of untreated wastewater through SFPUC"s Oceanside Plant on 1/25, 1/29, and 1/30 due to primary clarifier dewatering sumps overflowing into the plant"s secondary bypass pipe. Each discharge lasted approximately 125 minutes, 145 minutes, and 3 minutes, respectively. 24-hr composite results for TSS were 31 mg/L, 36 mg/L, and 27 mg/L, respectively. No other elevated parameters noted. 5-day report submitted 2/1/2019, with supplemental report submitted 3/1/2019.	Secondary bypass drain valve was closed. Dewatering pump returned to service to prevent high sump level. Updated standing orders and procedures to ensure valve remains closed during dewatering pump maintenance.	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
OSP Shoreline 201901.pdf	Shoreline Report	45 KB

Total Attachments: 1

Cover Letter

File Name
2019-01 OSP SMR CL FINAL.pdf

Total No. of Cover Letter Files: 1 **Cover Leter Text: No**

The current report was generated with data as of: 08/26/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
January 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/07	Mon/14	Thu/17	Fri/18	Tue/22	Mon/28	30-day Geometric Mean[2]
15	420	185	754		85	862	336
15EAST	355	52	233		20	30	76
16	181	86	98		31	31	68
17	*	*	*		*	< 10	
18	228	10	158		52	< 10	45
19	1081	< 10	1274		10	10	67
21.1	86	10	369		41	< 10	42
20	84		241				
21	259		3654	109			
22	*		2098	63			

Sampling/Posting issues
* No access to sites (17 & 22) due to partial Federal government shutdown
China Beach and Fort Funston were posted on the web and hotline for 72 hrs after CSDs on 1/17 & 1/7, respectively

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/07	Mon/14	Thu/17	Fri/18	Tue/22	Mon/28	30-day Geometric Mean[2]
15	41	30	74		< 10	63	36
15EAST	109	10	20		< 10	< 10	19
16	73	10	< 10		10	< 10	15
17	*	*	*		*	< 10	
18	31	< 10	< 10		< 10	< 10	13
19	218	< 10	134		< 10	10	31
21.1	< 10	< 10	146		< 10	< 10	17
20	< 10		20				
21	20		**1067**	20			
22	*		132	10			

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/07	Mon/14	Thu/17	Fri/18	Tue/22	Mon/28	30-day Geometric Mean[2]
15	< 10	20	30		10	31	18
15EAST	< 10	< 10	10		10	< 10	10
16	10	< 10	20		< 10	< 10	11
17	*	*	*		*	< 10	
18	10	< 10	20		< 10	< 10	11
19	41	< 10	75		< 10	10	20
21.1	< 10	< 10	41		< 10	< 10	13
20	71		85				
21	< 10		**359**	10			
22	*		**120**	< 10			

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)			
01/05	0.33	01/15	0.42
01/06	1.45	01/16	1.41
01/09	0.12	01/17	0.70
01/11	0.06	01/20	0.20
01/12	0.01	01/30	0.16
01/14	0.01	01/31	0.32

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to partial Federal government shutdown
[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
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February 1, 2019

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

SUBJECT: Unauthorized Discharge Report (5-Day) for the Discharges of Partially Treated Effluent from the Oceanside Water Pollution Control Plant (NPDES CA0037681)

Dear Ms. Watkins,

Attached please find a summary of currently available information regarding multiple discharges of untreated wastewater from the Oceanside Water Pollution Control Plant (OSP) to the Pacific Ocean, as required by National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037681, Attachment G (2010), Section V.E.2.c.

A single report is being submitted for multiple discharges – believed to have occurred on January 25, 29, and 30, 2019 – because they appear to have been caused by the same circumstances. The SFPUC became aware of the possibility of a discharge on January 25 but only confirmed the discharges and identified the cause on January 30. Accordingly, the SFPUC is still collecting information about these discharges, and corrective and preventative actions. A supplemental report will be provided no later than March 1, 2019 because not all required and relevant information is currently available.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Amy Chastain

Amy Chastain, Regulatory Manager
Wastewater Enterprise

London N. Breed Mayor
Vince Courtney President
Ann Moller Caen Vice President
Francesca Vietor Commissioner
Anson Moran Commissioner
Ike Kwon Commissioner
Harlan L. Kelly, Jr. General Manager

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ATTACHMENT: OSP Discharge Incident Report
February 1, 2019

1. Discharge description and cause

As shown in the simplified schematics below, the OSP primary clarifiers and the secondary bypass pipe can be dewatered, with the water pumped back to the headworks, using the same pumps. During primary clarifier dewatering on January 25, 29, and 30, 2019, the dewatering pump sump levels were sufficiently high to allow water to backup into the secondary bypass dewatering line and into the secondary bypass pipe. Once in the secondary bypass pipe, the water from the primary clarifiers mixed with secondary treated effluent and discharged through the secondary effluent channel.

2. Location of involved waterway

The discharge reached the Pacific Ocean and was discharged from the Southwest Ocean Outfall (SWOO) at Discharge Point No. 001, approximately three miles offshore.

3. Date and time discharges started

Based on information available at the time of this submittal, the SFPUC believes that that discharges occurred on the following dates (all start times are approximate): January 25, 2019 at 3:00 pm; January 29, 2019 at 10:20 am; and January 30, 2019 at 10:15 am. This information will be confirmed or corrected as appropriate in the supplemental report.

4. Estimated quantity and duration of the discharge, including amounts recovered

The quantity and duration are being estimated and will be included in the supplemental report. No volume could be contained and recovered because of the location of the discharge.

5. Level of treatment prior to discharge

The discharge consisted of wastewater that had passed through the OSP headworks and entered the primary clarifiers. Prior to the point of discharge, this wastewater mixed with fully (primary and secondary) treated wastewater.

6. Identity of persons reporting the discharge

SFPUC Regulatory staff reported the suspected discharge to Regional Water Board staff by email communication on January 28 and January 30, 2019.

7. Methods used to delineate the geographical extent of the discharge in receiving waters

This information depends on the volume and duration and will be included in the supplemental report.

8. Efforts implemented to minimize public exposure to the discharge

The OSP final effluent pipe discharges more than three miles offshore, therefore no efforts to minimize public exposure were feasible or appropriate.

9. Visual observations of the impacts noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted

The OSP final effluent pipe discharges more than three miles offshore, therefore performing receiving water observations was not feasible.

10. Corrective measures taken to minimize the impact of the discharge

Information on corrective actions and related measures undertaken are being compiled and will be described in the supplemental report.

11. Measures to be taken to minimize the chances of a similar discharge occurring in the future

The potential for future discharges has been eliminated by the closure of the secondary bypass valve when the secondary bypass pipe is not being dewatered. Additional preventative measures are currently being evaluated and will be described in the supplemental report.

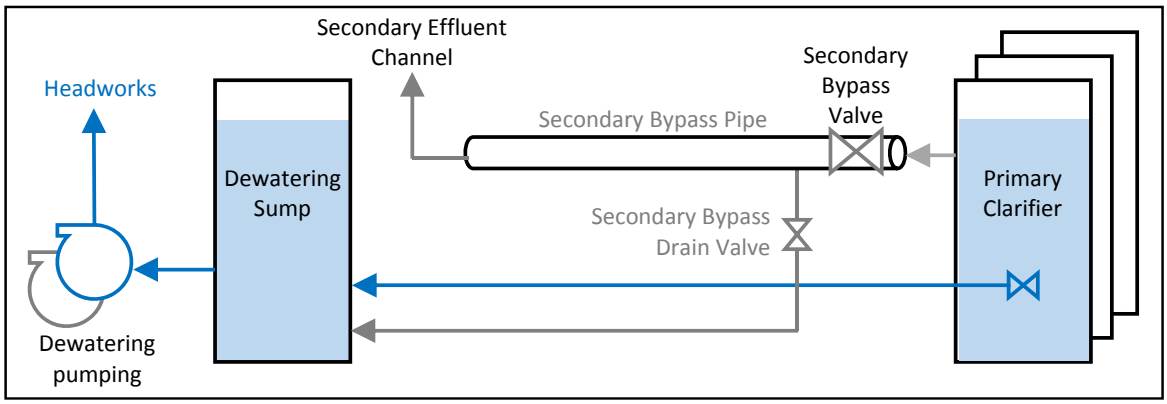
12. Summary of Spill Prevention Plan or Operation & Maintenance Manual modifications to be made, if necessary, to minimize the chances of future discharges

Modifications to operating procedures may be appropriate and are being evaluated. The specific actions to be taken will be described in the supplemental report.

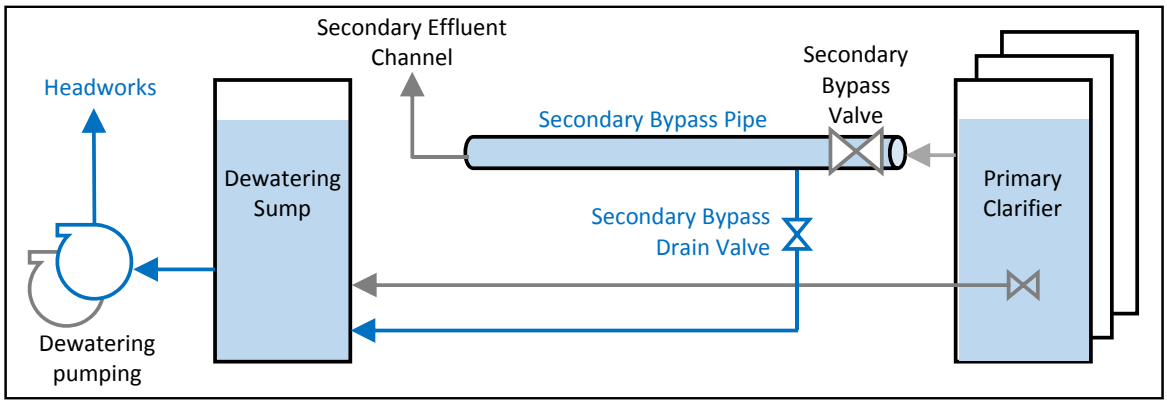
ATTACHMENT: OSP Discharge Incident Report
February 1, 2019

Simplified Pipe Schematics:
*Diagrams are provided for illustration purposes only. Not to Scale.

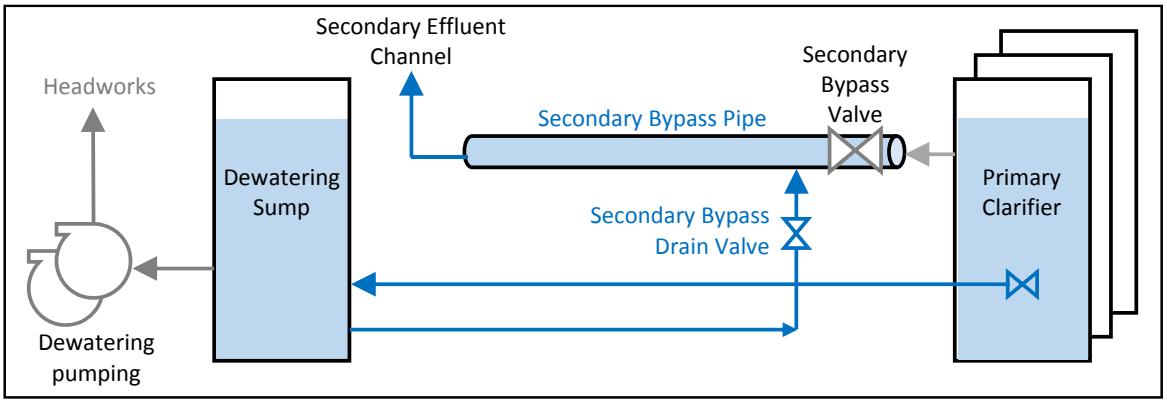
Primary Clarifier Dewatering Flow Path



Secondary Bypass Pipe Dewatering Flow Path



Flow Path During 1/25, 1/29, 1/30 Events



San Francisco Water Power Sewer
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February 15, 2019

Jessica Watkins,
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: Resubmittal of November 2018 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681], Regional Water Quality Control Board Order No. R2-2009-0062

Dear Ms. Watkins:

This transmittal is in response to your December 28, 2018 email request for additional information about the average weekly effluent limitation (AWEL) exceedance for Total Suspended Solids (TSS) that occurred at the Oceanside Water Pollution Control Plant (OSP) the week of November 18-24.

Submitted with this transmittal, as an attachment, is the original December 28 self-monitoring report (SMR) cover letter, dated December 28, 2018. All information in the original submittal remains accurate.

Discharge Description
During the week of November 18 through the 24, the average weekly TSS concentration being discharged at OSP was 55 mg/L, which exceeded the AWEL of 45 mg/L.

Receiving Water Observations and Impacts
The OSP final effluent pipe discharges more than three miles offshore, so no receiving water observations were feasible. No receiving water impacts from this discharge are expected because the OSP TSS effluent limitations are technology, not water quality, based; and because of the substantial mixing and dilution that occurs at the point of discharge.

Cause & Corrective Actions Taken
The primary cause of the effluent exceedance appears to be human error. As described in more detail below, a valve that should have been closed was open,

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Vince Courtney
President
Ann Moller Caen
Vice President
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Commissioner
Anson Moran
Commissioner
Ike Kwon
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Harlan L. Kelly, Jr.
General Manager

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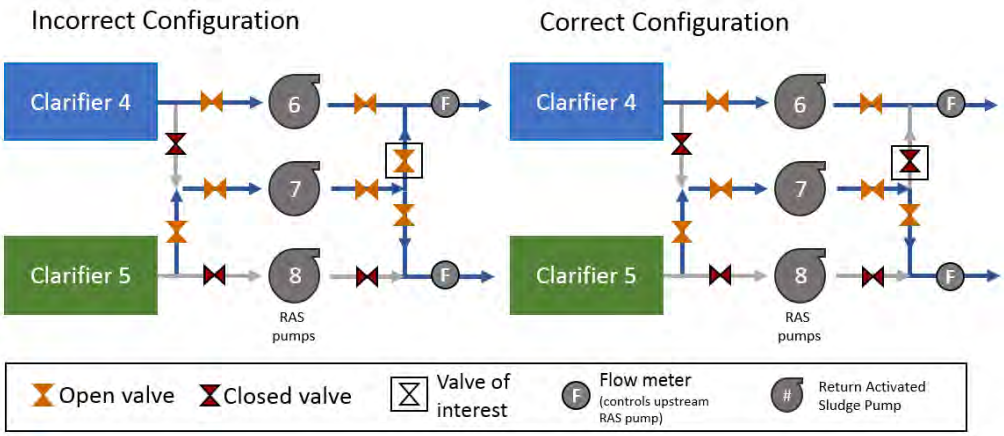
which resulted in a build-up of solids in a secondary clarifier and subsequent elevated TSS concentrations in the final effluent.

OSP has seven secondary clarifiers. The purpose of secondary clarification is to allow microorganisms to flocculate and settle out of the treated wastewater after aeration. During clarification, solids settle out of the treated wastewater to form a sludge blanket. This sludge, or activated sludge (AS), is continuously pumped out of the bottom of the clarifiers. A portion of the AS is recycled to the aeration process in order to seed the biological reactor with new active biomass; this is called return activated sludge (RAS). The RAS pump rate is partly controlled by measurements of flow meters located downstream of the RAS pumps.

In this instance, the accumulation of sludge in Clarifier 4 caused the elevated TSS concentrations in the final effluent. Clarifier 4 and 5 are each served by a RAS pump (RAS pump 6 and 8, respectively). They also share a "swing" pump (RAS pump 7), which can serve either Clarifier 4 or 5. During the event, RAS pump 6 was in service to pump from Clarifier 4 and RAS pump 7 was in service to pump from Clarifier 5.

On November 30 a visual inspection of the clarifiers, RAS pumps, and associated manifolds resulted in the identification of the cause. A valve downstream of RAS pumps 6 and 7, but upstream of the flow meter, was open. As a result, the flow meter downstream of Clarifier 4 was measuring a flow rate corresponding to flow out of Clarifier 4 and a portion of Clarifier 5 (when it should have been reading only the Clarifier 4 flow rate). This greater than expected flow rate led to the automatic control system directing RAS pump 6 to pump less than necessary activated sludge from Clarifier 4. This deficit of sludge being removed allowed solids to accumulate in Clarifier 4. The valve was closed upon discovery. A simplified schematic below shows the incorrect and correct configuration of the system.



After elevated sludge levels in Clarifier 4 were initially identified RAS pumping from Clarifier 4 was manually increased on November 17. The elevated levels persisted, resulting in high TSS concentrations on November 18 and 19. On November 20 the condition of the chains and flights (equipment that removes the sludge from the bottom of the clarifier) associated with Clarifier 4 were inspected. The equipment was found to be in good condition. Because the valve status is not visible through the Distributed Control System screen in the main control room, the issue was only identified after a visual assessment of the valves occurred on November 30.

Preventative Actions Taken & Planned

The individual responsible for the incorrect valve configuration has not been identified because the date and time the valve was opened is unknown. The same day as the issue was found, all senior stationary engineers were informed of the cause and reminded to check the valve status when changing clarifier and RAS pump configurations.

Additionally, a continuous online turbidity meter on secondary effluent has been installed for real-time monitoring of the performance of the secondary clarifiers. This meter is currently being tested but would assist in more quickly identifying trends, and in evaluating potential causes of observed increases in solids.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Oceanside Operations

Annual Wet Weather Summary - Oceanside Basins for 2018-2019											
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	380.29	376.04	0.00	376.04	0	0.00	0.00	0	0.00
August	0.01	394.28	385.68	0.00	385.68	0	0.00	0.00	0	0.00
September	0.00	369.70	388.61	0.00	388.61	0	0.00	0.00	0	0.00
October	0.37	425.10	400.81	0.00	400.81	0	0.00	0.00	0	0.00
November	3.24	542.39	561.45	230.17	791.63	3	5.83	4.07	2	0.34
December										
January										
February										
March										
April										
May										
June										
TOTAL	3.62	2111.75	2112.58	230.17	2342.76	3	5.83	4.07	2	0.34

Monthly Wet Weather Summary - Oceanside Basins for November-2018

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
11/1/2018	0.00	12.48	11.28	0.00	11.28			0.00		
11/2/2018	0.00	11.87	11.98	0.00	11.98			0.00		
11/3/2018	0.00	14.11	13.45	0.00	13.45			0.00		
11/4/2018	0.00	12.83	12.13	0.00	12.13			0.00		
11/5/2018	0.00	13.32	12.37	0.00	12.37			0.00		
11/6/2018	0.00	13.27	13.48	0.00	13.48			0.00		
11/7/2018	0.00	11.44	11.83	0.00	11.83			0.00		
11/8/2018	0.00	12.40	13.09	0.00	13.09			0.00		
11/9/2018	0.00	12.73	13.48	0.00	13.48			0.00		
11/10/2018	0.00	11.32	11.83	0.00	11.83			0.00		
11/11/2018	0.00	12.50	13.03	0.00	13.03			0.00		
11/12/2018	0.00	12.92	13.06	0.00	13.06			0.00		
11/13/2018	0.00	11.50	11.45	0.00	11.45			0.00		
11/14/2018	0.00	11.78	11.76	0.00	11.76			0.00		
11/15/2018	0.00	12.11	11.02	0.00	11.02			0.00		
11/16/2018	0.00	12.82	11.36	0.00	11.36			0.00		
11/17/2018	0.00	12.17	10.98	0.00	10.98			0.00		
11/18/2018	0.00	10.96	11.23	0.00	11.23			0.00		
11/19/2018	0.00	14.03	12.84	0.00	12.84			0.00		
11/20/2018	0.00	15.29	15.32	0.00	15.32			0.00		
11/21/2018	0.95	42.91	44.73	70.01	114.74	1	<0.01	1.13		
11/22/2018	0.79	26.73	29.30	19.67	48.97	1	3.55	1.05	1	0.15
11/23/2018	0.40	51.22	56.69	73.13	129.82			0.57		
11/24/2018	0.02	20.86	23.23	0.00	23.23			0.03		
11/25/2018	0.00	13.22	14.10	0.00	14.10			0.00		
11/26/2018	0.00	17.39	18.01	0.00	18.01			0.00		
11/27/2018	0.09	29.22	30.89	0.00	30.89			0.34		
11/28/2018	0.69	25.23	27.54	7.82	35.36			0.76	1	0.19
11/29/2018	0.30	48.61	52.88	59.54	112.42	1	2.28	0.19		
11/30/2018	0.00	15.14	17.10	0.00	17.10			0.00		

TOTAL MONTHLY	3.24	542.39	561.45	230.17	791.63	3	5.83	4.07	2	0.34
MONTHLY AVERAGE FLOW (MGD)	-	18.08	18.72	46.03	26.39	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	10.96	10.98	0.00	10.98	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	51.22	56.69	73.13	129.82	-	-	-	-	-

Notes:

Oceanside Basin CSD Summary
Nov-2018

Date	Total Rain (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2018	0.00																		
11/2/2018	0.00																		
11/3/2018	0.00																		
11/4/2018	0.00																		
11/5/2018	0.00																		
11/6/2018	0.00																		
11/7/2018	0.00																		
11/8/2018	0.00																		
11/9/2018	0.00																		
11/10/2018	0.00																		
11/11/2018	0.00																		
11/12/2018	0.00																		
11/13/2018	0.00																		
11/14/2018	0.00																		
11/15/2018	0.00																		
11/16/2018	0.00																		
11/17/2018	0.00																		
11/18/2018	0.00																		
11/19/2018	0.00																		
11/20/2018	0.00																		
11/21/2018	0.95	1:02 PM	14	<0.01															
11/22/2018	0.79	10:44 PM	35	0.05	10:38 PM	45	0.37	10:52 PM	63	3.13							10:07 PM	16	0.15
11/23/2018	0.40																		
11/24/2018	0.02																		
11/25/2018	0.00																		
11/26/2018	0.00																		
11/27/2018	0.09																		
11/28/2018	0.69																10:04 PM	22	0.19
11/29/2018	0.30	12:24 AM	27	0.09	12:20 AM	38	0.09	12:34 AM	52	2.09									
11/30/2018	0.00																		
	0.00																		
TOTAL	**3.24**	-	**76**	**0.15**	-	**83**	**0.46**	-	**115**	**5.23**	-	**0**	**0.00**	-	**0**	**0.00**	-	**38**	**0.34**

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
February 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sat/02	Mon/04	Mon/11	Wed/13	Thu/14	Fri/15	Tue/19	Mon/25	Tue/26	Wed/27
15	145	5172	160	**24196**	932		52	1515		1354
15EAST	187	146	20	**17329**	408		98	31		30
16	121	223	31	**24196**	727		63	20		31
17		187	63	**12997**	389		85	20		10
18		216	10	**> 24196**	216		20	31		
19		203	73	**> 24196**	41		< 10	4884	98	
21.1		364	74	1670	97		20	20		
20				**17329**	131					
21				**> 24196**	158					
22				**> 24196**	**> 24196**	369				

Sampling/Posting issues
Posting delayed a few hours at 15, 15E and 16 on February 2, 2019

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Sat/02	Mon/04	Mon/11	Wed/13	Thu/14	Fri/15	Tue/19	Mon/25	Tue/26	Wed/27
15	< 10	135	30	**6488**	110		10	97		41
15EAST	20	31	10	**6131**	161		< 10	< 10		10
16	< 10	20	31	**9208**	135		20	10		< 10
17		41	31	**3654**	134		10	10		< 10
18		52	10	**> 24196**	10		< 10	10		
19		20	41	**> 24196**	< 10		< 10	**2247**	10	
21.1		31	30	**723**	20		< 10	20		
20				**7701**	10					
21				**> 24196**	10					
22				**> 24196**	**1421**	86				

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Sat/02	Mon/04	Mon/11	Wed/13	Thu/14	Fri/15	Tue/19	Mon/25	Tue/26	Wed/27
15	20	31	20	**1782**	63		20	31		63
15EAST	20	20	< 10	**1081**	10		< 10	< 10		< 10
16	41	20	10	**1624**	41		31	< 10		10
17		10	< 10	**959**	52		< 10	10		< 10
18		< 10	< 10	**7270**	20		< 10	10		
19		< 10	< 10	**> 24196**	20		< 10	**2613**	< 10	
21.1		10	41	**189**	10		< 10	< 10		
20				**1616**	10					
21				**> 24196**	20					
22				**14136**	**1785**	< 10				

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)					
02/01	0.22	02/09	0.38	02/16	0.22
02/02	1.21	02/10	0.08	02/17	0.23
02/03	0.20	02/12	0.30	02/25	0.21
02/04	0.40	02/13	2.33	02/26	0.73
02/05	0.06	02/14	1.01	02/27	0.42
02/08	0.26	02/15	0.11		

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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March 1, 2019

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

SUBJECT: Unauthorized Discharge - Supplemental Report for the Discharges of Partially Treated Effluent from the Oceanside Water Pollution Control Plant (NPDES CA0037681)

Dear Ms. Watkins,

Attached please find a supplement to the unauthorized discharge report submitted on February 1, 2019 regarding multiple discharges of untreated wastewater from the Oceanside Water Pollution Control Plant to the Pacific Ocean, as required by National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037681, Attachment G (2010), Section V.E.2.c. This supplement is being submitted because not all relevant information was available at the time of the original submittal. All information in the original submittal remains accurate and is not repeated in the attached.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller, Superintendent
Wastewater Enterprise

London N. Breed Mayor
Vince Courtney President
Ann Moller Caen Vice President
Francesca Vietor Commissioner
Anson Moran Commissioner
Ike Kwon Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

ATTACHMENT: OSP Discharge Incident Supplemental Report
March 1, 2019

Discharge description and cause.
On January 25, 29, and 30 a small volume of untreated wastewater from a primary clarifier mixed with secondary treated effluent and discharged through the Southwest Ocean Outfall (SWOO). As described in more detail below, the January 25 and 29 discharges were the result of dewatering sump discharge levels being elevated because one of two dewatering pumps were not operational. The three-minute January 30 discharge was intentionally induced to confirm a hypothesis of the cause of the previous events.

As shown in the simplified schematics below, the Oceanside Water Pollution Control Plant (OSP) primary clarifiers and secondary bypass pipe are dewatered using the same dewatering pumps, which return flows to OSP headworks. Under normal conditions, the secondary bypass drain valve is always left open, with intentional wet weather secondary bypasses controlled by the secondary bypass valve.

Secondary Bypass Pipe Dewatering Flow Path

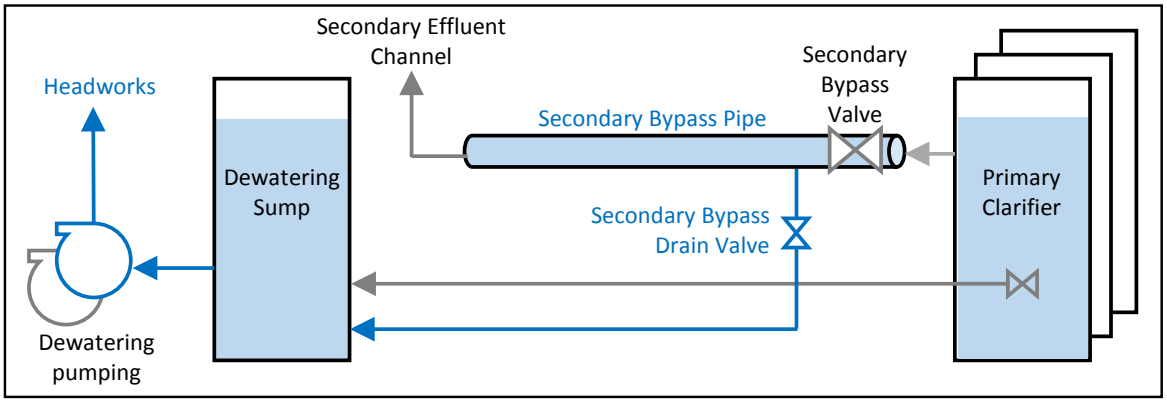

*Diagram provided for illustration purposes only. Not to Scale.

Primary Clarifier Dewatering Flow Path

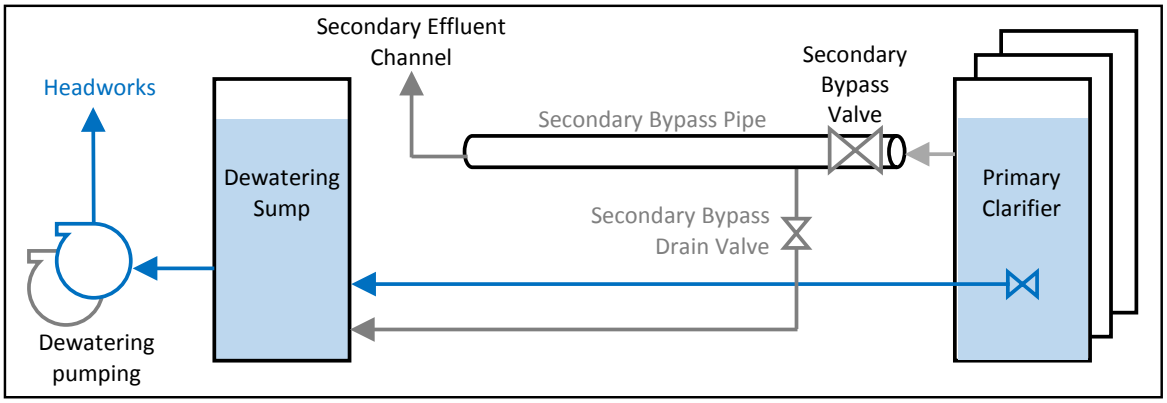

*Diagram provided for illustration purposes only. Not to Scale.

ATTACHMENT: OSP Discharge Incident Supplemental Report
March 1, 2019

On January 25 and 29, one of the primary clarifiers at OSP was being dewatered. One of the two dewatering pumps was not operational, which resulted in high dewatering sump levels. The high sump levels then allowed water to backup into the secondary bypass dewatering line, through the open secondary bypass drain valve, and into the secondary bypass pipe. Once in the secondary bypass pipe, the water from the primary clarifiers mixed with secondary treated effluent and discharged through the secondary effluent channel. This flow path is depicted in the schematic below.

Flow Path During 1/25, 1/29, 1/30 Events

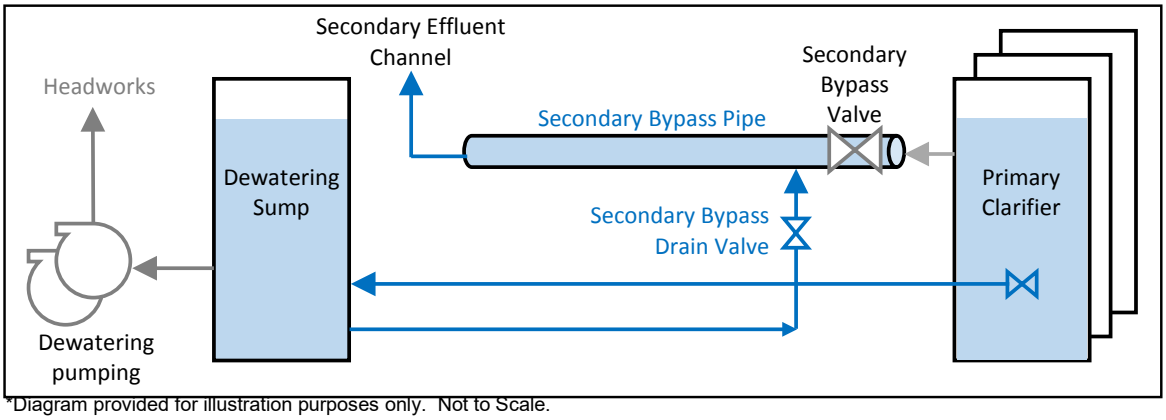

*Diagram provided for illustration purposes only. Not to Scale.

The January 25 and 29 events were identified in near real-time because of the recent installation of a continuous turbidity analyzer on the secondary effluent channel. The cause was identified on January 29 after Operations and Engineering staff identified a correlation between the timing of primary clarifier dewatering and the elevated turbidity. On January 30, staff tested this hypothesis by intentionally dewatering one of the primary clarifiers, allowing the sump levels to rise, and concurrently observing flow through the secondary bypass pipe.

Discharge date, time, duration, volume, and characteristics.
The SPUC estimated the date, time and duration of the January 25 and 29 discharges based on the final effluent channel turbidity analyzer readings, which also correlated to the duration of elevated sump levels. The duration of the January 30 event was based on visual observations because the contribution of the discharge was too small to be detected by the turbidity meter. The discharge volumes were estimated based on the dimensions of the dewatering sump and sump level measurements; information about each event is summarized in the table below.

ATTACHMENT: OSP Discharge Incident Supplemental Report
March 1, 2019

Date	Estimated Start Time	Estimated End Time	Estimated Duration	Estimated Unauthorized Discharge Volume (gallons)	Total Effluent Volume Discharged at EFF 001A (MG)	Percent Secondary Treated Effluent
25-Jan-19	2:55 PM	5:00 PM	125 min	36,000	10.0	99.6%
29-Jan-19	10:10 AM	12:35 PM	145 min	42,000	16.4	99.7%
30-Jan-19	9:12 AM	9:15 AM	3 min	900	17.5	99.995%

Total suspended solids (TSS) results for composite samples collected on the discharge dates are summarized in the table below. The OSP final effluent pipe discharges more than three miles offshore; substantial mixing and dilution occurs at the point of discharge within minutes. The effect of these discharges on receiving water quality is expected to be minimal to none.

Date	TSS Concentration	Sampling Location	Notes
25-Jan-19	31 mg/L	EFF-001A	Composite sample or part of the day. Sampler was stopped at approximately 5:15 pm because plant flows had been secured.
29-Jan-19	36 mg/L	EFF-001A	24-hour composite
30-Jan-19	27 mg/L	EFF-001B	24-hour composite

Corrective measures taken.
Investigation of the cause began immediately after the continuous analyzer showed elevated turbidity readings at around 3:00 pm on January 25. Shortly after Operations staff observed the elevated turbidity readings, a Senior Operator was dispatched to take a field turbidity reading of the final effluent, which confirmed the elevated turbidity readings of the online analyzer.

At 4:15 pm, the Chief on watch requested the support of the off-duty, on-call Operations Chief. The Operations Chief arrived on site at 4:30 pm and performed and/or directed the following activities:

- Visual check of effluent flowing over the secondary clarifier launders which looked normal, confirming that secondary treatment was not compromised.
- Visual check of the final effluent sampler, which confirmed that the effluent appeared turbid, similar to primary effluent.
- Check the secondary bypass screen on the Distributed Control System (DCS), which indicated that the secondary bypass was closed.

- Check the secondary bypass valve Foxboro controller, which indicated that the secondary bypass valve was closed.
- Secure (stop) influent flow into OSP at approximately 5:00 pm pending further investigation.
- Bring in on-call instrumentation and controls staff, who inspected the secondary bypass valve, including all actuators to all valves in the bypass systems and confirmed that all aspects of the system appeared normal.

The following day (Saturday), staff continued to investigate how primary wastewater could have entered the final effluent channel but were unsuccessful. At approximately 3:15 pm, influent pumping was resumed while staff continuously checked for evidence of elevated turbidity or a bypass. No issues were observed.

On January 29, elevated turbidity was again observed and the correlation between turbidity and primary clarifier dewatering was identified. The following morning, staff tested this hypothesis by intentionally dewatering one of the primary clarifiers, allowing the sump levels to rise, and concurrently observing flow through the secondary bypass pipe.

Preventative measures taken or planned.
During the unauthorized discharges, one of the dewatering pumps was out of service. As of February 14, the pump was back in service, which should allow sump levels to be better managed to maintain them at a level below the secondary bypass valve drain elevation.

Immediately after the incident cause was confirmed on December 30, the secondary bypass drain valve was closed at 10:06 am. As a precaution, this incident and the cause has been explained to all Senior operators.

Summary of Spill Prevention Plan or Operation & Maintenance Manual modifications to be made, if necessary, to minimize the chances of future discharges
OSP daily standing orders, which provide updates about and direction regarding critical facilities, now instruct Operations staff to ensure that the secondary bypass drain valve is closed during primary clarifier dewatering.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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March 4, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: January 2019 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of January 2019 for the Oceanside Water Pollution Control Plant (OSP).

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit except for the result of a final effluent (EFF-001A) sample for 5-day biochemical oxygen demand (BOD_5) collected on January 23, which did not meet quality assurance/quality control (QA/QC) specifications. The test results, which were available on January 29, did not meet a QA/QC specification for method SM5210B (i.e., an average standard recovery of 77%, outside of the acceptable QC range of 85-115%). Staff subsequently analyzed a composite sample collected on January 28 (17.5 mg/L). An additional sample that week was collected and analyzed on January 29 (31.6 mg/L).

Discharge Incidents.
On January 25, 29, and 30 small volumes of untreated wastewater from the primary effluent clarifiers, mixed with secondary treated effluent, were discharged through EFF-001. The discharge resulted from one of two dewatering sumps being out of service, which caused the dewatering sump levels to rise and allowed flow to enter the secondary bypass pipe. The details

London N. Breed
Mayor
Ann Moller Caen
Vice President
Francesca Vietor
Commissioner
Anson Moran
Commissioner
Ike Kwon
Commissioner
Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

were provided in a report of unauthorized discharge submitted on February 1 and a supplemental report submitted on March 1.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges.
There were three combined sewer discharges (CSDs) during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Count of Drainage Areas CSDs	Westside T/S Boxes	Seacliff Area	Westside Total
This reporting period	2	2	3
Total for 2018-2019 Wet Weather Season	5	5	7

System Operations of Wet Weather Facilities.
During the January 16 storm event, the Sea Cliff 2 Pump Station (SC2) did not consistently pump flows from the local watershed to the Richmond Transport/Storage Tunnel due to a power outage. The CSD at Discharge Point No. CSD-007 (Sea Cliff #2) initiated at 7:24pm. SC2 was pumping at maximum capacity until about 7:35pm, when a local power outage occurred. The power outage was caused by PG&E SFPUC staff arrived at SC2 to restart the pumps and pumps began to pump at approximately 8:46pm, coinciding with end of the discharge to CSD-007.

This event did not cause a CSD or otherwise increase the CSD volume discharged on the Westside during this storm event. Additionally, the Westside Transport/Storage Structure was full and CSDs occurred shortly thereafter at Discharge Point Nos. CSD-002 and CSD-003 (7:50 pm and 8 pm, respectively). Even if the power outage had not occurred and SC2 maintained capacity during the discharge, the Sea Cliff #2 CSD would have still occurred with a lesser CSD volume with the remaining portion discharged through the ongoing CSDs to Ocean Beach.

Wet Weather Monitoring. The Westside system experienced wet weather days on 1/5, 1/6, 1/7, 1/9, 1/15, 1/16, 1/17, 1/30, and 1/31. Required monitoring occurred at INF-001B and EFF-001B.

CSD Monitoring. A sample was not collected during the January 6 CSD event due to issues with sampler programming. Shortly before the overflow commenced, SFPUC staff reset the sampler in preparation for the anticipated CSD event. However, the sampler was reprogrammed incorrectly, resulting in

a low sample volume that was insufficient for laboratory analysis. Field staff investigated the sampler programming and subsequently modified the program to collect a composite sample to achieve collection of sufficient sample volume.

During the subsequent CSD event at Discharge Point No. CSD-002, the sampler successfully collected a full sample volume and laboratory analyses were conducted to complete the once per event compliance monitoring required by the NPDES permit for the January 16 event.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit except on January 1-22 at SRF-17 (China Beach) and SRF-22 (Fort Funston). This shoreline monitoring location was not accessible (i.e., locked gate) during this time due to partial federal government. The public was notified of CSDs at this location via phone hotline, email, and the sfwater.org website.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Westside Operations

Annual Wet Weather Summary - Oceanside Basins for 2018-2019											
DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA			
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges		
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007		
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume	
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-	
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG	
July	0.00	380.29	376.04	0.00	376.04	0	0.00	0.00	0	0.00	
August	0.01	394.28	385.68	0.00	385.68	0	0.00	0.00	0	0.00	
September	0.00	369.70	388.61	0.00	388.61	0	0.00	0.00	0	0.00	
October	0.37	425.10	400.81	0.00	400.81	0	0.00	0.00	0	0.00	
November	3.24	542.39	561.45	230.17	791.63	3	5.83	4.07	2	0.34	
December	1.81	518.60	533.64	78.41	612.05	0	0.00	1.77	1	0.08	
January	5.19	676.28	721.53	312.42	1033.95	2	84.81	5.47	2	1.14	
February											
March											
April											
May											
June											
TOTAL	10.62	3306.62	3367.76	621.01	3988.76	5	90.64	11.31	5	1.55	

Monthly Wet Weather Summary - Oceanside Basins for January-2019

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff .Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
1/1/2019	0.00	13.63	13.94	0.00	13.94			0.00		
1/2/2019	0.00	11.70	11.59	0.00	11.59			0.00		
1/3/2019	0.00	13.58	14.32	0.00	14.32			0.00		
1/4/2019	0.00	14.07	11.84	0.00	11.84			0.00		
1/5/2019	0.33	29.65	31.64	8.35	39.99			0.28		
1/6/2019	1.45	41.72	45.09	70.31	115.40	1	38.78	1.56		
1/7/2019	0.00	29.31	32.68	18.52	51.20			0.00		
1/8/2019	0.00	15.83	16.81	0.00	16.81			0.00		
1/9/2019	0.12	25.53	27.27	0.00	27.27			0.13		
1/10/2019	0.00	17.59	18.25	0.00	18.25			0.00		
1/11/2019	0.06	23.42	24.07	0.00	24.07			0.16		
1/12/2019	0.01	21.14	22.73	0.00	22.73			0.00		
1/13/2019	0.00	17.03	17.79	0.00	17.79			0.00		
1/14/2019	0.01	17.74	18.50	0.00	18.50			0.01		
1/15/2019	0.42	43.74	45.93	35.36	81.30			0.69		
1/16/2019	1.41	51.59	55.17	65.96	121.14	1	46.03	1.45	1	0.76
1/17/2019	0.70	55.60	63.42	84.93	148.35			0.48	1	0.38
1/18/2019	0.00	21.72	24.74	0.00	24.74			0.00		
1/19/2019	0.00	15.79	17.53	0.00	17.53			0.00		
1/20/2019	0.20	30.67	32.74	0.00	32.74			0.21		
1/21/2019	0.00	16.12	18.10	0.00	18.10			0.00		
1/22/2019	0.00	15.26	16.40	0.00	16.40			0.00		
1/23/2019	0.00	13.40	13.48	0.00	13.48			0.00		
1/24/2019	0.00	13.19	13.28	0.00	13.28			0.00		
1/25/2019	0.00	9.39	9.98	0.00	9.98			0.00		
1/26/2019	0.00	5.37	5.35	0.00	5.35			0.00		
1/27/2019	0.00	14.85	16.36	0.00	16.36			0.00		
1/28/2019	0.00	13.00	13.92	0.00	13.92			0.00		
1/29/2019	0.00	17.62	17.38	0.00	17.38			0.00		
1/30/2019	0.16	17.06	17.94	0.00	17.94			0.13		
1/31/2019	0.32	29.97	33.29	28.98	62.27			0.37		

TOTAL MONTHLY	5.19	676.28	721.53	312.42	1033.95	2	84.81	5.47	2	1.14
MONTHLY AVERAGE FLOW (MGD)	-	21.82	23.28	44.63	33.35	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	5.37	5.35	0.00	5.35	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	55.60	63.42	84.93	148.35	-	-	-	-	-

Notes:

1. OSP plant shutdown from 1/25 5:00 pm to 1/26 3:15 pm
2. OSP plant flow rate data communication on 1/30 from 9:15 to 9:34 am. Interpolated data during this timeframe.

Oceanside Basin CSD Summary
Jan-2019

Date	Total Rain OSP (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
1/1/2019	0.00																		
1/2/2019	0.00																		
1/3/2019	0.00																		
1/4/2019	0.00																		
1/5/2019	0.33																		
1/6/2019	1.45	2:32 PM	225	0.79	3:13 PM	246	12.06	3:13 PM	246	25.93									
1/7/2019	0.00																		
1/8/2019	0.00																		
1/9/2019	0.12																		
1/10/2019	0.00																		
1/11/2019	0.06																		
1/12/2019	0.01																		
1/13/2019	0.00																		
1/14/2019	0.01																		
1/15/2019	0.42																		
1/16/2019	1.41	7:40 PM	94.2	3.60	7:50 PM	119.8	7.06	8:00 PM	165.4	14.51	8:43 PM	1	<0.01				7:24 PM	79	0.76
1/17/2019	0.70										7:22 AM	12	<0.01				7:27 AM	41	0.37
1/18/2019	0.00																		
1/19/2019	0.00																		
1/20/2019	0.20																		
1/21/2019	0.00																		
1/22/2019	0.00																		
1/23/2019	0.00																		
1/24/2019	0.00																		
1/25/2019	0.00																		
1/26/2019	0.00																		
1/27/2019	0.00																		
1/28/2019	0.00																		
1/29/2019	0.00																		
1/30/2019	0.16																		
1/31/2019	0.32																		
TOTAL	**5.19**	**-**	**319.2**	**4.39**	**-**	**365.8**	**19.12**	**-**	**411.4**	**40.44**	**-**	**13**	**<0.01**	**-**	**0**	**0.00**	**-**	**120**	**1.13**

San Francisco Water Power Sewer
Operator of the Hetch Hetchy Regional Water System

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
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April 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: March 2019 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of March 2019 for the Oceanside Water Pollution Control Plant (OSP).

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit except for the result of influent (INF-001A) and final effluent (EFF-001A) samples for the 5-day biochemical oxygen demand (BOD_5) samples collected on March 13. The tests did not meet two quality assurance/quality control (QA/QC) specifications:

1. BOD method SM5210B requires a minimum dissolved oxygen (DO) depletion of 2.0 mg/L for the seed blanks. This requirement was not met; the cause may have been weak seed control. The seed used for the test is replenished with influent samples, and seed control may have been weakened by influent diluted from recent wet weather events. To prevent reoccurrence, OSP laboratory staff have set up a separate seed bottle to be replenished by dry weather only influent. Staff have also ensured that routine maintenance on the influent sampler is occurring regularly.

2. BOD method SM5210B also requires a maximum DO depletion of 0.20 mg/L for the dilution water blanks. This requirement was not met due to an unknown cause such

London N. Breed
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Anson Moran
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General Manager

as contamination or calibration error. Laboratory staff have been retrained on the proper laboratory procedures related to this method and subsequent BOD analyses have met QC requirements.

These two matters were not discovered until test results were available on March 19. Staff subsequently analyzed extra INF-001 and EFF-001 composite samples collected on March 18. Additional samples that week were collected and analyzed on March 19.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges. There were multiple combined sewer discharges (CSDs) during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Count of Drainage Areas CSDs	Westside T/S Boxes	Seacliff Area	Westside Total
This reporting period	0	2	2
Total for 2018-2019 Wet Weather Season	7	11	13

System Operations of Wet Weather Facilities.
The operation of wet weather facilities during the storm event was conducted consistent with the requirements in NPDES permit Provision VI.C.6.c(3) - VI.C.6.c(4).

Wet Weather Monitoring. The Westside system experienced wet weather days on March 2-6, 9, 20, 22, 23, and 27. Required monitoring occurred at INF-001B and EFF-001B.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Westside Operations

Annual Wet Weather Summary - Oceanside Basins for 2019-2020

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	380.29	376.04	0.00	376.04	0	0.00	0.00	0	0.00
August	0.01	394.28	385.68	0.00	385.68	0	0.00	0.00	0	0.00
September	0.00	369.70	388.61	0.00	388.61	0	0.00	0.00	0	0.00
October	0.37	425.10	400.81	0.00	400.81	0	0.00	0.00	0	0.00
November	3.24	542.39	561.45	230.17	791.63	3	5.83	4.07	2	0.34
December	1.81	518.56	531.56	78.41	609.97	0	0.00	1.77	1	0.08
January	5.19	676.28	721.53	312.42	1033.95	2	84.81	5.47	2	1.14
February	8.37	813.76	885.84	427.67	1313.50	2	102.06	9.86	4	4.76
March	4.36	740.78	789.78	217.66	1007.44	0	0.00	4.86	1	0.10
April										
May										
June										
TOTAL	23.35	4861.12	5041.30	1266.33	6307.63	7	192.70	26.03	10	6.41

Monthly Wet Weather Summary - Oceanside Basins for March-2019

DRAINAGE BASIN	WESTSIDE T/S BOX							SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant		Pumping	System Effluent	Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent	WSPS Pumping to SWOO	Total Flows to SWOO	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	TELOG:RG13_SeaCliff .Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	-	MG	INCHES	-	MG
3/1/2019	0.02	15.88	15.53	<0.01	15.53			0.03		
3/2/2019	0.79	59.67	65.09	44.43	109.52			0.85		
3/3/2019	0.04	25.97	28.37	0.00	28.37			0.06		
3/4/2019	0.08	26.05	28.57	0.00	28.57			0.13		
3/5/2019	0.40	44.72	47.70	13.20	60.89			0.46		
3/6/2019	0.65	56.46	61.02	64.24	125.25			0.81	1	0.10
3/7/2019	0.03	21.59	23.54	0.00	23.54			0.00		
3/8/2019	0.00	15.69	16.33	0.00	16.33			0.00		
3/9/2019	0.38	31.07	33.39	13.34	46.73			0.34		
3/10/2019	0.12	35.78	38.06	0.00	38.06			0.17		
3/11/2019	0.00	19.26	20.94	0.00	20.94			0.00		
3/12/2019	0.00	17.32	17.72	0.00	17.72			0.00		
3/13/2019	0.00	14.10	15.50	0.00	15.50			0.00		
3/14/2019	0.00	14.26	14.14	0.00	14.14			0.00		
3/15/2019	0.00	14.56	15.15	0.00	15.15			0.00		
3/16/2019	0.00	15.05	14.92	0.00	14.92			0.00		
3/17/2019	0.00	14.25	14.08	0.00	14.08			0.00		
3/18/2019	0.00	13.46	13.91	0.00	13.91			0.00		
3/19/2019	0.00	14.69	15.28	0.00	15.28			0.00		
3/20/2019	0.83	42.73	45.89	49.17	95.06			0.79		
3/21/2019	0.00	14.60	16.26	0.00	16.26			0.00		
3/22/2019	0.46	33.44	35.24	12.43	47.67			0.58		
3/23/2019	0.12	33.05	36.40	20.85	57.26			0.12		
3/24/2019	0.00	13.74	14.92	0.00	14.92			0.00		
3/25/2019	0.15	19.90	20.74	0.00	20.74			0.14		
3/26/2019	0.12	22.18	23.60	0.00	23.60			0.13		
3/27/2019	0.17	33.90	36.51	0.00	36.51			0.25		
3/28/2019	0.00	17.64	18.90	0.00	18.90			0.00		
3/29/2019	0.00	12.95	14.59	0.00	14.59			0.00		
3/30/2019	0.00	12.47	13.14	0.00	13.14			0.00		
3/31/2019	0.00	14.35	14.35	0.00	14.35			0.00		
TOTAL MONTHLY	4.36	740.78	789.78	217.66	1007.44	0	0.00	4.86	1	0.10
MONTHLY AVERAGE FLOW (MGD)	-	23.90	25.48	27.21	32.50	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	12.47	13.14	0.00	13.14	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	59.67	65.09	64.24	125.25	-	-	-	-	-

Notes:

Oceanside Basin CSD Summary
Mar-2019

Date	Total Rain (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2019	0.02																		
3/2/2019	0.79																		
3/3/2019	0.04																		
3/4/2019	0.08																		
3/5/2019	0.40																		
3/6/2019	0.65										2:58 AM	11	<0.01				2:55 AM	13	0.09
3/7/2019	0.03																		
3/8/2019	0.00																		
3/9/2019	0.38																		
3/10/2019	0.12																		
3/11/2019	0.00																		
3/12/2019	0.00																		
3/13/2019	0.00																		
3/14/2019	0.00																		
3/15/2019	0.00																		
3/16/2019	0.00																		
3/17/2019	0.00																		
3/18/2019	0.00																		
3/19/2019	0.00																		
3/20/2019	0.83																		
3/21/2019	0.00																		
3/22/2019	0.46																		
3/23/2019	0.12																		
3/24/2019	0.00																		
3/25/2019	0.15																		
3/26/2019	0.12																		
3/27/2019	0.17																		
3/28/2019	0.00																		
3/29/2019	0.00																		
3/30/2019	0.00																		
3/31/2019	0.00																		
TOTAL	**4.36**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**11**	**<0.01**	-	**0**	**0.00**	-	**13**	**0.09**

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
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TTY 415.554.3488

August 26, 2019

Mr. Samuel Plummer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

SUBJECT: 5-Day Report for the Discharges of Partially Treated Effluent from the Oceanside Water Pollution Control Plant (NPDES CA0037681)

Dear Mr. Plummer:

Attached please find information regarding a discharge of partially treated wastewater from the Oceanside Water Pollution Control Plant (OSP) to the Pacific Ocean, as required by National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037681, Order No. R2-2009-0062.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

George Engel
Operations Division Manager
Wastewater Enterprise
San Francisco Public Utilities Commission

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

ATTACHMENT: OSP Discharge Incident 5-Day Report
August 26, 2019

1. Discharge description and cause

On Saturday, August 17, 2019, an estimated 1.8 million gallons (MG) of primary treated wastewater bypassed the secondary treatment facilities and discharged through the Southwest Ocean Outfall (Discharge Point No. 001) of the Oceanside Water Pollution Control Plant (OSP).

The bypass is believed to have been caused by an inconsistent power supply unit feeding the bypass valve that caused the valve to intermittently and erratically open and close. As described below, this power unit has been replaced, and a function test of the unit that was removed will be performed later this month to confirm the cause.

2. Period of Noncompliance (if noncompliance has not been correct, anticipated time it is expected to continue)

Primary treated wastewater was discharged from approximately 5:30 a.m. until 6:40 p.m.; the bypass period was approximately 13 hours. The 1.8 MG of primary treated wastewater was comingled with approximately 8 MG of secondary treated wastewater.

Compliance with weekly and monthly numeric effluent limits is not believed to have been affected based on a 24-hour composite sample collected on August 17. This sample was analyzed for total suspended solids and had a concentration of 27 milligrams per liter (mg/L), which is below both the average weekly and average monthly effluent limits of 45 and 30 mg/L respectively.

3. Steps Taken or Planned to Reduce, Eliminate, and Prevent Reoccurrence of Noncompliance

The bypass was stopped at 6:37 p.m. by securing influent flow to the plant.

To prevent reoccurrence during investigation of the cause, the automatic bypass valve was isolated using manual valves located upstream and downstream. Once the power supply was identified as the likely cause, the power supply unit was replaced.

The status of the bypass valve is visible from the Distributed Control System (DCS) main screen. San Francisco Public Utilities Commission (SFPUC) is investigating whether the status was visible to the OSP Watch Supervisor while the bypass was occurring. If not, SFPUC will take steps to resolve it. If so, SFPUC will provide additional training to the OSP Watch Supervisor relating to responding to the bypass valve status.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
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TTY 415.554.3488

August 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: July 2019 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of July 2019 for the Oceanside Water Pollution Control Plant (OSP).

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit with the following exceptions:

BOD_5. The results for 5-day biochemical oxygen demand (BOD_5) during the week of July 7-13 are not available. The BOD_5 tests were conducted for the influent (INF-001) and effluent (EFF-001A) samples collected on July 10. However, the tests did not meet quality assurance/quality control (QA/QC) specifications. BOD method SM5210B requires a maximum DO depletion of 0.20 mg/L for the dilution water blanks. This requirement was not met due to an unknown cause, but contamination is suspected. Laboratory staff have since thoroughly cleaned the laboratory equipment used for the BOD analysis. This issue was not discovered until test results were available on July 16, and staff subsequently analyzed extra INF-001 and EFF-001A composite samples collected on July 16. Additional samples were collected and analyzed for July 20.

London N. Breed, Mayor
Ann Moller Caen, President
Francesca Vietor, Vice President
Anson Moran, Commissioner
Sophie Maxwell, Commissioner
Tim Paulson, Commissioner
Harlan L. Kelly, Jr., General Manager

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pH. During the last week of July (July 28 – August 3), only four INF-001 and EFF-001A samples were collected for pH (Jul 31, Aug 1, Aug 2, Aug 3) because an unplanned plant shutdown on July 29-30, necessitated by a PG&E issue, prevented the collection of grab samples on those days. Grab sampling was not conducted on July 28 because it had not been scheduled. Results for samples collected on August 1-3 will be submitted with the August 2019 SMR.

TSS. During the last week of July (July 28 – August 3), only four INF-001 samples were collected (Jul 28, Aug 1, Aug 2, Aug 3) for total suspended solids because the unplanned plant shutdown prevented the collection of composites on July 29-30, and a sampler setup issue prevented collection of a sample on July 31. Results for samples collected on August 1-3 will be submitted with the August 2019 SMR.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges. There were no combined sewer discharges (CSDs) during this monitoring period as described in the Wet Weather Summary.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew M. Clark
Operations Superintendent

Annual Wet Weather Summary - Oceanside Basins for 2019-2020														
DRAINAGE BASIN	WESTSIDE T/S BOX								Mile Rock		SEA CLIFF AREA			
Metrics	Rainfall	Treatment Plant			Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges		
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007		
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	Westside Transport/Storage Structure Effluent ("Decant")	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume	
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-	
MONTH/UNIT	INCHES	MG	MG	MG	MG	MG	-	MG	-	MG	INCHES	-	MG	
July	0.02	348.74	328.73	0.00	0.00	328.73	0	0.00	0	0.00	0.00	0	0.00	
August														
September														
October														
November														
December														
January														
February														
March														
April														
May														
June														
TOTAL	0.02	348.74	328.73	0.00	0.00	328.73	0	0.00	0	0.00	0.00	0	0.00	

Monthly Wet Weather Summary - Oceanside Basins for July-2019

DRAINAGE BASIN	WESTSIDE T/S BOX								Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant			Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	Westside Transport/Storage Structure Effluent ("Decant")	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.R001	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FIY1.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	MG	-	MG	-	MG	INCHES	-	MG
7/1/2019	0.00	12.39	11.36	0.00	0.00	11.36					0.00		
7/2/2019	0.00	11.61	11.27	0.00	0.00	11.27					0.00		
7/3/2019	0.00	11.37	11.24	0.00	0.00	11.24					0.00		
7/4/2019	0.00	11.97	10.90	0.00	0.00	10.90					0.00		
7/5/2019	0.00	12.07	10.22	0.00	0.00	10.22					0.00		
7/6/2019	0.00	12.47	10.67	0.00	0.00	10.67					0.00		
7/7/2019	0.00	12.13	10.88	0.00	0.00	10.88					0.00		
7/8/2019	0.00	12.33	11.80	0.00	0.00	11.80					0.00		
7/9/2019	0.00	11.04	10.58	0.00	0.00	10.58					0.00		
7/10/2019	0.00	11.39	11.36	0.00	0.00	11.36					0.00		
7/11/2019	0.01	11.93	11.71	0.00	0.00	11.71					0.00		
7/12/2019	0.01	12.70	12.49	0.00	0.00	12.49					0.00		
7/13/2019	0.00	12.33	12.01	0.00	0.00	12.01					0.00		
7/14/2019	0.00	12.51	12.08	0.00	0.00	12.08					0.00		
7/15/2019	0.00	12.00	10.69	0.00	0.00	10.69					0.00		
7/16/2019	0.00	11.93	11.25	0.00	0.00	11.25					0.00		
7/17/2019	0.00	8.27	7.27	0.00	0.00	7.27					0.00		
7/18/2019	0.00	15.82	15.27	0.00	0.00	15.27					0.00		
7/19/2019	0.00	10.53	9.86	0.00	0.00	9.86					0.00		
7/20/2019	0.00	11.47	10.46	0.00	0.00	10.46					0.00		
7/21/2019	0.00	11.76	11.33	0.00	0.00	11.33					0.00		
7/22/2019	0.00	11.64	11.04	0.00	0.00	11.04					0.00		
7/23/2019	0.00	11.88	10.98	0.00	0.00	10.98					0.00		
7/24/2019	0.00	8.57	8.14	0.00	0.00	8.14					0.00		
7/25/2019	0.00	13.97	13.01	0.00	0.00	13.01					0.00		
7/26/2019	0.00	11.49	10.88	0.00	0.00	10.88					0.00		
7/27/2019	0.00	9.09	8.01	0.00	0.00	8.01					0.00		
7/28/2019	0.00	14.08	13.54	0.00	0.00	13.54					0.00		
7/29/2019	0.00	0.06	0.55	0.00	0.00	0.55					0.00		
7/30/2019	0.00	3.62	3.40	0.00	0.00	3.40					0.00		
7/31/2019	0.00	14.34	14.46	0.00	0.00	14.46					0.00		
TOTAL MONTHLY	0.02	348.74	328.73	0.00	0.00	328.73	0	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	11.25	10.60	-	0.00	10.60	-	-	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.06	0.55	0.00	0.00	0.55	-	-	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	15.82	15.27	0.00	0.00	15.27	-	-	-	-	-	-	-

Notes

Instrumentation anomalies occurring on 7/2 for Westside Transport/Storage Structure Effluent were zeroed out per confirmation by SFPUC Operations.

OSP shutdowns on 7/17 from 3:00 AM to 5:35 PM, 7/24 from 4:00 AM to 1:15 PM, 7/27 from 12:25 PM to 6:25 PM, and 7/29 from 12:00 AM to 7/30 2:30 PM

Oceanside Basin CSD Summary
Jul-2019

Date	OSP Rain Gauge Total (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #4 Mile Rock			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
7/1/2019	0.00																					
7/2/2019	0.00																					
7/3/2019	0.00																					
7/4/2019	0.00																					
7/5/2019	0.00																					
7/6/2019	0.00																					
7/7/2019	0.00																					
7/8/2019	0.00																					
7/9/2019	0.00																					
7/10/2019	0.00																					
7/11/2019	0.01																					
7/12/2019	0.01																					
7/13/2019	0.00																					
7/14/2019	0.00																					
7/15/2019	0.00																					
7/16/2019	0.00																					
7/17/2019	0.00																					
7/18/2019	0.00																					
7/19/2019	0.00																					
7/20/2019	0.00																					
7/21/2019	0.00																					
7/22/2019	0.00																					
7/23/2019	0.00																					
7/24/2019	0.00																					
7/25/2019	0.00																					
7/26/2019	0.00																					
7/27/2019	0.00																					
7/28/2019	0.00																					
7/29/2019	0.00																					
7/30/2019	0.00																					
7/31/2019	0.00																					
TOTAL	0.02	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
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September 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: August 2019 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of August 2019 for the Oceanside Water Pollution Control Plant (OSP).

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit except for 5-day biochemical oxygen demand (BOD_5) described below. Due to plant shutdowns, incomplete composite samples were collected for monitoring locations INF-001A and EFF-001A on August 2, 17, 18, and 30; the sample results for total suspended solids (TSS) are available and have been uploaded to CIWQS.

$\underline{BOD_5}$. The results for 5-day biochemical oxygen demand (BOD_5) during the week of August 18-24 are not available. The BOD_5 tests were conducted for the influent (INF-001) and effluent (EFF-001A) samples collected on August 21. However, the test results did not meet a QA/QC specification for method SM5210B (i.e., an average standard recovery of 77%, outside of the acceptable QC range of 85-115%). Laboratory staff investigated the cause and discovered equipment contamination in the probe membrane of the DO meter. Laboratory staff have since replaced the probe membrane. This issue was not discovered until test results were available on August 27, and staff subsequently analyzed extra INF-001 and EFF-001A composite samples

London N. Breed, Mayor
Ann Moller Caen, President
Francesca Vietor, Vice President
Anson Moran, Commissioner
Sophie Maxwell, Commissioner
Tim Paulson, Commissioner
Harlan L. Kelly, Jr., General Manager

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collected on August 26. Additional samples were collected and analyzed for August 27.

Discharge Incidents. As reported in a 5-day report submitted August 26, an estimated 1.8 million gallons (MG) of primary treated wastewater bypassed the secondary treatment facilities and was discharged through the Southwest Ocean Outfall (Discharge Point No. 001) on August 17. The bypass is believed to have been caused by an inconsistent power supply unit feeding the bypass valve and the power unit was replaced. Upon further investigation, including a function test on the former unit, the cause was determined to be related to a DCS programming issue.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges. There were no combined sewer discharges (CSDs) during this monitoring period as summarized in the attached wet weather summary.

If you have any questions concerning this report, please contact Operations Division Manager, George Engel at (415) 920-4923 or GEngel@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Westside Operations

Annual Wet Weather Summary - Oceanside Basins for 2019-2020

DRAINAGE BASIN	WESTSIDE T/S BOX								Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant			Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG_ANA:RG13_SeaCliff.DailyTotal	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MG	MG	-	MG	-	MG	INCHES	-	MG
July	0.02	348.74	328.73	0.00	0.00	328.73	0	0.00	0	0.00	0.00	0	0.00
August	0.00	397.23	387.21	0.00	0.00	387.21	0	0.00	0	0.00	0.00	0	0.00
September													
October													
November													
December													
January													
February													
March													
April													
May													
June													
TOTAL	0.02	745.97	715.94	0.00	0.00	715.94	0	0.00	0	0.00	0.00	0	0.00

Monthly Wet Weather Summary - Oceanside Basins for August-2019

DRAINAGE BASIN	WESTSIDE T/S BOX								Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant			Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	MG	-	MG	-	MG	INCHES	-	MG
8/1/2019	0.00	22.17	19.93	0.00	0.00	19.93							
8/2/2019	0.00	13.74	13.50	0.00	0.00	13.50							
8/3/2019	0.00	12.64	12.36	0.00	0.00	12.36							
8/4/2019	0.00	14.13	13.66	0.00	0.00	13.66							
8/5/2019	0.00	14.13	13.39	0.00	0.00	13.39							
8/6/2019	0.00	12.32	11.45	0.00	0.00	11.45							
8/7/2019	0.00	14.28	13.39	0.00	0.00	13.39							
8/8/2019	0.00	12.52	11.02	0.00	0.00	11.02							
8/9/2019	0.00	11.17	10.07	0.00	0.00	10.07							
8/10/2019	0.00	12.95	11.11	0.00	0.00	11.11							
8/11/2019	0.00	12.59	12.04	0.00	0.00	12.04							
8/12/2019	0.00	12.17	12.37	0.00	0.00	12.37							
8/13/2019	0.00	14.02	12.93	0.00	0.00	12.93							
8/14/2019	0.00	0.81	1.19	0.00	0.00	1.19							
8/15/2019	0.00	8.57	7.70	0.00	0.00	7.70							
8/16/2019	0.00	15.35	16.54	0.00	0.00	16.54							
8/17/2019	0.00	12.84	13.00	0.00	0.00	13.00							
8/18/2019	0.00	15.15	15.65	0.00	0.00	15.65							
8/19/2019	0.00	18.50	18.78	0.00	0.00	18.78							
8/20/2019	0.00	10.53	10.60	0.00	0.00	10.60							
8/21/2019	0.00	15.46	15.20	0.00	0.00	15.20							
8/22/2019	0.00	11.23	10.73	0.00	0.00	10.73							
8/23/2019	0.00	12.39	11.82	0.00	0.00	11.82							
8/24/2019	0.00	11.95	11.10	0.00	0.00	11.10							
8/25/2019	0.00	11.17	10.58	0.00	0.00	10.58							
8/26/2019	0.00	12.56	13.02	0.00	0.00	13.02							
8/27/2019	0.00	14.31	15.48	0.00	0.00	15.48							
8/28/2019	0.00	5.67	5.33	0.00	0.00	5.33							
8/29/2019	0.00	16.29	17.01	0.00	0.00	17.01							
8/30/2019	0.00	13.82	14.37	0.00	0.00	14.37							
8/31/2019	0.00	11.81	11.90	0.00	0.00	11.90							
TOTAL MONTHLY	0.00	397.23	387.21	0.00	0.00	387.21	0	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	12.81	12.49	-	0.00	12.49	-	-	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.81	1.19	0.00	0.00	1.19	-	-	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	22.17	19.93	0.00	0.00	19.93	-	-	-	-	-	-	-

Notes

1. Instrumentation anomalies occurring on 8/19 for Westside Transport/Storage Structure Effluent were zeroed out per confirmation by SFPUC Operations.
2. Instrumentation anomalies occuring on 8/19 and 8/20 for OSP Effluent - Secondary Bypass were zeroed out per confirmation by SFPUC Operations.
2. OSP shutdowns on 8/2 from 2:00PM to 5:00 PM, from 8/14 4:00 AM to 8/15 6:30 AM, from 8/17 6:30PM to 8/18 12:40PM, on 8/28 from 2:00AM to 1:00PM, and on 8/30 from 2:00AM to 4:00AM.

Oceanside Basin CSD Summary
Aug-2019

Date	OSP Rain Gauge Total (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #4 Mile Rock			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
8/1/2019	0.00																					
8/2/2019	0.00																					
8/3/2019	0.00																					
8/4/2019	0.00																					
8/5/2019	0.00																					
8/6/2019	0.00																					
8/7/2019	0.00																					
8/8/2019	0.00																					
8/9/2019	0.00																					
8/10/2019	0.00																					
8/11/2019	0.00																					
8/12/2019	0.00																					
8/13/2019	0.00																					
8/14/2019	0.00																					
8/15/2019	0.00																					
8/16/2019	0.00																					
8/17/2019	0.00																					
8/18/2019	0.00																					
8/19/2019	0.00																					
8/20/2019	0.00																					
8/21/2019	0.00																					
8/22/2019	0.00																					
8/23/2019	0.00																					
8/24/2019	0.00																					
8/25/2019	0.00																					
8/26/2019	0.00																					
8/27/2019	0.00																					
8/28/2019	0.00																					
8/29/2019	0.00																					
8/30/2019	0.00																					
8/31/2019	0.00																					
TOTAL	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
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TTY 415.554.3488

October 29, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: September 2019 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of September 2019 for the Oceanside Water Pollution Control Plant (OSP).

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit. Due to plant shutdowns on September 6, 11, 14 and 15, incomplete composite samples were collected for monitoring locations INF-001A and EFF-001A; composite sample results for total suspended solids (TSS), 5-day biochemical oxygen demand (BOD_5), and turbidity on some of these days are available and have been uploaded to CIWQS.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges. There were no combined sewer discharges (CSDs) during this monitoring period as described in the Wet Weather Summary.

London N. Breed
Mayor
Ann Moller Caen
President
Francesca Vietor
Vice President
Anson Moran
Commissioner
Sophie Maxwell
Commissioner
Tim Paulson
Commissioner
Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Westside Operations

Annual Wet Weather Summary - Oceanside Basins for 2019-2020													
DRAINAGE BASIN	WESTSIDE T/S BOX								Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant			Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MG	MG	-	MG	-	MG	INCHES	-	MG
July	0.02	348.74	328.73	0.00	0.00	328.73	0	0.00	0	0.00	0.00	0	0.00
August	0.00	397.23	387.21	0.00	0.00	387.21	0	0.00	0	0.00	0.00	0	0.00
September	0.10	369.39	371.05	0.00	0.00	371.05	0	0.00	0	0.00	0.00	0	0.00
October													
November													
December													
January													
February													
March													
April													
May													
June													
TOTAL	0.12	1115.36	1086.99	0.00	0.00	1086.99	0	0.00	0	0.00	0.00	0	0.00

Monthly Wet Weather Summary - Oceanside Basins for September-2019

DRAINAGE BASIN	WESTSIDE T/S BOX								Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant			Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit	Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	Westside Transport/Storage Structure Effluent ("Decant")	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.RO01	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MG	MG	-	MG	-	MG	INCHES	-	MG
9/1/2019	0.00	10.60	10.74	0.00	0.00	10.74							
9/2/2019	0.00	11.69	11.90	0.00	0.00	11.90							
9/3/2019	0.00	13.54	14.02	0.00	0.00	14.02							
9/4/2019	0.00	11.67	11.68	0.00	0.00	11.68							
9/5/2019	0.00	12.14	12.10	0.00	0.00	12.10							
9/6/2019	0.00	10.22	11.37	0.00	0.00	11.37							
9/7/2019	0.00	15.51	15.92	0.00	0.00	15.92							
9/8/2019	0.00	11.37	11.74	0.00	0.00	11.74							
9/9/2019	0.00	12.16	12.38	0.00	0.00	12.38							
9/10/2019	0.00	13.57	13.74	0.00	0.00	13.74							
9/11/2019	0.00	12.91	13.24	0.00	0.00	13.24							
9/12/2019	0.00	7.34	7.41	0.00	0.00	7.41							
9/13/2019	0.00	14.98	14.83	0.00	0.00	14.83							
9/14/2019	0.00	12.05	10.91	0.00	0.00	10.91							
9/15/2019	0.00	12.35	11.74	0.00	0.00	11.74							
9/16/2019	0.07	18.08	18.28	0.00	0.00	18.28							
9/17/2019	0.00	12.29	12.67	0.00	0.00	12.67							
9/18/2019	0.02	13.23	13.28	0.00	0.00	13.28							
9/19/2019	0.00	12.57	12.27	0.00	0.00	12.27							
9/20/2019	0.00	12.76	12.32	0.00	0.00	12.32							
9/21/2019	0.00	11.22	11.02	0.00	0.00	11.02							
9/22/2019	0.00	11.31	11.31	0.00	0.00	11.31							
9/23/2019	0.00	12.36	12.94	0.00	0.00	12.94							
9/24/2019	0.00	12.40	12.24	0.00	0.00	12.24							
9/25/2019	0.00	11.15	11.76	0.00	0.00	11.76							
9/26/2019	0.00	12.42	12.39	0.00	0.00	12.39							
9/27/2019	0.01	13.98	14.25	0.00	0.00	14.25							
9/28/2019	0.00	10.19	10.41	0.00	0.00	10.41							
9/29/2019	0.00	11.21	10.50	0.00	0.00	10.50							
9/30/2019	0.00	12.11	11.71	0.00	0.00	11.71							

TOTAL MONTHLY	0.10	369.39	371.05	0.00	0.00	371.05	0	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	12.31	12.37	0.00	0.00	12.37	-	-	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	7.34	7.41	0.00	0.00	7.41	-	-	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	18.08	18.28	0.00	0.00	18.28	-	-	-	-	-	-	-

Notes

1. Instrumentation anomalies occurred on 9/3 for OSP Effluent Secondary Bypass, and on 9/11 and 9/26 for Westside Transport/Storage Structure Effluent, and were zeroed out per confirmation with SFPUC Operations.
2. OSP shutdowns on 9/6 from 09:00 AM to 15:00 PM, on 9/11 from 07:40 AM to 10:25 AM, on 9/12 from 09:00AM to 15:00PM, on 9/14 from 06:35 AM to 07:30AM and from 08:20 AM to 09:10 AM, and on 9/15 from 06:35 AM to 08:40 AM.
3. There was a gap in recorded data on 9/16 from 14:08 PM to 20:40 PM; flow to OSP was continuous through this period in DCS as confirmed by SFPUC Operations.

Oceanside Basin CSD Summary
Sep-2019

Date	OSP Rain Gauge Total (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #4 Mile Rock			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
9/1/2019	0.00																					
9/2/2019	0.00																					
9/3/2019	0.00																					
9/4/2019	0.00																					
9/5/2019	0.00																					
9/6/2019	0.00																					
9/7/2019	0.00																					
9/8/2019	0.00																					
9/9/2019	0.00																					
9/10/2019	0.00																					
9/11/2019	0.00																					
9/12/2019	0.00																					
9/13/2019	0.00																					
9/14/2019	0.00																					
9/15/2019	0.00																					
9/16/2019	0.07																					
9/17/2019	0.00																					
9/18/2019	0.02																					
9/19/2019	0.00																					
9/20/2019	0.00																					
9/21/2019	0.00																					
9/22/2019	0.00																					
9/23/2019	0.00																					
9/24/2019	0.00																					
9/25/2019	0.00																					
9/26/2019	0.00																					
9/27/2019	0.01																					
9/28/2019	0.00																					
9/29/2019	0.00																					
9/30/2019	0.00																					
	0.00																					
TOTAL	0.10	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

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EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	12.5	mg/L	10/19/2019	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	12	mg/L	10/20/2019	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	13	mg/L	10/21/2019	5	None	None	Incomplete 24-hr comp sample due to shutdown
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	11.1	mg/L	10/22/2019	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	11	mg/L	10/23/2019	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	17.65	mg/L	10/25/2019	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	18.1	mg/L	10/26/2019	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	19.25	mg/L	10/27/2019	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	18.15	mg/L	10/28/2019	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	15.5	mg/L	10/29/2019	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	12.9	mg/L	10/30/2019	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	7.625	mg/L	10/31/2019	5	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	4.76	NTU	10/01/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	11.4	NTU	10/03/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	5.82	NTU	10/06/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	5.56	NTU	10/07/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	4.7	NTU	10/08/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	4.68	NTU	10/09/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	5.82	NTU	10/10/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	5.17	NTU	10/13/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	6.56	NTU	10/14/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	5.03	NTU	10/15/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	4.25	NTU	10/16/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	4.58	NTU	10/17/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	6.61	NTU	10/20/2019	.1	None	None	None
EFF-001A	Turbidity	Data Unavailable	=	6.62	NTU	10/21/2019	.1	None	None	Incomplete 24-hr comp sample due to shutdown

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
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TTY 415.554.3488

November 22, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: October 2019 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of October 2019 for the Oceanside Water Pollution Control Plant (OSP).

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit except for 5-day biochemical oxygen demand (BOD_5) described below. Due to an unplanned plant shutdown on October 21 that lasted for less than 4.5 hours, 24-hour composite samples collected for monitoring locations INF-001A and EFF-001A were incomplete but still representative of the influent and effluent. The composite sample results for total suspended solids (TSS), turbidity, and chronic toxicity are available and have been uploaded to CIWQS.

BOD_5. The results for 5-day biochemical oxygen demand (BOD5) during the week of October 13-19 are not available. The BOD_5 tests were conducted for the influent (INF-001) and effluent (EFF-001A) samples collected on October 14. However, the test results did not meet a QA/QC specification for method SM5210B (i.e., an average standard recovery of 80%, outside of the acceptable QC range of 85-115%). Staff investigated the cause and discovered that the laboratory analyst may not have prepared the BOD bottles with the proper reagents. To prevent reoccurrence, the analyst was retrained. This issue was not discovered until test results were available on October 21,

London N. Breed, Mayor
Ann Moller Caen, President
Francesca Vietor, Vice President
Anson Moran, Commissioner
Sophie Maxwell, Commissioner
Tim Paulson, Commissioner
Harlan L. Kelly, Jr., General Manager

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and staff subsequently analyzed extra INF-001 and EFF-001A composite samples collected on October 22. Additional samples were collected and analyzed for October 23.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges. There were no combined sewer discharges (CSDs) during this monitoring period as described in the Wet Weather Summary.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Superintendent, Westside Operations

Annual Wet Weather Summary - Oceanside Basins for 2019-2020

DRAINAGE BASIN	WESTSIDE T/S BOX									Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant				Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit		Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	OSP Effluent - 2ndary Bypass Duration	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.ROO1	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	-	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MINUTES	MG	MG	-	MG	-	MG	INCHES	-	MG
July	0.02	348.74	328.73	0.00	0	0.00	328.73	0	0.00	0	0.00	0.00	0	0.00
August	0.00	397.23	387.21	0.00	0	0.00	387.21	0	0.00	0	0.00	0.00	0	0.00
September	0.10	369.39	371.05	0.00	0	0.00	371.05	0	0.00	0	0.00	0.00	0	0.00
October	0.00	371.31	385.71	0.00	0	0.00	385.71	0	0.00	0	0.00	0.00	0	0.00
November														
December														
January														
February														
March														
April														
May														
June														
TOTAL	0.12	1486.66	1472.70	0.00	0.00	0.00	1472.70	0	0.00	0	0.00	0.00	0	0.00

Monthly Wet Weather Summary - Oceanside Basins for October-2019

DRAINAGE BASIN	WESTSIDE T/S BOX									Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant				Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit		Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	OSP Effluent - 2ndary Bypass Duration	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.ROO1	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	-	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MINUTES	MG	MG	-	MG	-	MG	INCHES	-	MG
10/1/2019	0.00	13.67	13.35	0.00	0	0.00	13.35							
10/2/2019	0.00	5.06	5.18	0.00	0	0.00	5.18							
10/3/2019	0.00	18.07	18.75	0.00	0	0.00	18.75							
10/4/2019	0.00	12.47	13.30	0.00	0	0.00	13.30							
10/5/2019	0.00	12.18	12.40	0.00	0	0.00	12.40							
10/6/2019	0.00	12.01	11.58	0.00	0	0.00	11.58							
10/7/2019	0.00	11.42	10.85	0.00	0	0.00	10.85							
10/8/2019	0.00	12.83	12.16	0.00	0	0.00	12.16							
10/9/2019	0.00	12.05	11.63	0.00	0	0.00	11.63							
10/10/2019	0.00	11.49	12.30	0.00	0	0.00	12.30							
10/11/2019	0.00	12.15	13.10	0.00	0	0.00	13.10							
10/12/2019	0.00	11.31	11.87	0.00	0	0.00	11.87							
10/13/2019	0.00	11.63	12.03	0.00	0	0.00	12.03							
10/14/2019	0.00	12.10	12.93	0.00	0	0.00	12.93							
10/15/2019	0.00	12.58	13.91	0.00	0	0.00	13.91							
10/16/2019	0.00	10.98	12.44	0.00	0	0.00	12.44							
10/17/2019	0.00	12.85	14.29	0.00	0	0.00	14.29							
10/18/2019	0.00	11.13	12.65	0.00	0	0.00	12.65							
10/19/2019	0.00	12.04	13.37	0.00	0	0.00	13.37							
10/20/2019	0.00	12.86	14.00	0.00	0	0.00	14.00							
10/21/2019	0.00	8.55	9.33	0.00	0	0.00	9.33							
10/22/2019	0.00	13.88	13.13	0.00	0	0.00	13.13							
10/23/2019	0.00	12.53	12.28	0.00	0	0.00	12.28							
10/24/2019	0.00	4.60	4.55	0.00	0	0.00	4.55							
10/25/2019	0.00	17.83	18.20	0.00	0	0.00	18.20							
10/26/2019	0.00	12.72	12.80	0.00	0	0.00	12.80							
10/27/2019	0.00	12.20	13.17	0.00	0	0.00	13.17							
10/28/2019	0.00	12.25	13.37	0.00	0	0.00	13.37							
10/29/2019	0.00	12.43	12.52	0.00	0	0.00	12.52							
10/30/2019	0.00	11.51	12.01	0.00	0	0.00	12.01							
10/31/2019	0.00	11.94	12.25	0.00	0	0.00	12.25							
TOTAL MONTHLY	0.00	371.31	385.71	0.00	0.00	0.00	385.71	0	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	11.98	12.44	0.00	-	0.00	12.44	-	-	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	4.60	4.55	0.00	-	0.00	4.55	-	-	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	18.07	18.75	0.00	-	0.00	18.75	-	-	-	-	-	-	-

Notes

1. Instrumentation anomalies occurred on 10/2 for OSP Effluent Secondary Bypass, and on 10/4, 10/8, and 10/9 for Westside Transport/Storage Structure Effluent and have been zeroed per confirmation with Operations.
2. OSP shutdowns on 10/2 from 1:00AM to 5:00PM, on 10/21 from 3:00PM to 7:00PM, and on 10/24 from 2:00AM to 6:40PM.
3. OSP influent flow data anomalous on 10/29 from 4:17PM to 4:37PM and has been replaced per confirmation with Operations.
4. OSP rain gauge recorded anomalous data on 10/17 and 10/23 and has been zeroed per confirmation with Operations.

Oceanside Basin CSD Summary
Oct-2019

Date	OSP Rain Gauge Total (inches)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #4 Mile Rock			CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
10/1/2019	0.00																					
10/2/2019	0.00																					
10/3/2019	0.00																					
10/4/2019	0.00																					
10/5/2019	0.00																					
10/6/2019	0.00																					
10/7/2019	0.00																					
10/8/2019	0.00																					
10/9/2019	0.00																					
10/10/2019	0.00																					
10/11/2019	0.00																					
10/12/2019	0.00																					
10/13/2019	0.00																					
10/14/2019	0.00																					
10/15/2019	0.00																					
10/16/2019	0.00																					
10/17/2019	0.00																					
10/18/2019	0.00																					
10/19/2019	0.00																					
10/20/2019	0.00																					
10/21/2019	0.00																					
10/22/2019	0.00																					
10/23/2019	0.00																					
10/24/2019	0.00																					
10/25/2019	0.00																					
10/26/2019	0.00																					
10/27/2019	0.00																					
10/28/2019	0.00																					
10/29/2019	0.00																					
10/30/2019	0.00																					
10/31/2019	0.00																					
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

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INF-001A	Total Suspended Solids (TSS)	Daily Maximum	=	516	mg/L	11/08/2019	None
INF-001A	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	287	mg/L	11/30/2019	None
INF-001A	pH	Monthly Minimum	=	7.1	SU	11/08/2019	None
INF-001A	pH	Daily Maximum	=	8.2	SU	11/18/2019	None
INF-001B	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Daily Maximum	=	21	mg/L	11/27/2019	None
INF-001B	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Monthly Average (Mean)	=	21	mg/L	11/30/2019	None
INF-001B	Carbonaceous Biochemical Oxygen Demand (CBOD) (5-day @ 20 Deg. C)	Daily Maximum	=	16.9	mg/L	11/27/2019	None
INF-001B	Carbonaceous Biochemical Oxygen Demand (CBOD) (5-day @ 20 Deg. C)	Monthly Average (Mean)	=	16.9	mg/L	11/30/2019	None
INF-001B	Flow	Daily Minimum	=	28.35	MGD	11/26/2019	None
INF-001B	Flow	Daily Maximum	=	47.3	MGD	11/27/2019	None
INF-001B	Flow	Monthly Discharge	=	104.71	MGM	11/30/2019	None
INF-001B	Flow	Monthly Average (Mean)	=	34.9	MGD	11/30/2019	None
INF-001B	Total Suspended Solids (TSS)	Daily Maximum	=	322	mg/L	11/30/2019	None
INF-001B	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	216	mg/L	11/30/2019	None
INF-001B	pH	Daily Maximum	=	7.6	SU	11/26/2019	None
INF-001B	pH	Monthly Minimum	=	7.4	SU	11/27/2019	None

Total Calculated Data Points: 203

Violations

Violation ID	Violation Date	Violation Type	Description(-)	Corrective Action	Created By	Last Modified By
1068871	11/26/2019	Order Conditions	Did not comply with wet weather plant operational requirements, as described in Provision VI.C.6.c.3.ii. EFF-001 only reached 134 MGD before discharging at CSD-002 & CSD-003 (165 MGD required at EFF-001 before discharging at CSD-002 & CSD-003).	Investigation revealed an issue with two main disconnect switches left in "neutral" position--fixed issue and added routine maintenance check to prevent this issue from occurring again.	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
OSP Shoreline 201911.pdf	Shoreline Report	42 KB

Total Attachments: 1

Cover Letter

File Name
2019-11 OSP SMR CL Final.pdf

Total No. of Cover Letter Files: 1 **Cover Leter Text: No**

The current report was generated with data as of: 08/28/2020

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
November 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/12	Mon/18	Mon/25	Tue/26	Wed/27	Thu/28	Fri/29
15	759	368	256	4884	3255	75		
15EAST	52	31	134	52	30	74	75	
16	51	31	10	97		144	134	
17	20	< 10	< 10	187	41	487	122	
18	20	< 10	10	< 10		109		
19	10	10	< 10	74	20	613	98	
21.1	< 10	< 10	10	98	52	122		
20						275	121	
21						183		** 1076
22						*	75	

Sampling/Posting issues
* Sampled the next day due to high tide ** Re-posted and resampled due to elevated final bacterial result

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/04	Tue/12	Mon/18	Mon/25	Tue/26	Wed/27	Thu/28	Fri/29
15	10	< 10	20	120	63	10		
15EAST	< 10	20	10	20	10	20	20	
16	< 10	10	< 10	41		< 10	10	
17	< 10	< 10	< 10	135	31	121	< 10	
18	< 10	< 10	10	< 10		41		
19	10	10	< 10	10	10	148	20	
21.1	< 10	< 10	< 10	63	10	20		
20						120	20	
21						20		** 183
22						*	20	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/04	Tue/12	Mon/18	Mon/25	Tue/26	Wed/27	Thu/28	Fri/29
15	10	10	10	**345**	169	75		
15EAST	< 10	< 10	< 10	52	97	**146**	10	
16	< 10	< 10	< 10	< 10		**122**	52	
17	< 10	10	10	**259**	20	**199**	< 10	
18	< 10	< 10	< 10	10		98		
19	10	10	< 10	**1354**	< 10	**181**	31	
21.1	< 10	< 10	< 10	**110**	20	63		
20						**243**	10	
21						**119**		** 85
22						*	10	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Baker Beach	15, 15EAST, 16	11/14	0.01	11/28	0.03
China Beach	17	11/26	0.79	11/29	0.07
Ocean Beach	18, 19, 20, 21, 21.1	11/27	0.16	11/30	0.15
Ft. Funston	22				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
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December 26, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: November 2019 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681]

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of November 2019 for the Oceanside Water Pollution Control Plant (OSP). During the month of November there was substantial uncertainty regarding the applicability of Regional Water Board Order No. R2-2009-0062 and subsequent Order No. R2-2019-0028. The Regional Water Board approved R2-2019-0028 in September 2019 with an effective date of November 1, however, U.S. EPA did not sign the order until December 10, 2019. For purposes of this monthly report the SFPUC has assessed compliance against the 2009 order.

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges. There were combined sewer discharges (CSDs) during this monitoring period as described in the attached Wet Weather Summary.

System Operations of Wet Weather Facilities.

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

During a storm on November 26 the total flow rate at Discharge Point No. 001 did not reach 165 million gallons per day (MGD) within two hours of discharges at CSD-002 and CSD-003. Two of the wet weather "decant" pumps at the Westside Pump Station were activated but were not pumping due to an electrical issue. The result was that the average flow to Discharge Point No. 001 during the CSDs was 134 MGD and approximately 0.95 MG of additional combined flows discharged through the CSD outfalls.

After investigation staff identified an issue with two main disconnect switches. A main disconnect switch is an electrical component that acts as a safety device to ensure that an electrical circuit is completely de-energized for service, maintenance or emergency response. During the November 26 storm, Operations staff remotely activated all four decant pumps at the Westside Pump Station, but the main disconnect switches for the variable frequency drives for pump nos. 6 and 7 were in a neutral position. SFPUC staff reset the switches and added specific mechanical activities to routine preventative maintenance to further increase future reliability.

Wet Weather Monitoring. The Westside system experienced wet weather days on November 26, 27, and 30. Required monitoring occurred at INF-001B and EFF-001B. Monitoring was also conducted for effluent from the Westside Transport/Storage Structure ("decant" or monitoring location EFF-001D in the 2019 order). No EFF-001D data have been uploaded because the CIWQS database has not been updated to accept submission of water quality data for this monitoring location.

CSD Monitoring. Samples were collected at Monitoring Location EFF-CSD and sufficient volume was available to perform all required analyses.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit, but in two instances, internal procedures could not be followed because of conditions outside the SFPUC's control.

- Shoreline sampling station SRF-22 (Fort Funston) was not sampled on November 27 because heavy surf conditions made physical sample collection unsafe. The site was posted on November 27 and 28 and samples collected on November 28 had fecal indicator bacteria concentrations below the posting threshold.

- Shoreline sampling station SRF-21 (south Ocean Beach at Vicente Street) was sampled and posted on November 27 after a CSD occurred at Discharge Point No. CSD-001 on November 26. However, sampling

and posting did not occur on the morning of November 28 because the preliminary results indicated that the November 27 sample concentrations were below the sampling and posting triggers for all three fecal indicator bacteria. Decisions to post and sample must often be made on preliminary results because the laboratory tests require 18 to 24-hour incubation periods. In this instance the preliminary enterococcus results for the November 27 afternoon sample indicated concentrations below 104 MPN/100mL, but the final result – which was unavailable until the afternoon of November 28 – was 119 MPN/ 100 mL. The station was sampled and re-posted on November 29. Sample results from November 29 were below the posting and re-sampling thresholds for all fecal indicator bacteria.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew M. Clark
Superintendent, Wastewater Enterprise

Annual Wet Weather Summary - Oceanside Basins for 2019-2020														
DRAINAGE BASIN	WESTSIDE T/S BOX									Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant				Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit		Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	OSP Effluent - 2ndary Bypass Duration	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.ROO1	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	-	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MINUTES	MG	MG	-	MG	-	MG	INCHES	-	MG
July	0.02	348.74	328.73	0.00	0	0.00	328.73	0	0.00	0	0.00	0.00	0	0.00
August	0.00	397.23	387.21	0.00	0	0.00	387.21	0	0.00	0	0.00	0.00	0	0.00
September	0.10	369.39	371.05	0.00	0	0.00	371.05	0	0.00	0	0.00	0.00	0	0.00
October	0.14	371.58	385.71	0.01	28	0.01	385.72	0	0.00	0	0.00	0.00	0	0.00
November	1.21	436.95	466.20	18.22	1759	51.13	69.36	1	3.17	0	0.00	1.19	1	0.07
December														
January														
February														
March														
April														
May														
June														
TOTAL	1.47	1923.89	1938.90	18.23	1787	51.14	1542.06	1	3.17	0	0.00	1.19	1	0.07

Monthly Wet Weather Summary - Oceanside Basins for November-2019

DRAINAGE BASIN	WESTSIDE T/S BOX									Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant				Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit		Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	OSP Effluent - 2ndary Bypass Duration	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.ROO1	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	-	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MINUTES	MG	MG	-	MG	-	MG	INCHES	-	MG
11/1/2019	0.00	11.96	12.04	0.00	0	0.00	0.00					0.00		
11/2/2019	0.00	11.33	11.44	0.00	0	0.00	0.00					0.00		
11/3/2019	0.00	12.95	13.60	0.00	0	0.00	0.00					0.00		
11/4/2019	0.00	14.38	14.72	0.00	0	0.00	0.00					0.00		
11/5/2019	0.00	11.89	12.17	0.00	0	0.00	0.00					0.00		
11/6/2019	0.00	6.92	7.47	0.00	0	0.00	0.00					0.00		
11/7/2019	0.00	16.76	18.01	0.00	0	0.00	0.00					0.00		
11/8/2019	0.00	12.16	13.63	0.00	0	0.00	0.00					0.00		
11/9/2019	0.00	11.84	13.06	0.00	0	0.00	0.00					0.00		
11/10/2019	0.00	11.40	12.77	0.00	0	0.00	0.00					0.00		
11/11/2019	0.00	12.61	13.87	0.00	0	0.00	0.00					0.00		
11/12/2019	0.00	9.07	9.33	0.00	0	0.00	0.00					0.00		
11/13/2019	0.00	14.87	16.43	0.00	0	0.00	0.00					0.00		
11/14/2019	0.01	12.23	13.54	0.00	0	0.00	0.00					0.01		
11/15/2019	0.00	11.60	12.80	0.00	0	0.00	0.00					0.00		
11/16/2019	0.00	12.78	13.48	0.00	0	0.00	0.00					0.00		
11/17/2019	0.00	11.23	11.84	0.00	0	0.00	0.00					0.00		
11/18/2019	0.00	12.66	13.43	0.00	0	0.00	0.00					0.00		
11/19/2019	0.00	12.36	13.16	0.00	0	0.00	0.00					0.00		
11/20/2019	0.00	7.02	8.36	0.00	0	0.00	0.00					0.00		
11/21/2019	0.00	15.12	15.94	0.00	0	0.00	0.00					0.00		
11/22/2019	0.00	9.56	10.66	0.00	0	0.00	0.00					0.00		
11/23/2019	0.00	15.06	16.93	0.00	0	0.00	0.00					0.00		
11/24/2019	0.00	11.79	12.03	0.00	0	0.00	0.00					0.00		
11/25/2019	0.00	11.29	9.88	0.00	0	0.00	0.00					0.00		
11/26/2019	0.79	28.35	27.96	4.51	361	14.40	18.91	1	3.17			0.75	1	0.07
11/27/2019	0.16	47.29	51.81	9.32	793	36.73	46.05					0.14		
11/28/2019	0.03	16.90	18.75	0.00	0	0.00	0.00					0.07		
11/29/2019	0.07	14.51	15.69	0.00	0	0.00	0.00					0.00		
11/30/2019	0.15	29.07	31.41	4.40	605	0.00	4.40					0.22		

TOTAL MONTHLY	1.21	436.95	466.20	18.22	1759	51.13	69.36	1	3.17	0	0.00	1.19	1	0.07
MONTHLY AVERAGE FLOW (MGD)	-	14.57	15.54	6.07	-	25.57	23.12	-	-	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	6.92	7.47	0.00	-	0.00	0.00	-	-	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	47.29	51.81	9.32	-	36.73	46.05	-	-	-	-	-	-	-

Notes

1. Instrumentation anomalies occurred on 11/25 for Westside Transport/Storage Structure Effluent and have been zeroed per confirmation from Operations.
2. OSP shutdowns on 11/6 from 05:50AM to 5:15PM, on 11/12 from 5:30AM to 12:50PM , on 11/14 from 07:40AM to 08:30AM, on 11/20 from 04:00AM to 2:40PM, on 11/21 from 09:49AM to 10:20AM, and on 11/22 from 06:00AM to 11:00AM.

Oceanside Basin CSD Summary
Nov-2019

Date	OSP Rain Gauge Total (inches)	OSP Max. Rainfall Intensity (in/hr)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #4 Mile Rock			Sea Cliff Rain Gauge Total (inches)	Sea Cliff Max. Rainfall Intensity (in/hr)	CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
			Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)			Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2019	0.00	0.00													0.00	0.00									
11/2/2019	0.00	0.00													0.00	0.00									
11/3/2019	0.00	0.00													0.00	0.00									
11/4/2019	0.00	0.00													0.00	0.00									
11/5/2019	0.00	0.00													0.00	0.00									
11/6/2019	0.00	0.00													0.00	0.00									
11/7/2019	0.00	0.00													0.00	0.00									
11/8/2019	0.00	0.00													0.00	0.00									
11/9/2019	0.00	0.00													0.00	0.00									
11/10/2019	0.00	0.00													0.00	0.00									
11/11/2019	0.00	0.00													0.00	0.00									
11/12/2019	0.00	0.00													0.00	0.00									
11/13/2019	0.00	0.00													0.00	0.00									
11/14/2019	0.01	0.01													0.01	0.01									
11/15/2019	0.00	0.00													0.00	0.00									
11/16/2019	0.00	0.00													0.00	0.00									
11/17/2019	0.00	0.00													0.00	0.00									
11/18/2019	0.00	0.00													0.00	0.00									
11/19/2019	0.00	0.00													0.00	0.00									
11/20/2019	0.00	0.00													0.00	0.00									
11/21/2019	0.00	0.00													0.00	0.00									
11/22/2019	0.00	0.00													0.00	0.00									
11/23/2019	0.00	0.00													0.00	0.00									
11/24/2019	0.00	0.00													0.00	0.00									
11/25/2019	0.00	0.00													0.00	0.00									
11/26/2019	0.79	0.49	7:04 PM	0:00	2.64	7:16 PM	0:00	0.43	7:31 PM	13	0.10				0.75	0.47	6:45 PM	3	<0.01				6:47 PM	8	0.07
11/27/2019	0.16	0.06													0.14	0.07									
11/28/2019	0.03	0.02													0.07	0.06									
11/29/2019	0.07	0.06													0.00	0.00									
11/30/2019	0.15	0.06													0.22	0.07									
TOTAL	1.21	-	-	64	2.64	-	38	0.43	-	13	0.10	-	0	0.00	1.19	-	-	3	<0.01	-	0	0.00	-	8	0.07

Notes

1. CSD #3 Lincoln level sensor offset by -0.6ft; I&C to adjust level.

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Ocean Shoreline Bacteriological Report
December 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Sat/07	Sun/08	Mon/09	Mon/16	Wed/18	Mon/23	Sun/29	Mon/30
15	934	**> 24196**	364	651	934	285	8164		9804
15EAST	41	4884	428	96	< 10	41	41		41
16	135	496	295	109	41	754	52		20
17	31	*	201	295	10		10		20
18	31	*	189	41	< 10		52		10
19	145	*	3076	880	41		10		30
21.1	10	*	63	63	52		31		72
20		*	31						
21		*	1789						
22		*	471					**> 24196 ****	173

Sampling/Posting issues
* Safety reasons - too dark to continue sampling
** Inaccessible for posting due to locked gate. Later determined no CSD occurred

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥ 400** MPN/100 mL[1]

Location	Mon/02	Sat/07	Sun/08	Mon/09	Mon/16	Wed/18	Mon/23	Sun/29	Mon/30
15	< 10	**11199**	10	10	< 10	20	74		31
15EAST	< 10	171	73	20	< 10	10	20		< 10
16	10	52	63	52	10	10	< 10		< 10
17	< 10	*	41	20	10		< 10		< 10
18	< 10	*	63	10	< 10		10		< 10
19	51	*	**598**	85	< 10		< 10		< 10
21.1	10	*	10	< 10	31		< 10		10
20		*	10						
21		*	359						
22		*	86					**1106 ****	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥ 104** MPN/100 mL[1]

Location	Mon/02	Sat/07	Sun/08	Mon/09	Mon/16	Wed/18	Mon/23	Sun/29	Mon/30
15	41	**11199**	52	10	10	20	41		30
15EAST	20	**171**	52	10	< 10	< 10	10		10
16	< 10	75	< 10	30	< 10	52	10		< 10
17	20	*	30	< 10	< 10		< 10		< 10
18	41	*	10	< 10	< 10		10		10
19	10	*	**345**	52	10		< 10		< 10
21.1	< 10	*	10	20	10		< 10		< 10
20		*	< 10						
21		*	74						
22		*	52					**4352 ****	20

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Baker Beach	15, 15EAST, 16
China Beach	17
Ocean Beach	18, 19, 20, 21, 21.1
Ft. Funston	22

Rainfall (in.)

12/01	0.08	12/10	0.17	12/18	1.15
12/02	0.12	12/11	0.34	12/19	0.01
12/04	0.24	12/12	0.13	12/22	0.52
12/06	0.42	12/13	0.03	12/24	0.02
12/07	1.13	12/14	0.02	12/25	0.30
12/08	0.18	12/17	0.02	12/29	0.69
12/09	0.01				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
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January 30, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: December 2019 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of December 2019 for the Oceanside Water Pollution Control Plant (OSP). During the month of December there was substantial uncertainty regarding the applicability of Regional Water Board Order No. R2-2009-0062 and subsequent Order No. R2-2019-0028. The Regional Water Board approved Order No. R2-2019-0028 in September 2019 with an effective date of November 1, 2019; however, U.S. EPA did not sign approve the jointly-issued order until December 10, 2019, with an effective date of February 1, 2020. For purposes of this monthly report the SFPUC has assessed compliance against the 2009 order.

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges. There were combined sewer discharges (CSDs) during this monitoring period as described in the Wet Weather Summary.

London N. Breed
Mayor
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Anson Moran
Commissioner
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General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

System Operations of Wet Weather Facilities.
The operation of wet weather facilities during the storm event was conducted consistent with the requirements in NPDES permit Provision VI.C.6.c(3) - VI.C.6.c(4).

Wet Weather Monitoring. The Westside system experienced wet weather days on December 2, 4, 6, 7, 8, 10, 11, 12, 18, 19, 22, 25, 29, and 30. Required monitoring occurred at INF-001B and EFF-001B.

CSD Monitoring. Combined sewer discharge monitoring occurred as required on December 7.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit with one exception. On December 18, there was a CSD event at Discharge Point No CSD-005 (Sea Cliff I/China Beach) for appropriately 4 minutes (<0.01 MG). Operations staff did not notify the on-call biologists of this CSD because the water elevation trigger was slightly greater than the actual surveyed level. The trigger has since been corrected to the correct value.

If you have any questions concerning this report, please contact Operations Superintendent, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Superintendent, Wastewater Enterprise

Annual Wet Weather Summary - Oceanside Basins for 2019-2020														
DRAINAGE BASIN	WESTSIDE T/S BOX									Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant				Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit		Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	OSP Effluent - 2ndary Bypass Duration	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.ROO1	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	-	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MINUTES	MG	MG	-	MG	-	MG	INCHES	-	MG
July	0.02	348.74	328.73	0.00	0	0.00	328.73	0	0.00	0	0.00	0.00	0	0.00
August	0.00	397.23	387.21	0.00	0	0.00	387.21	0	0.00	0	0.00	0.00	0	0.00
September	0.10	369.39	371.05	0.00	0	0.00	371.05	0	0.00	0	0.00	0.00	0	0.00
October	0.14	371.58	385.71	0.01	28	0.01	385.72	0	0.00	0	0.00	0.00	0	0.00
November	1.21	436.95	466.20	18.22	1759	51.13	535.56	1	3.07	0	0.00	1.19	1	0.07
December	5.58	723.21	784.71	67.07	6590	241.68	1093.45	1	8.82	2	5.08	6.25	2	1.53
January														
February														
March														
April														
May														
June														
TOTAL	7.05	2647.10	2723.61	85.30	8377	292.82	3101.72	2	11.89	2	5.08	7.44	3	1.60

Monthly Wet Weather Summary - Oceanside Basins for December-2019

DRAINAGE BASIN	WESTSIDE T/S BOX									Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant				Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit		Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	OSP Effluent - 2ndary Bypass Duration	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.ROO1	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	-	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MINUTES	MG	MG	-	MG	-	MG	INCHES	-	MG
12/1/2019	0.08	23.15	24.56	0.00	0	0.00	24.56					0.27		
12/2/2019	0.12	35.11	38.60	4.08	586	0.00	42.68					0.21		
12/3/2019	0.00	12.77	13.89	0.00	0	0.00	13.89					0.00		
12/4/2019	0.24	29.70	31.97	2.98	339	6.55	41.50					0.23		
12/5/2019	0.00	12.54	13.51	0.00	0	0.00	13.51					0.00		
12/6/2019	0.42	21.15	19.91	1.90	180	11.81	33.62					0.56		
12/7/2019	1.13	50.43	55.89	10.78	934	59.52	126.19	1	8.82	1	3.96	0.72	1	1.44
12/8/2019	0.18	39.04	43.50	6.86	667	14.89	65.25					0.20		
12/9/2019	0.01	12.92	14.05	0.00	0	0.00	14.05					0.02		
12/10/2019	0.17	19.35	19.78	1.30	145	0.00	21.08					0.20		
12/11/2019	0.34	40.10	43.07	1.98	207	0.00	45.05					0.50		
12/12/2019	0.13	43.70	48.74	7.36	550	0.00	56.10					0.22		
12/13/2019	0.03	18.27	19.83	0.00	0	0.00	19.83					0.13		
12/14/2019	0.02	16.44	18.37	0.00	0	0.00	18.37					0.02		
12/15/2019	0.00	12.30	12.90	0.00	0	0.00	12.90					0.00		
12/16/2019	0.00	15.01	16.27	0.00	0	0.00	16.27					0.00		
12/17/2019	0.02	12.19	11.98	0.00	0	0.00	11.98					0.03		
12/18/2019	1.15	56.02	60.21	12.85	1212	82.79	155.84			1	1.12	1.27	1	0.08
12/19/2019	0.01	18.52	20.44	0.03	25	0.00	20.46					0.01		
12/20/2019	0.00	12.65	12.82	0.00	0	0.00	12.82					0.00		
12/21/2019	0.00	12.72	12.41	0.00	0	0.00	12.41					0.00		
12/22/2019	0.52	34.81	37.63	3.63	410	26.30	67.56					0.53		
12/23/2019	0.00	13.18	14.90	0.00	0	0.00	14.90					0.00		
12/24/2019	0.02	12.53	13.40	0.00	0	0.00	13.40					0.01		
12/25/2019	0.30	40.09	43.68	7.03	702	0.00	50.71					0.47		
12/26/2019	0.00	13.69	15.84	0.00	0	0.00	15.84					0.00		
12/27/2019	0.00	10.47	12.72	0.00	0	0.00	12.72					0.00		
12/28/2019	0.00	10.99	10.97	0.00	0	0.00	10.97					0.00		
12/29/2019	0.69	25.68	27.68	1.64	157	11.48	40.80					0.65		
12/30/2019	0.00	33.18	38.81	4.65	476	28.33	71.79					0.00		
12/31/2019	0.00	14.49	16.42	0.00	0	0.00	16.42					0.00		
TOTAL MONTHLY	5.58	723.21	784.71	67.07	6590	241.68	1093.45	1	8.82	2	5.08	6.25	2	1.53
MONTHLY AVERAGE FLOW (MGD)	-	23.33	25.31	4.79	-	30.21	35.27	-	-	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	10.47	10.97	0.00	-	0.00	10.97	-	-	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	56.02	60.21	12.85	-	82.79	155.84	-	-	-	-	-	-	-

NOTES

1. Instrumentation anomalies occurred on 12/13 for OSP Effluent Secondary Bypass and were zeroed per confirmation with Operations.
2. OSP effluent flow meter was out of service from 12/27 08:50AM to 12/30 09:09AM (Pi Tag OS3SULFITE:30FIT3.PNT); used redundant flow meter data during those dates (Pi Tag ON3CL2_W3:30FIT4.PNT).

Oceanside Basin CSD Summary
Dec-2019

Date	OSP Rain Gauge Total (inches)	OSP Max. Rainfall Intensity (in/hr)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #4 Mile Rock			Sea Cliff Rain Gauge Total (inches)	Sea Cliff Max. Rainfall Intensity (in/hr)	CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
			Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)			Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
12/1/2019	0.08	0.08													0.27	0.12									
12/2/2019	0.12	0.08													0.21	0.13									
12/3/2019	0.00	0.00													0.00	0.00									
12/4/2019	0.24	0.13													0.23	0.10									
12/5/2019	0.00	0.00													0.00	0.00									
12/6/2019	0.42	0.17													0.56	0.23									
12/7/2019	1.13	1.00	2:59 PM	86	3.10	3:30 PM	42	2.89	3:30 PM	40	2.83	3:28 PM	40	3.96	0.72	0.55	3:23 PM	30	0.02	3:33 PM	29	1.25	3:31 PM	19	0.18
12/8/2019	0.18	0.11													0.20	0.10									
12/9/2019	0.01	0.01													0.02	0.01									
12/10/2019	0.17	0.08													0.20	0.10									
12/11/2019	0.34	0.07													0.50	0.07									
12/12/2019	0.13	0.04													0.22	0.05									
12/13/2019	0.03	0.02													0.13	0.10									
12/14/2019	0.02	0.02													0.02	0.01									
12/15/2019	0.00	0.00													0.00	0.00									
12/16/2019	0.00	0.00													0.00	0.00									
12/17/2019	0.02	0.02													0.03	0.03									
12/18/2019	1.15	0.45										5:05 AM	21	1.12	1.27	0.45	4:17 AM	4	<0.01				4:19 AM	9	0.08
12/19/2019	0.01	0.01													0.01	0.01									
12/20/2019	0.00	0.00													0.00	0.00									
12/21/2019	0.00	0.00													0.00	0.00									
12/22/2019	0.52	0.20													0.53	0.21									
12/23/2019	0.00	0.00													0.00	0.00									
12/24/2019	0.02	0.02													0.01	0.01									
12/25/2019	0.30	0.26													0.47	0.22									
12/26/2019	0.00	0.00													0.00	0.00									
12/27/2019	0.00	0.00													0.00	0.00									
12/28/2019	0.00	0.00													0.00	0.00									
12/29/2019	0.69	0.37													0.65	0.21									
12/30/2019	0.00	0.00													0.00	0.00									
12/31/2019																									
TOTAL	**5.58**	**-**	**-**	**86**	**3.10**	**-**	**42**	**2.89**	**-**	**40**	**2.83**	**-**	**61**	**5.08**	**6.25**	**-**	**-**	**34**	**0.02**	**-**	**29**	**1.25**	**-**	**28**	**0.26**

NOTES

1. CSD #3 Lincoln level sensor offset by -0.6ft; WWE Instrumentations & Controls to adjust level sensor.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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January 31, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: Annual Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681], Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the annual self-monitoring report (SMR) for the calendar year of 2019 for the Oceanside Water Pollution Control Plant. During the months of November and December there was substantial uncertainty regarding the applicability of Regional Water Board Order No. R2-2009-0062 and subsequent Order No. R2-2019-0028. The Regional Water Board approved Order No. R2-2019-0028 in September 2019 with an effective date of November 1, 2019; however, U.S. EPA did not sign approve the jointly-issued order until December 10, 2019, with an effective date of February 1, 2020. For purposes of this annual report the SFPUC has assessed compliance against the 2009 order.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Operations Superintendent

Attachments

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

2019 Annual Self-Monitoring Report

San Francisco Public Utilities Commission
Oceanside Water Pollution Control Plant

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Attachments
Attachment A: List of Analyses for which the SFPUC is Certified
Attachment B: Plant Site Plan
Attachment C: Plant Process Schematic

1 Treatment Plant Performance

1.1 Volume Treated

The Oceanside Water Pollution Control Plant (OSP) is permitted to discharge an average dry weather flow of 43 million gallons per day (MGD). The 2019 average dry weather flow was 11.6 MGD, calculated using flows from three consecutive dry weather months (June, July, and August). The facility treated an estimated 6.4 billion gallons of combined wastewater and stormwater in 2019.

This report was prepared by SFPUC to satisfy the annual reporting requirement set forth in Attachment G, Section V.C.1.f of San Francisco Regional Water Quality Control Board (RWQCB) Order No. R2-2009-0062, NPDES No. CA0037681 as amended by RWQCB Order No. R2-2010-0054 (Regional Standard Provisions, and Monitoring and Reporting Requirements).

1.2 Permit Compliance and Actions Taken or Planned

The San Francisco Public Utilities Commission (SFPUC) is exempt from submittal of an annual compliance summary table and tabular and graphical summaries of monitoring data because all data for the OSP are reported electronically. See Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D), Attachment G (2010) at page G-19.

1.2.1 Compliance with Effluent Limitations and Unauthorized Discharges

The SFPUC reported no effluent limit exceedances and two unauthorized discharge incidents in 2019. These incidents were reported to the Regional Water Board as required.

On January 25, 29, and 30, small volumes of untreated wastewater from the primary effluent clarifiers, mixed with secondary treated effluent, were discharged to Discharge Point No. 001 during dry weather. Investigation of the cause began immediately after a continuous analyzer showed elevated turbidity readings on January 25. The discharges on January 25 and 29 resulted from one of two dewatering pumps being out of service, which caused the dewatering sump levels to rise and allowed flow to enter the secondary bypass pipe. The three-minute January 30 discharge was intentionally induced to confirm a hypothesis of the cause of the previous events. Preventative measures taken were to prioritize keeping the dewatering pumps in service, to inform all senior operations staff regarding the possible flow path, and to include in daily instructions to Operations staff that the secondary bypass drain valve must be closed during primary clarifier dewatering. Diagrams and details of the wastewater flow were provided in an unauthorized discharge report submitted on February 1 and a supplemental report submitted on March 1.

On August 17, an estimated 1.8 million gallons (MG) of primary treated wastewater bypassed the secondary treatment facilities and was discharged through the Southwest Ocean Outfall (Discharge Point No. 001) during dry weather. This incident was caused by an inconsistent power supply unit feeding the bypass valve control system. Subsequently, the power supply unit, which provides long-term voltage conversion, was replaced. A function test was also conducted on the entire facility control system; the test confirmed that secondary bypass controls continued to be reliable and verified that the root cause was in fact the failure of the power supply for the secondary bypass controls. Corrective actions were undertaken to improve response time, including lowering the turbidity concentration that triggers an alarm. Additional corrective actions were undertaken to prevent reoccurrence, including implementing additional alarms for the upstream isolation valve, downstream isolation valve, and bypass valve.

1.2.2 Monitoring Issues

In 2019, there were four types of monitoring issues that have been reported in the monthly self-monitoring reports:

- **Lack of CSD Sample (1):** Insufficient sample volume was collected during the January 6 combined sewer discharge (CSD) event due to issues with sampler programming. Shortly before the discharge commenced, SFPUC staff reset the sampler in preparation for the anticipated CSD event. However, the sampler was reprogrammed incorrectly, resulting in a sample volume that was insufficient for the required laboratory analyses. The sampler program has since been modified and subsequent CSD sampling was successful.

- **BOD_5 Analyses QA/QC Issues (4):** In 2019, there were multiple instances of 5-day biochemical oxygen demand (BOD_5) samples not meeting quality assurance/quality control (QA/QC) specifications for different reasons: week seed control, suspected contamination, equipment contamination in the dissolved oxygen probe membrane, and improper reagent preparation. Discovery of these instances resulted in more frequent monitoring during the subsequent week. Preventative measures included set-up of a separate dry weather-only seed bottle, retraining staff on proper laboratory procedures, thorough cleaning of laboratory equipment, and replacement of the membrane probe.

- **Monitoring Frequency Not Met (2):** During the last week of July (July 28 – August 3), the permit-required 5/week minimum monitoring frequencies for pH and total suspended solids (TSS) were not met due to an unplanned plant shutdown. The shutdown on July 29-30, necessitated by PG&E activities, prevented the collection of samples on those days and caused a subsequent sampler setup issue.

- **Shoreline Monitoring and Posting Not Conducted (4):** Shoreline monitoring and posting were not conducted a handful of times during 2019 due to the partial federal government shutdown (January 1-22; SRF-17, SRF-22), surf conditions making sample collection unsafe (November 27; SRF-22; posting occurred), preliminary bacteria concentration results that did not exceed single-sample thresholds (November 28, SRF-21), and lack of internal notification of a CSD event (December 18, SRF-17). In first three instances, the public was notified of CSDs via phone hotline, email, and the sfwater.org website. For the last instance, the triggers for automatic internal notification of a CSD at that location were corrected.

1.3 Effluent Characterization Study

For this evaluation, all constituents with required minimum sampling frequencies of less than once a month that were detected above the method Minimum Levels (MLs) were evaluated. Estimated concentrations of constituents detected below the MLs were excluded from this evaluation because the uncertainty in the result when a constituent is detected below the ML prevents useful comparison.

Seven of the tested constituents were detected above the method MLs: antimony, chloroform, chromium (total recoverable), copper, lead, nickel, and zinc. The 2019 maximum detected level of these constituents were compared to the Maximum Effluent Concentration (MEC) as presented in Table F-11 of the OSP Permit (Reasonable Potential Analysis). The MECs were used as the general indicators of past performance of the detected constituents.

All seven detected constituents showed deceases or no statistically significant increases compared to the corresponding MECs.

The detected constituents and evaluations are summarized below.

Trends for Selected Constituents

Priority Pollutant	Method Minimum Level (ML, µg/L)	2019 Maximum Detected Level (µg/L)[1]	Past Performance[2] (µg/L)	Criterion or Objective (µg/L)	Statistically Significant Increase
Antimony	0.5	0.72	0.94	1200	No
Chloroform	0.5	1.3	9.8	130	No
Chromium (III) Chromium (VI)	0.5 0.5	0.83 (total recoverable)	5.4 (DNQ) 5.4 (DNQ)	190,000 2	No No
Copper	0.5	13	70	3	No
Lead	0.5	0.69	8.6	2	No
Nickel	1	2.6	7.2	5	No
Zinc	1	46	146	20	No

Note:

1. Results have been rounded to two significant figures.
2. The Maximum Effluent Concentration (MEC) as listed in Table F-11. Reasonable Potential Analysis Results for the Discharge Point No. 001 in the OSP Permit, NPDES NO. CA0037681, Order No. R2-2009-0062, is used as an indicator for past performance.
3. This Ocean Plan Table 1 pollutant is the summation of four constituents and does not have an applicable method ML.
4. The only constituent detected was pentachlorophenol.

1.4 Biosolids

In 2019, the OSP beneficially re-used 3,120 dry metric tons of biosolids at the following locations:

Location	Dry Metric Tons[1]
Land Application	
Solano County	900
Sacramento County	230
Landfill Beneficial Use	
Potrero Hills	1,220
Vasco Road	50
Landfill Beneficial Use	
Hay Road	10
Lystek – Liquid Biofertilizer	710
TOTAL	**3,120**

Note:

1. Tonnage has been rounded to two significant figures.

2 Approved Laboratory Analyses

List of approved analyses include the following:

1. Analyses for which SFPUC is certified: See **Attachment A**.
2. Analysis performed for SFPUC by a separate certified laboratory (copies of reports signed by the laboratory director of the separate certified laboratories are not included with the annual report but are retained onsite and available upon request):
    - Dioxin, method EPA 1613, performed by Frontier Analytical; and

- Tributyltin, performed by Eurofins Calscience.

3. Waived analyses: None.

3 Facility Information

3.1 Plan View Drawing or Map of Facility

A Plant Site Plan is included in **Attachment B**, and a Plant Process Schematic is included in **Attachment C**.

3.2 Results of Annual Facility Report Reviews

3.2.1 Contingency Plan and Spill Prevention Plan

The OSP's Contingency Plan was reviewed throughout 2019. Updates to the plan include:

- Changes in staffing and roles and responsibilities;
- Process management updates; and
- Updates to the listed emergency contacts.

3.2.2 Operations and Maintenance Manual

Review of OSP related manuals, training, and other guidance materials was completed, resulting in updates to and development of the materials described in the table below.

Category	Activities
Manuals	OSP Primary & Secondary Operations Manual Updates Biosolids Management System Manual Updates
Training	Videos were created to facilitate training on the TPAD Oceanside Wastewater Plant Operations training included in Annual Wet Weather training for all SFPUC operators held in Sep and Oct 2019

3.2.3 Wastewater Facilities Status Report

The table below summarizes key construction activities related to the Westside facilities. The projects listed below do not comprise a comprehensive list of all upgrades completed or underway. Planning, design and construction of numerous other mechanical, electrical, structural, and communications improvements are ongoing.

Facility/Process	Project Description	Construction Update
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	Replacement of preliminary and final ventilation filter media plantwide.	Construction completed in 2019.
	Electrical preventive maintenance at main power services and substations.	Construction completed in 2019.
	Replacement of lighting fixtures plantwide, from high-intensity diffused (HID) and fluorescent types to more efficient Light-Emitting Diode (LED) types.	Construction anticipated to be complete in 2020.
	Replacement of pedestrian access doors, frames and hardware.	Construction anticipated to be complete in 2020.

Facility/Process	Project Description	Construction Update
OSP Administration / Laboratory Spaces	Replacement of HVAC systems at Bioassay room, server room, and equipment serving occupied spaces at the lab, offices, and control room.	Construction anticipated to be complete in 2020.
	Replacement of building exterior awning and construct exterior improvements.	Construction completed in 2019.
OSP Primary	Replacement of air supply ductwork in the primary treatment area and lighting fixture replacement.	Construction completed in 2019.
OSP Secondary	Upgrade and repair of oxygen generation compressors and associated mechanical instrumentation and controls.	Construction completed in 2019.
	Upgrade of Programmable Logic Controllers (PLCs) for Pressure-Swing Absorption (PSA) compressors and aeration systems.	Construction completed in 2019.
OSP Solids Handling	Repair of gravity belt thickener (GBT) and replace a GBT with a rotary drum thickener.	Construction anticipated to be complete in 2020.
	Replacement of pumps and associated mechanical and electrical improvements.	Construction expected to be complete in 2020.
	Replacement of interior liner of four digesters. Replacements and repairs of ancillary mechanical equipment.	Completed one digester in 2019. Remaining replacements are anticipated to be complete in 2021.
OSP Digester Gas Management	Replacement of existing waste gas burners with two low-emission, natural-draft type biogas flare burner assemblies.	Construction expected to complete in 2020.
	Replacement of digester gas energy recovery systems, including: installation of three new cogeneration engines, digester gas holder, standby generator, gas conditioning system, electrical substation, and ventilation improvements.	Construction initiated in late 2018 and is expected to be complete in 2021.
Westside Recycled Water Facility	Construction of and connection to a recycled water facility that will include microfiltration, reverse osmosis, and UV disinfection of the OSP final effluent.	Construction began in 2018 and is expected to be complete in 2021.
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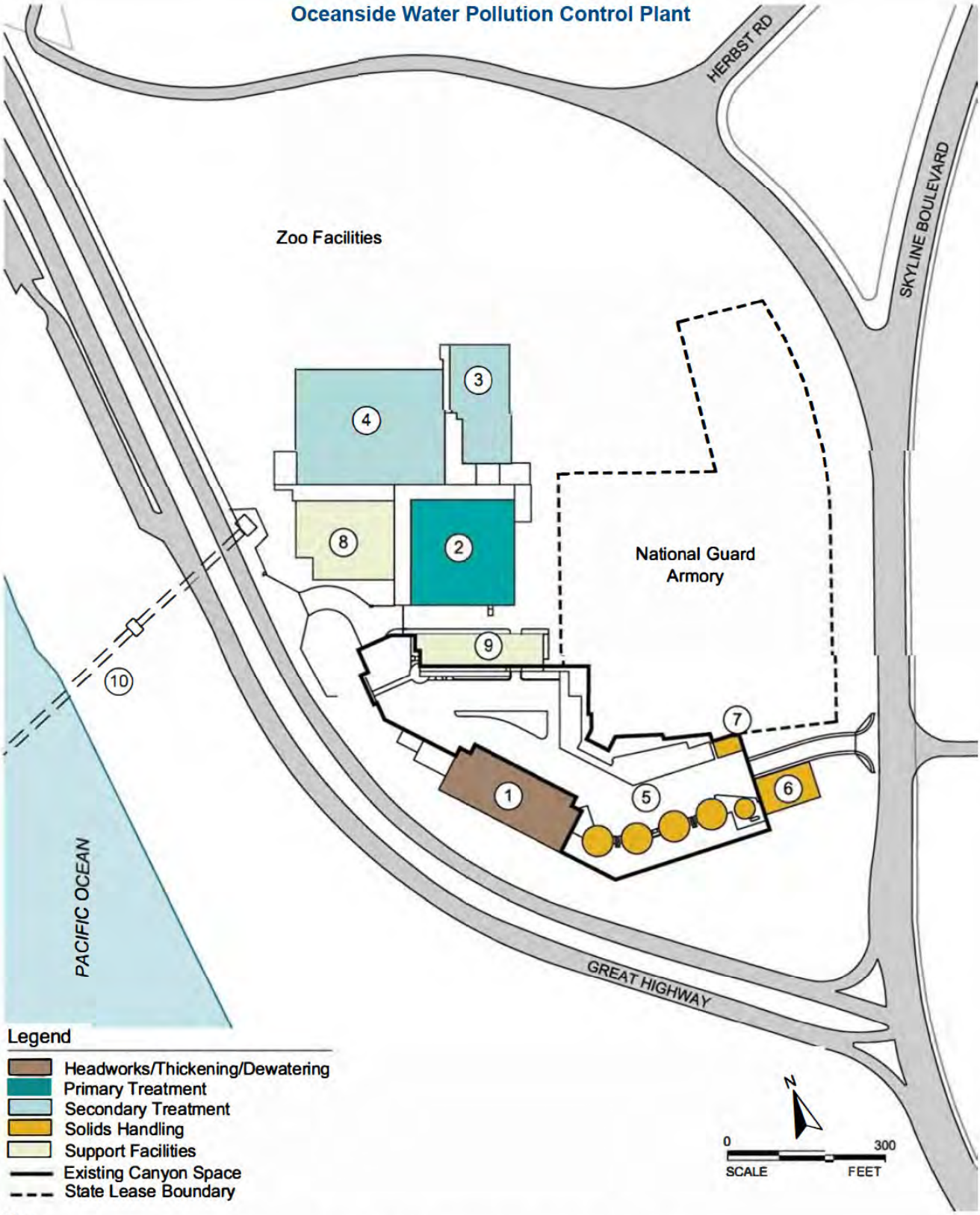
Sea Cliff #2 Pump Station	Concrete spall and crack repair at pedestrian access stairs and exterior of process building.	Construction completed in 2019.
Westside Pump Station (WSS)	Multiple improvements to the pump station, including replacement of existing bar screens, construction of new dry weather / wet weather cross-connection structure, ventilation improvements, and provision of a redundant power source.	Rescoped / redesign contract and target to rebid the project in 2020.
	Replacement of existing dry weather pumps' variable frequency drives.	Construction completed in 2019.

ATTACHMENT A
List of Analyses for which SFPUC is Certified

References for Analyses Cited

Type of Test	Reference	Method Number
Ammonia	Standard Methods	4500-NH3 B,C
Bioassay	EPA	2019 (EPA-821-R-02-012) 600/R-95/136 Development Test
Biochemical Oxygen Demand	Standard Methods	5210 B
Carbonaceous BOD	Standard Methods	5210 B
Chemical Oxygen Demand	Standard Methods	5220 D/HACH8000
Chlorine Residual	Standard Methods	4500-Cl C
Coliform	Standard Methods	9221 B
Conductivity	Standard Methods	2510 B
Cyanide	Standard Methods	4500-CN^- C & 4500-CN^- E
Enterococci, IDEXX	EPA	Enterolert
Kjeldahl Nitrogen	Standard Methods	4500-NH3 C
Mercury	EPA	1631E/245.1
Metals	EPA	200.7/200.8
Oil & Grease	EPA	1664A
PAH	EPA	625
Pesticide/PCBs	EPA	608
pH	EPA/Standard Methods	150.2/4500-H^+ B
Phosphate, Ortho	Standard Methods	SM4500-P E
Phosphorus, Total	EPA	200.7
Semi -Volatile Organic Compounds	EPA	625
Settleable Solids	Standard Methods	2540 F
Temperature	Standard Methods	2550 B
Total Solids	Standard Methods	2540 B
Total Suspended Solids	Standard Methods	2540 D
Turbidity	Standard Methods	2130 B
Volatile Organic Compounds	EPA	624

ATTACHMENT B
Plant Site Plan
Oceanside Water Pollution Control Plant



Legend

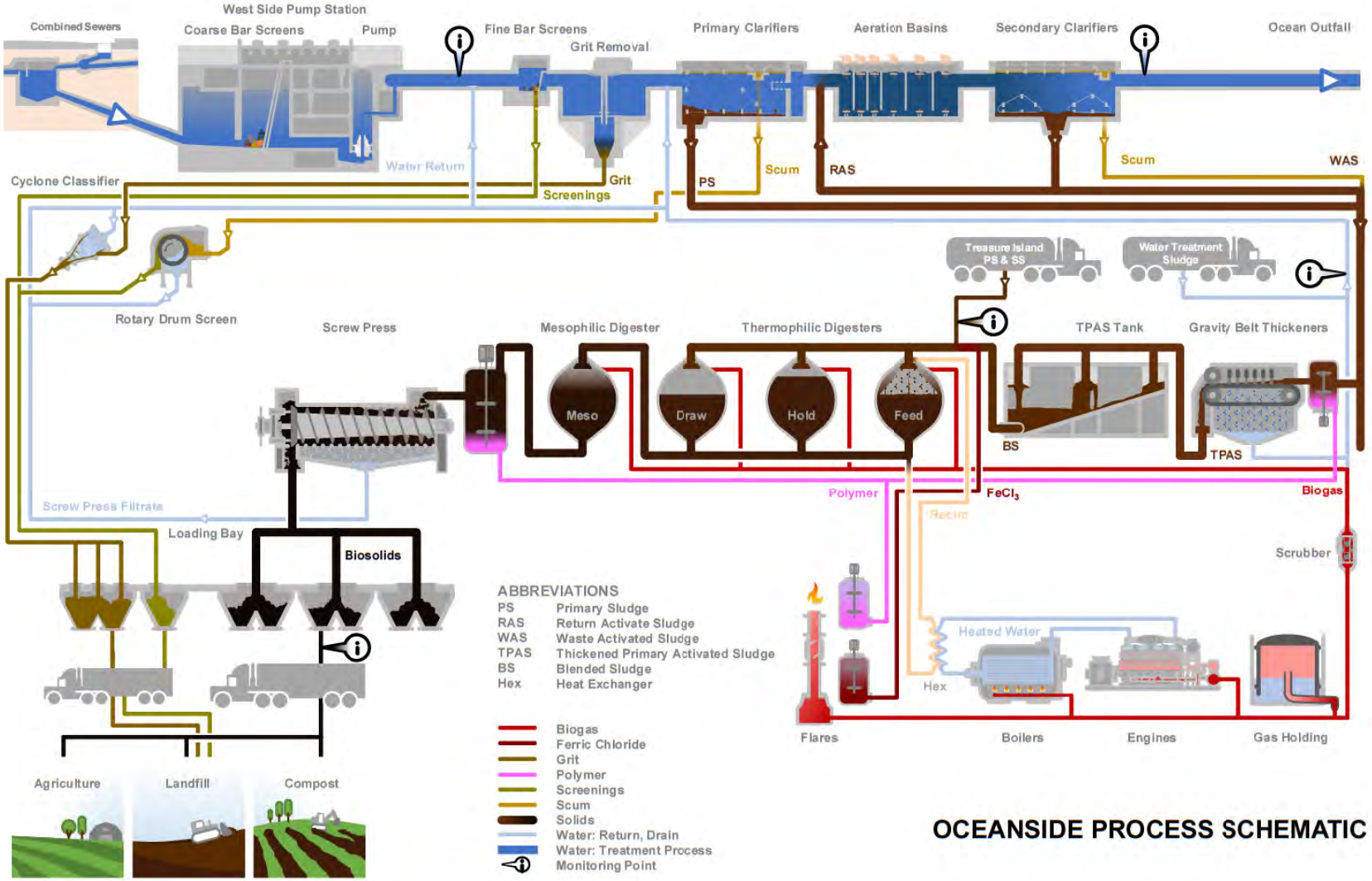
- Headworks/Thickening/Dewatering
- Primary Treatment
- Secondary Treatment
- Solids Handling
- Support Facilities
- Existing Canyon Space
- State Lease Boundary

Key

1. Headworks/Oxygen Plant/Solids Handling
2. Primary Clarifiers
3. Aeration Basins
4. Secondary Clarifiers
5. Anaerobic Digesters
6. Cogeneration/Hot Water Boilers
7. Waste Gas Burners
8. Chlorination and Dechlorination (not in service)/Odor Control
9. Administration
10. Southwest Ocean Outfall

OSP0296

ATTACHMENT C
Plant Process Schematic
Oceanside Water Pollution Control Plant



OCEANSIDE PROCESS SCHEMATIC

OSP0297

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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January 31, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: Annual Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681], Regional Water Quality Control Board Order No. R2-2009-0062

To Whom It May Concern:

Transmitted herewith is the annual self-monitoring report (SMR) for the calendar year of 2019 for the Oceanside Water Pollution Control Plant. During the months of November and December there was substantial uncertainty regarding the applicability of Regional Water Board Order No. R2-2009-0062 and subsequent Order No. R2-2019-0028. The Regional Water Board approved Order No. R2-2019-0028 in September 2019 with an effective date of November 1, 2019; however, U.S. EPA did not sign approve the jointly-issued order until December 10, 2019, with an effective date of February 1, 2020. For purposes of this annual report the SFPUC has assessed compliance against the 2009 order.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Dale Miller
Operations Superintendent

Attachments

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

2019 Annual Self-Monitoring Report

San Francisco Public Utilities Commission
Oceanside Water Pollution Control Plant

Table of Contents

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Attachments
Attachment A: List of Analyses for which the SFPUC is Certified
Attachment B: Plant Site Plan
Attachment C: Plant Process Schematic

1 Treatment Plant Performance

1.1 Volume Treated

The Oceanside Water Pollution Control Plant (OSP) is permitted to discharge an average dry weather flow of 43 million gallons per day (MGD). The 2019 average dry weather flow was 11.6 MGD, calculated using flows from three consecutive dry weather months (June, July, and August). The facility treated an estimated 6.4 billion gallons of combined wastewater and stormwater in 2019.

This report was prepared by SFPUC to satisfy the annual reporting requirement set forth in Attachment G, Section V.C.1.f of San Francisco Regional Water Quality Control Board (RWQCB) Order No. R2-2009-0062, NPDES No. CA0037681 as amended by RWQCB Order No. R2-2010-0054 (Regional Standard Provisions, and Monitoring and Reporting Requirements).

1.2 Permit Compliance and Actions Taken or Planned

The San Francisco Public Utilities Commission (SFPUC) is exempt from submittal of an annual compliance summary table and tabular and graphical summaries of monitoring data because all data for the OSP are reported electronically. See Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D), Attachment G (2010) at page G-19.

1.2.1 Compliance with Effluent Limitations and Unauthorized Discharges

The SFPUC reported no effluent limit exceedances and two unauthorized discharge incidents in 2019. These incidents were reported to the Regional Water Board as required.

On January 25, 29, and 30, small volumes of untreated wastewater from the primary effluent clarifiers, mixed with secondary treated effluent, were discharged to Discharge Point No. 001 during dry weather. Investigation of the cause began immediately after a continuous analyzer showed elevated turbidity readings on January 25. The discharges on January 25 and 29 resulted from one of two dewatering pumps being out of service, which caused the dewatering sump levels to rise and allowed flow to enter the secondary bypass pipe. The three-minute January 30 discharge was intentionally induced to confirm a hypothesis of the cause of the previous events. Preventative measures taken were to prioritize keeping the dewatering pumps in service, to inform all senior operations staff regarding the possible flow path, and to include in daily instructions to Operations staff that the secondary bypass drain valve must be closed during primary clarifier dewatering. Diagrams and details of the wastewater flow were provided in an unauthorized discharge report submitted on February 1 and a supplemental report submitted on March 1.

On August 17, an estimated 1.8 million gallons (MG) of primary treated wastewater bypassed the secondary treatment facilities and was discharged through the Southwest Ocean Outfall (Discharge Point No. 001) during dry weather. This incident was caused by an inconsistent power supply unit feeding the bypass valve control system. Subsequently, the power supply unit, which provides long-term voltage conversion, was replaced. A function test was also conducted on the entire facility control system; the test confirmed that secondary bypass controls continued to be reliable and verified that the root cause was in fact the failure of the power supply for the secondary bypass controls. Corrective actions were undertaken to improve response time, including lowering the turbidity concentration that triggers an alarm. Additional corrective actions were undertaken to prevent reoccurrence, including implementing additional alarms for the upstream isolation valve, downstream isolation valve, and bypass valve.

1.2.2 Monitoring Issues

In 2019, there were four types of monitoring issues that have been reported in the monthly self-monitoring reports:

- **Lack of CSD Sample (1):** Insufficient sample volume was collected during the January 6 combined sewer discharge (CSD) event due to issues with sampler programming. Shortly before the discharge commenced, SFPUC staff reset the sampler in preparation for the anticipated CSD event. However, the sampler was reprogrammed incorrectly, resulting in a sample volume that was insufficient for the required laboratory analyses. The sampler program has since been modified and subsequent CSD sampling was successful.

- **BOD_5 Analyses QA/QC Issues (4):** In 2019, there were multiple instances of 5-day biochemical oxygen demand (BOD_5) samples not meeting quality assurance/quality control (QA/QC) specifications for different reasons: week seed control, suspected contamination, equipment contamination in the dissolved oxygen probe membrane, and improper reagent preparation. Discovery of these instances resulted in more frequent monitoring during the subsequent week. Preventative measures included set-up of a separate dry weather-only seed bottle, retraining staff on proper laboratory procedures, thorough cleaning of laboratory equipment, and replacement of the membrane probe.

- **Monitoring Frequency Not Met (2):** During the last week of July (July 28 – August 3), the permit-required 5/week minimum monitoring frequencies for pH and total suspended solids (TSS) were not met due to an unplanned plant shutdown. The shutdown on July 29-30, necessitated by PG&E activities, prevented the collection of samples on those days and caused a subsequent sampler setup issue.

- **Shoreline Monitoring and Posting Not Conducted (4):** Shoreline monitoring and posting were not conducted a handful of times during 2019 due to the partial federal government shutdown (January 1-22; SRF-17, SRF-22), surf conditions making sample collection unsafe (November 27; SRF-22; posting occurred), preliminary bacteria concentration results that did not exceed single-sample thresholds (November 28, SRF-21), and lack of internal notification of a CSD event (December 18, SRF-17). In first three instances, the public was notified of CSDs via phone hotline, email, and the sfwater.org website. For the last instance, the triggers for automatic internal notification of a CSD at that location were corrected.

1.3 Effluent Characterization Study

For this evaluation, all constituents with required minimum sampling frequencies of less than once a month that were detected above the method Minimum Levels (MLs) were evaluated. Estimated concentrations of constituents detected below the MLs were excluded from this evaluation because the uncertainty in the result when a constituent is detected below the ML prevents useful comparison.

Seven of the tested constituents were detected above the method MLs: antimony, chloroform, chromium (total recoverable), copper, lead, nickel, and zinc. The 2019 maximum detected level of these constituents were compared to the Maximum Effluent Concentration (MEC) as presented in Table F-11 of the OSP Permit (Reasonable Potential Analysis). The MECs were used as the general indicators of past performance of the detected constituents.

All seven detected constituents showed deceases or no statistically significant increases compared to the corresponding MECs.

The detected constituents and evaluations are summarized below.

Trends for Selected Constituents

Priority Pollutant	Method Minimum Level (ML, µg/L)	2019 Maximum Detected Level (µg/L)[1]	Past Performance[2] (µg/L)	Criterion or Objective (µg/L)	Statistically Significant Increase
Antimony	0.5	0.72	0.94	1200	No
Chloroform	0.5	1.3	9.8	130	No
Chromium (III) Chromium (VI)	0.5 0.5	0.83 (total recoverable)	5.4 (DNQ) 5.4 (DNQ)	190,000 2	No No
Copper	0.5	13	70	3	No
Lead	0.5	0.69	8.6	2	No
Nickel	1	2.6	7.2	5	No
Zinc	1	46	146	20	No

Note:

1. Results have been rounded to two significant figures.
2. The Maximum Effluent Concentration (MEC) as listed in Table F-11. Reasonable Potential Analysis Results for the Discharge Point No. 001 in the OSP Permit, NPDES NO. CA0037681, Order No. R2-2009-0062, is used as an indicator for past performance.
3. This Ocean Plan Table 1 pollutant is the summation of four constituents and does not have an applicable method ML.
4. The only constituent detected was pentachlorophenol.

1.4 Biosolids

In 2019, the OSP beneficially re-used 3,120 dry metric tons of biosolids at the following locations:

Location	Dry Metric Tons[1]
Land Application	
Solano County	900
Sacramento County	230
Landfill Beneficial Use	
Potrero Hills	1,220
Vasco Road	50
Landfill Beneficial Use	
Hay Road	10
Lystek – Liquid Biofertilizer	710
TOTAL	**3,120**

Note:

1. Tonnage has been rounded to two significant figures.

2 Approved Laboratory Analyses

List of approved analyses include the following:

1. Analyses for which SFPUC is certified: See **Attachment A**.
2. Analysis performed for SFPUC by a separate certified laboratory (copies of reports signed by the laboratory director of the separate certified laboratories are not included with the annual report but are retained onsite and available upon request):
    - Dioxin, method EPA 1613, performed by Frontier Analytical; and

- Tributyltin, performed by Eurofins Calscience.

3. Waived analyses: None.

3 Facility Information

3.1 Plan View Drawing or Map of Facility

A Plant Site Plan is included in **Attachment B**, and a Plant Process Schematic is included in **Attachment C**.

3.2 Results of Annual Facility Report Reviews

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The OSP's Contingency Plan was reviewed throughout 2019. Updates to the plan include:

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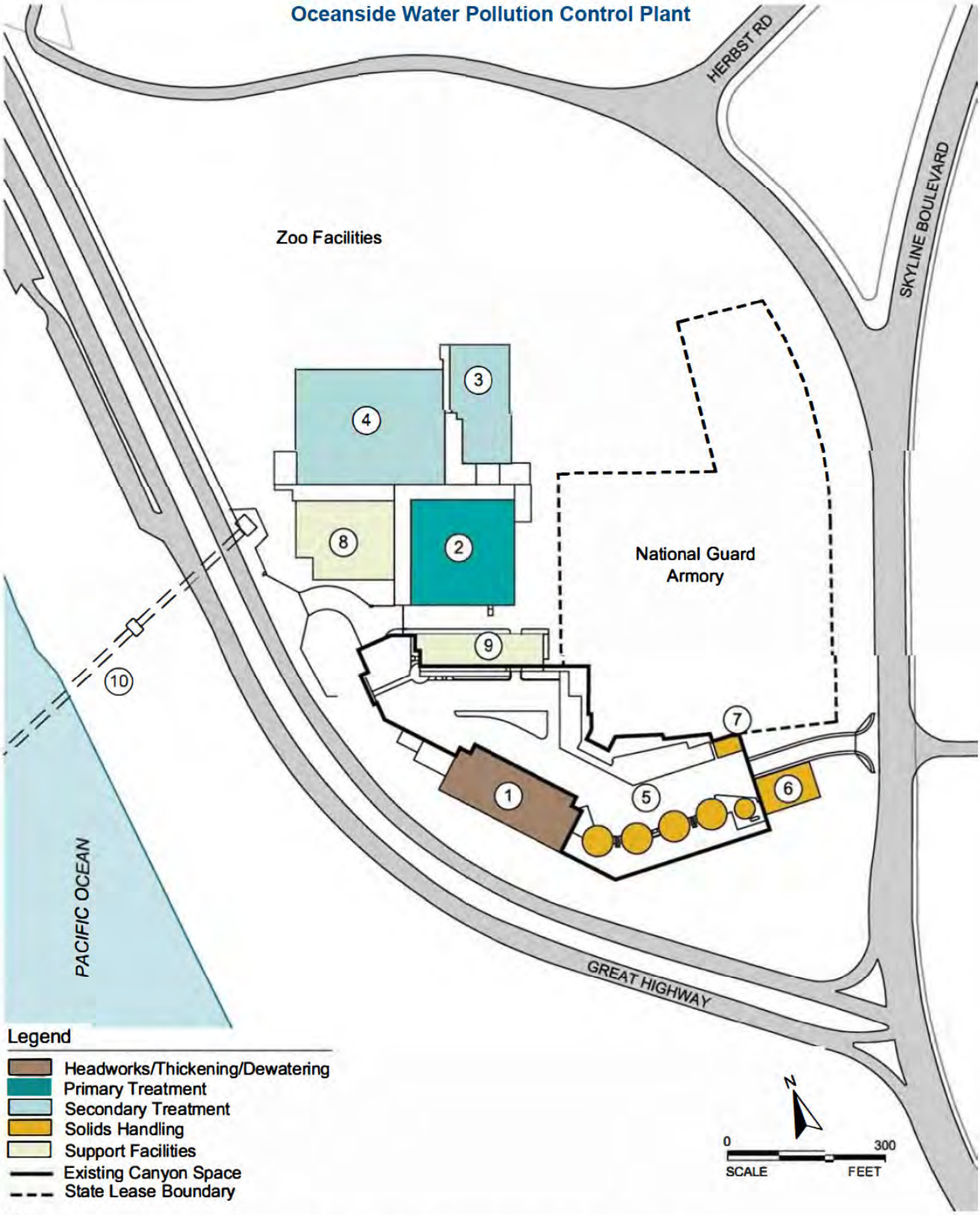
Turbidity	Standard Methods	2130 B
Volatile Organic Compounds	EPA	624

ATTACHMENT B
Plant Site Plan
Oceanside Water Pollution Control Plant



Key

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3. Aeration Basins
4. Secondary Clarifiers
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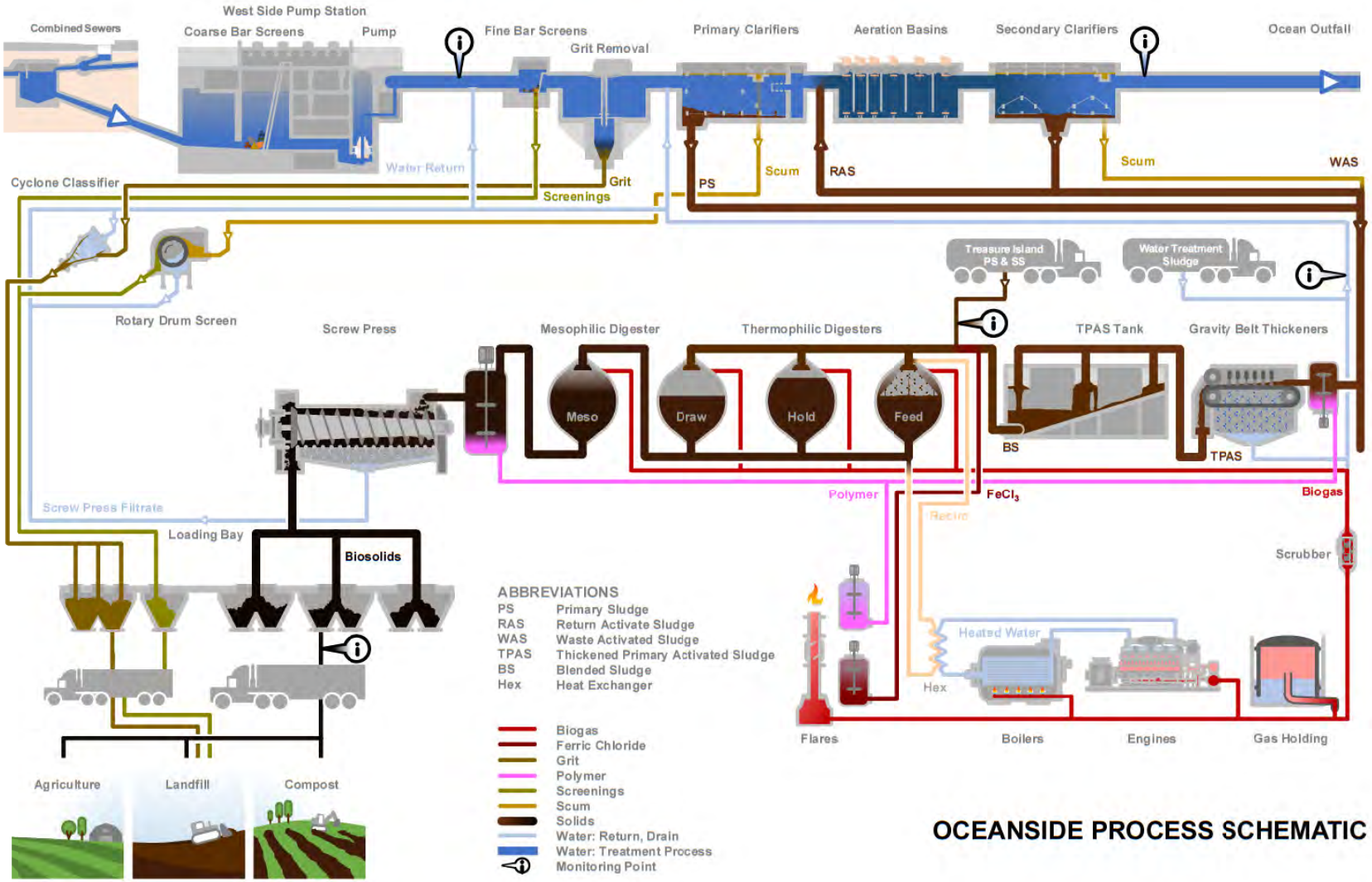
7. Waste Gas Burners
8. Chlorination and Dechlorination (not in service)/Odor Control
9. Administration
10. Southwest Ocean Outfall

ATTACHMENT C
Plant Process Schematic
Oceanside Water Pollution Control Plant



OCEANSIDE PROCESS SCHEMATIC

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2326462

		(Mean)					
INF-001A	Zinc, Total Recoverable	Daily Maximum	=	0.189	mg/L	04/14/2020	None
INF-001B	Chemical Oxygen Demand (COD)	Daily Maximum	=	363	mg/L	04/06/2020	None
INF-001B	Chemical Oxygen Demand (COD)	Monthly Average (Mean)	=	363	mg/L	04/30/2020	None
INF-001B	Flow	Daily Maximum	=	30.8	MGD	04/06/2020	None
INF-001B	Flow	Monthly Discharge	=	54	million gallons	04/30/2020	None
INF-001B	Flow	Monthly Average (Mean)	=	26.8	MGD	04/30/2020	None
INF-001B	Total Suspended Solids (TSS)	Daily Maximum	=	160	mg/L	04/06/2020	None
INF-001B	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	110	mg/L	04/30/2020	None
INF-001B	pH	Daily Maximum	=	6.4	SU	04/06/2020	None
INF-001B	pH	Monthly Minimum	=	6.4	SU	04/06/2020	None

Total Calculated Data Points: 59

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1076485	04/06/2020	Order Conditions	Did not comply with wet weather plant operational requirements, as described in	Follow-up training with staff is planned.	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
OSP Shoreline 202004 v2.pdf	Shoreline Report	37 KB

Total Attachments: 1

Cover Letter

File Name
2020-04 OSP SMR CL Final.pdf

Total No. of Cover Letter Files: 1 **Cover Leter Text: No**

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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Cal/EPA | ARB | DPR | DTSC | OEHHA | **SWRCB**

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
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TTY 415.554.3488

May 29, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: April 2020 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2019-0028

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of April 2020 for the Oceanside Water Pollution Control Plant (OSP).

In response to the outbreak of the Novel Coronavirus 2019 (COVID-19) in the general public, which is now a pandemic according to the World Health Organization, the City and County of San Francisco initiated (and has since extended) a shelter-in-place order that began on March 17, 2020. The order and associated social distancing requirements have necessitated major changes to the operations of wastewater facilities that may affect the SFPUC's ability to comply with NPDES permit requirements. Operational changes continue to be made day to day in accordance with updates to federal, state, and local requirements and guidance.

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Results Not Yet Available. As of May 28, pretreatment influent and effluent priority pollutant samples analyzed using EPA Methods 608 (PCBs and Organochlorine Pesticides), 624 (Volatile Organic Compounds), and 625 (Semi-volatile Organic Compounds) for samples collected on April 23 are not available. Results are anticipated to be reported in a monthly SMR once results are available.

London N. Breed
Mayor
Ann Moller Caen
President
Francesca Vietor
Vice President
Anson Moran
Commissioner
Sophie Maxwell
Commissioner
Tim Paulson
Commissioner
Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges. There were no combined sewer discharges (CSDs) during this monitoring period as described in the Wet Weather Summary.

System Operations of Wet Weather Facilities.
The operation of wet weather facilities during the storm event was conducted consistent with the requirements in NPDES permit Provision VI.C.6.c(3) - VI.C.6.c(4) except for the operation of the Westside Pump Station (WPS). During the April 6 storm event, OSP did not yet have an instantaneous influent flow of at least 60 MGD prior to initiating discharge from the Westside Transport/Storage Structure to Discharge Point No. 001 (decant). Staff initiated the decant discharge sooner than necessary, likely due to the change in this requirement in the new NPDES permit (i.e., requirement was formerly “at least 43 MGD”). Appropriate follow-up training is planned.

Wet Weather Monitoring. The Westside system experienced wet weather days on April 4 and 6. Required monitoring occurred at INF-001B and EFF-001B. As of May 28, two permit-required EFF-001B monitoring parameters – "Duration of Blending" and ”Volume of Blended Wastewater Discharged" – are not available in the California Integrated Water Quality System Project (CIWQS) as SMR tags for data upload. Data entry with Permittee Entry Template (PET) Tool and by manual entry, therefore, is not possible. The data for the two parameters have been submitted in the Wet Weather Summary as the parameters *OSP Effluent – Secondary Bypass (MG)* and *OSP Effluent – Secondary Bypass Duration (minutes)*.

As of May 28, the program coding for the DMR has not been updated to reflect the 2019 permit, therefore, data entry for wet weather influent and effluent at Monitoring Locations INF-001B is not available. We have contacted the DMR Help Desk for the necessary correction. In the meantime, we have uploaded the required data in CIWQS to provide a timely submittal of the SMR (except for the two blending parameters noted above).

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit.

If you have any questions concerning this report, please contact Operations Division Manager, George Engel at (415) 920-4923 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my

knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew M. Clark
Superintendent, Operations

Annual Wet Weather Summary - Oceanside Basins for 2019-2020														
DRAINAGE BASIN	WESTSIDE T/S BOX									Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant				Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit		Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	OSP Effluent - 2ndary Bypass Duration	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.ROO1	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	-	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
MONTH/UNIT	INCHES	MG	MG	MG	MINUTES	MG	MG	-	MG	-	MG	INCHES	-	MG
July	0.02	348.74	328.73	0.00	0	0.00	328.73	0	0.00	0	0.00	0.00	0	0.00
August	0.00	397.23	387.21	0.00	0	0.00	387.21	0	0.00	0	0.00	0.00	0	0.00
September	0.10	369.39	371.05	0.00	0	0.00	371.05	0	0.00	0	0.00	0.08	0	0.00
October	0.00	371.31	385.71	0.00	0	0.00	385.71	0	0.00	0	0.00	0.00	0	0.00
November	1.21	436.95	466.20	18.22	1759	51.13	517.33	1	3.07	0	0.00	1.19	1	0.07
December	5.58	723.21	784.71	67.07	6590	241.68	1026.39	1	8.82	2	5.08	6.25	2	1.53
January	2.41	558.18	573.49	18.33	2097	78.98	652.47	1	9.33	1	2.13	2.26	1	<0.01
February	0.00	369.09	369.81	0.00	0	0.00	369.81	0	0.00	0	0.00	0.00	0	0.00
March	1.44	521.73	532.20	16.39	1747	0.00	532.20	0	0.00	0	0.00	1.74	0	0.00
April	0.71	431.71	452.76	2.55	311	10.24	463.01	0	0.00	0	0.00	0.93	0	0.00
May														
June														
TOTAL	11.47	4527.53	4651.88	122.55	12504	382.03	5033.90	3	21.22	3	7.21	12.45	4	1.60

Monthly Wet Weather Summary - Oceanside Basins for April-2020

DRAINAGE BASIN	WESTSIDE T/S BOX									Mile Rock		SEA CLIFF AREA		
Metrics	Rainfall	Treatment Plant				Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit		Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	OSP Effluent - 2ndary Bypass Duration	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume
Data Tag	OSCP03_IO:RAIN_OSP_1.ROO1	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	-	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-
DAY/UNIT	INCHES	MG	MG	MG	MINUTES	MG	MG	-	MG	-	MG	INCHES	-	MG
4/1/2020	0.00	11.24	12.34	0.00	0	0.00	12.34					0.00		
4/2/2020	0.00	11.91	12.35	0.00	0	0.00	12.35					0.00		
4/3/2020	0.00	14.07	12.56	0.00	0	0.00	12.56					0.00		
4/4/2020	0.19	22.94	23.16	0.00	0	0.00	23.16					0.27		
4/5/2020	0.16	37.68	40.26	0.00	0	0.00	40.26					0.32		
4/6/2020	0.36	30.75	33.74	2.55	311	10.24	43.98					0.32		
4/7/2020	0.00	20.62	22.72	0.00	0	0.00	22.72					0.01		
4/8/2020	0.00	13.35	15.53	0.00	0	0.00	15.53					0.00		
4/9/2020	0.00	11.93	12.62	0.00	0	0.00	12.62					0.01		
4/10/2020	0.00	12.57	12.51	0.00	0	0.00	12.51					0.00		
4/11/2020	0.00	11.96	12.10	0.00	0	0.00	12.10					0.00		
4/12/2020	0.00	12.39	13.10	0.00	0	0.00	13.10					0.00		
4/13/2020	0.00	12.45	12.77	0.00	0	0.00	12.77					0.00		
4/14/2020	0.00	12.79	13.29	0.00	0	0.00	13.29					0.00		
4/15/2020	0.00	11.23	11.59	0.00	0	0.00	11.59					0.00		
4/16/2020	0.00	12.12	12.78	0.00	0	0.00	12.78					0.00		
4/17/2020	0.00	11.97	12.48	0.00	0	0.00	12.48					0.00		
4/18/2020	0.00	11.02	11.40	0.00	0	0.00	11.40					0.00		
4/19/2020	0.00	12.67	12.80	0.00	0	0.00	12.80					0.00		
4/20/2020	0.00	10.66	11.74	0.00	0	0.00	11.74					0.00		
4/21/2020	0.00	7.26	7.15	0.00	0	0.00	7.15					0.00		
4/22/2020	0.00	16.61	18.24	0.00	0	0.00	18.24					0.00		
4/23/2020	0.00	13.62	15.19	0.00	0	0.00	15.19					0.00		
4/24/2020	0.00	11.12	11.90	0.00	0	0.00	11.90					0.00		
4/25/2020	0.00	12.10	12.03	0.00	0	0.00	12.03					0.00		
4/26/2020	0.00	13.18	13.36	0.00	0	0.00	13.36					0.00		
4/27/2020	0.00	13.12	14.05	0.00	0	0.00	14.05					0.00		
4/28/2020	0.00	12.43	13.02	0.00	0	0.00	13.02					0.00		
4/29/2020	0.00	10.73	10.44	0.00	0	0.00	10.44					0.00		
4/30/2020	0.00	15.20	15.55	0.00	0	0.00	15.55					0.00		
TOTAL MONTHLY	0.71	431.71	452.76	2.55	311	10.24	463.01	0	0.00	0	0.00	0.93	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	14.39	15.09	2.55	-	10.24	15.43	-	-	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	7.26	7.15	0.00	-	0.00	7.15	-	-	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	37.68	40.26	2.55	-	10.24	43.98	-	-	-	-	-	-	-

Notes

1. Recorded WST Decant flow on 4/1, 4/2, and 4/3 was anomalous and has been zeroed per confirmation from Operations.
2. There were OSP shutdowns on 4/15 from 06:00AM to 11:15AM and from 4/20 20:00PM to 4/21 12:00PM.
3. OSP data was anomalous on 4/15 from 14:00PM to 16:05PM and from 4/17 20:00PM to 4/18 10:50AM. Plant flow data for these intervals was interpolated from Operator log sheets.

Oceanside Basin CSD Summary
Apr-2020

Date	OSP Rain Gauge Total (inches)	OSP Max. Rainfall Intensity (in/hr)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #4 Mile Rock			Sea Cliff Rain Gauge Total (inches)	Sea Cliff Max. Rainfall Intensity (in/hr)	CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
			Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)			Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2020	0.00	0.00													0.00	0.00									
4/2/2020	0.00	0.00													0.00	0.00									
4/3/2020	0.00	0.00													0.00	0.00									
4/4/2020	0.19	0.08													0.27	0.10									
4/5/2020	0.16	0.10													0.32	0.13									
4/6/2020	0.36	0.14													0.32	0.17									
4/7/2020	0.00	0.00													0.01	0.01									
4/8/2020	0.00	0.00													0.00	0.00									
4/9/2020	0.00	0.00													0.01	0.01									
4/10/2020	0.00	0.00													0.00	0.00									
4/11/2020	0.00	0.00													0.00	0.00									
4/12/2020	0.00	0.00													0.00	0.00									
4/13/2020	0.00	0.00													0.00	0.00									
4/14/2020	0.00	0.00													0.00	0.00									
4/15/2020	0.00	0.00													0.00	0.00									
4/16/2020	0.00	0.00													0.00	0.00									
4/17/2020	0.00	0.00													0.00	0.00									
4/18/2020	0.00	0.00													0.00	0.00									
4/19/2020	0.00	0.00													0.00	0.00									
4/20/2020	0.00	0.00													0.00	0.00									
4/21/2020	0.00	0.00													0.00	0.00									
4/22/2020	0.00	0.00													0.00	0.00									
4/23/2020	0.00	0.00													0.00	0.00									
4/24/2020	0.00	0.00													0.00	0.00									
4/25/2020	0.00	0.00													0.00	0.00									
4/26/2020	0.00	0.00													0.00	0.00									
4/27/2020	0.00	0.00													0.00	0.00									
4/28/2020	0.00	0.00													0.00	0.00									
4/29/2020	0.00	0.00													0.00	0.00									
4/30/2020	0.00	0.00													0.00	0.00									
TOTAL	0.71	-	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	0.93	-	-	0	0.00	-	0	0.00	-	0	0.00

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

June 29, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: May 2020 Self-Monitoring Report for the Oceanside Water Pollution Control Plant [NPDES No. CA0037681] Regional Water Quality Control Board Order No. R2-2019-0028

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of May 2020 for the Oceanside Water Pollution Control Plant (OSP).

In response to the outbreak of the Novel Coronavirus 2019 (COVID-19) in the general public, which is now a pandemic according to the World Health Organization, the City and County of San Francisco initiated (and has since extended) a shelter-in-place order that began on March 17, 2020. The order and associated social distancing requirements have necessitated major changes to the operations of wastewater facilities that may affect the SFPUC's ability to comply with NPDES permit requirements. Operational changes continue to be made day to day in accordance with updates to federal, state, and local requirements and guidance.

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit except for 5-day biochemical oxygen demand (BOD_5) described below. The BOD_5 results during the week of May 24-30 are not available. The BOD_5 tests were conducted for the influent (INF-001A) and effluent (EFF-001A) samples collected on May 26 and 27. However, the test results did not meet a quality control (QC) specification for method SM5210B (i.e., a maximum DO depletion of 0.20 mg/L for the dilution water blanks). In addition, the May 27 results did not meet an additional QC specification (i.e., an average standard recovery of 72%, outside of the acceptable QC range of 85-115%). Staff investigated the cause and discovered that the aeration bubble stones in the dilution water carboys had noticeable algae growth, which contaminated the dilution water. A corrective action has been implemented to prevent

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Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

reoccurrence; the aeration bubble stone was replaced and laboratory staff will clean the bubble stone weekly and replace it quarterly as needed. This issue was not discovered until the May 26 test results were available on June 1, and staff subsequently analyzed extra INF-001A and EFF-001A composite samples collected on June 2. Additional samples were collected and analyzed for June 3.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of OSP and the Westside wet weather facilities.

Combined Sewer Discharges. There were no combined sewer discharges (CSDs) during this monitoring period as described in the Wet Weather Summary.

System Operations of Wet Weather Facilities.
The operation of wet weather facilities during the storm event was conducted consistent with the requirements in NPDES permit Provision VI.C.6.c(3) - VI.C.6.c(4).

Wet Weather Monitoring. The Westside system experienced a wet weather day on May 17. Required monitoring occurred at INF-001B and EFF-001B.

As of June 25, the program coding for the DMR has not been updated to reflect the 2019 permit, therefore, data entry for wet weather influent and effluent at Monitoring Locations INF-001B is not available. We have contacted the DMR Help Desk for the necessary correction. In the meantime, we have uploaded the required data in CIWQS to provide a timely submittal of the SMR (except for the two blending parameters noted above).

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit.

If you have any questions concerning this report, please contact me at (415) 242-2225 or MLauer@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Mark Lauer
Acting Superintendent, Westside Operations

Annual Wet Weather Summary - Oceanside Basins for 2019-2020															
DRAINAGE BASIN	WESTSIDE T/S BOX									Mile Rock		SEA CLIFF AREA			
Metrics	Rainfall	Treatment Plant				Pumping	System Effluent	Combined Sewer Discharges		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges		
Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit		Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007		
Location Description	OSP Rain Gauge	Influent to OSP	OSP Effluent – Total	OSP Effluent – Secondary Bypass	OSP Effluent - 2ndary Bypass Duration	Westside Transport/Storage Structure Effluent (“Decant”)	Total Flows to SWOO	# of CSD Events	CSD Volume	# of CSD Events	CSD Volume	Sea Cliff Rain Gauge	# of CSD Events	CSD Volume	
Data Tag	OSCP03_IO:RAIN_OSP_1.ROO1	OM1WSS_ANAL:01FIT20.PNT	OS3SULFITE:30FIT3.PNT	ON3PE_BYPASS:10FYI1.PNT	-	OM1WSS_ANAL:01FIT21.PNT	Sum of OSP Effluent and WSPS Pumping	-	-	-	-	TELOG:RG13_SeaCliff.Intensity	-	-	
MONTH/UNIT	INCHES	MG	MG	MG	MINUTES	MG	MG	-	MG	-	MG	INCHES	-	MG	
July	0.02	348.74	328.73	0.00	0	0.00	328.73	0	0.00	0	0.00	0.00	0	0.00	
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February	0.00	369.09	369.81	0.00	0	0.00	369.81	0	0.00	0	0.00	0.00	0	0.00	
March	1.44	521.73	532.20	16.39	1747	0.00	532.20	0	0.00	0	0.00	1.74	0	0.00	
April	0.71	431.71	452.76	2.55	311	10.24	463.01	0	0.00	0	0.00	0.93	0	0.00	
May	0.48	428.59	440.12	0.00	0	0.00	440.12	0	0.00	0	0.00	0.66	0	0.00	
June															
TOTAL	11.95	4956.12	5092.00	122.55	12504	382.03	5474.02	3	21.22	3	7.21	13.11	4	1.60	

Monthly Wet Weather Summary - Oceanside Basins for May-2020

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Location Name	Total 24-hour rain	INF-001	EFF-001	Not Designated in Permit		Not Designated in Permit	Not Designated in Permit	CSD 001 - 003		CSD 004		Total 24-hr rain	CSD 005 - 007	
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DAY/UNIT	INCHES	MG	MG	MG	MINUTES	MG	MG	-	MG	-	MG	INCHES	-	MG
5/1/2020	0.00	12.60	12.72	0.00	0	0.00	12.72					0.00		
5/2/2020	0.01	13.61	13.71	0.00	0	0.00	13.71					0.00		
5/3/2020	0.00	13.27	14.49	0.00	0	0.00	14.49					0.00		
5/4/2020	0.00	12.15	12.89	0.00	0	0.00	12.89					0.00		
5/5/2020	0.00	12.59	10.87	0.00	0	0.00	10.87					0.00		
5/6/2020	0.00	15.06	13.79	0.00	0	0.00	13.79					0.00		
5/7/2020	0.00	11.85	13.09	0.00	0	0.00	13.09					0.00		
5/8/2020	0.00	12.69	12.86	0.00	0	0.00	12.86					0.00		
5/9/2020	0.00	11.39	11.77	0.00	0	0.00	11.77					0.00		
5/10/2020	0.00	12.63	12.92	0.00	0	0.00	12.92					0.00		
5/11/2020	0.02	13.84	13.05	0.00	0	0.00	13.05					0.00		
5/12/2020	0.09	17.16	18.18	0.00	0	0.00	18.18					0.10		
5/13/2020	0.00	11.95	13.33	0.00	0	0.00	13.33					0.04		
5/14/2020	0.04	14.36	15.17	0.00	0	0.00	15.17					0.06		
5/15/2020	0.00	14.05	14.98	0.00	0	0.00	14.98					0.01		
5/16/2020	0.00	11.97	11.90	0.00	0	0.00	11.90					0.00		
5/17/2020	0.18	30.56	32.00	0.00	0	0.00	32.0					0.32		
5/18/2020	0.13	22.28	24.21	0.00	0	0.00	24.21					0.11		
5/19/2020	0.00	11.42	13.13	0.00	0	0.00	13.13					0.00		
5/20/2020	0.00	13.96	14.12	0.00	0	0.00	14.12					0.00		
5/21/2020	0.00	11.67	12.26	0.00	0	0.00	12.26					0.00		
5/22/2020	0.00	13.11	12.41	0.00	0	0.00	12.41					0.00		
5/23/2020	0.00	12.87	12.26	0.00	0	0.00	12.26					0.00		
5/24/2020	0.00	12.53	12.07	0.00	0	0.00	12.07					0.00		
5/25/2020	0.00	12.77	12.40	0.00	0	0.00	12.40					0.00		
5/26/2020	0.00	12.73	12.07	0.00	0	0.00	12.07					0.00		
5/27/2020	0.00	13.40	12.88	0.00	0	0.00	12.88					0.00		
5/28/2020	0.00	11.93	13.23	0.00	0	0.00	13.23					0.00		
5/29/2020	0.00	12.98	14.19	0.00	0	0.00	14.19					0.01		
5/30/2020	0.01	13.46	14.45	0.00	0	0.00	14.45					0.01		
5/31/2020	0.00	11.77	12.73	0.00	0	0.00	12.73					0.00		
TOTAL MONTHLY	0.48	428.59	440.12	0.00	0.00	0.00	440.12	0	0.00	0	0.00	0.66	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	13.83	14.20	0.00	-	0.00	14.20	-	-	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	11.39	10.87	0.00	-	0.00	10.87	-	-	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	30.56	32.00	0.00	-	0.00	32.00	-	-	-	-	-	-	-

Notes

Oceanside Basin CSD Summary
May-2020

Date	OSP Rain Gauge Total (inches)	OSP Max. Rainfall Intensity (in/hr)	CSD #1 Lake Merced			CSD #2 Vicente			CSD #3 Lincoln			CSD #4 Mile Rock			Sea Cliff Rain Gauge Total (inches)	Sea Cliff Max. Rainfall Intensity (in/hr)	CSD #5 Sea Cliff #1			CSD #6 Sea Cliff Brick Sewer			CSD #7 Sea Cliff #2		
			Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)			Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2020	0.00	0.00													0.00	0.00									
5/2/2020	0.01	0.01													0.00	0.00									
5/3/2020	0.00	0.00													0.00	0.00									
5/4/2020	0.00	0.00													0.00	0.00									
5/5/2020	0.00	0.00													0.00	0.00									
5/6/2020	0.00	0.00													0.00	0.00									
5/7/2020	0.00	0.00													0.00	0.00									
5/8/2020	0.00	0.00													0.00	0.00									
5/9/2020	0.00	0.00													0.00	0.00									
5/10/2020	0.00	0.00													0.00	0.00									
5/11/2020	0.02	0.02													0.00	0.00									
5/12/2020	0.09	0.06													0.10	0.09									
5/13/2020	0.00	0.00													0.04	0.02									
5/14/2020	0.04	0.04													0.06	0.04									
5/15/2020	0.00	0.00													0.01	0.01									
5/16/2020	0.00	0.00													0.00	0.00									
5/17/2020	0.18	0.07													0.32	0.13									
5/18/2020	0.13	0.10													0.11	0.08									
5/19/2020	0.00	0.00													0.00	0.00									
5/20/2020	0.00	0.00													0.00	0.00									
5/21/2020	0.00	0.00													0.00	0.00									
5/22/2020	0.00	0.00													0.00	0.00									
5/23/2020	0.00	0.00													0.00	0.00									
5/24/2020	0.00	0.00													0.00	0.00									
5/25/2020	0.00	0.00													0.00	0.00									
5/26/2020	0.00	0.00													0.00	0.00									
5/27/2020	0.00	0.00													0.00	0.00									
5/28/2020	0.00	0.00													0.00	0.00									
5/29/2020	0.00	0.00													0.01	0.01									
5/30/2020	0.01	0.01													0.01	0.01									
5/31/2020																									
TOTAL	0.48	-	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	0.66	-	-	0	0.00	-	0	0.00	-	0	0.00

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2326464

EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8.665	mg/L	06/12/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8.25	mg/L	06/13/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8.775	mg/L	06/14/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	9.88	mg/L	06/15/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8.44	mg/L	06/16/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8	mg/L	06/17/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	7.665	mg/L	06/18/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8.555	mg/L	06/19/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	9.335	mg/L	06/20/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8.775	mg/L	06/21/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8.33	mg/L	06/22/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8.11	mg/L	06/23/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	7.89	mg/L	06/24/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	10.35	mg/L	06/25/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8.89	mg/L	06/26/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8	mg/L	06/27/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	8.78	mg/L	06/28/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	11.45	mg/L	06/29/2020	5	None	None	None
EFF-001A	Total Suspended Solids (TSS)	Data Unavailable	=	10.65	mg/L	06/30/2020	5	None	None	None
EFF-001A	Zinc, Total Recoverable	Data Unavailable	=	24.1	ug/L	06/04/2020	.6	1	None	None
EFF-001A	pH	Data Unavailable	=	7.02	SU	06/01/2020	None	None	None	None
EFF-001A	pH	Data Unavailable	=	7.24	SU	06/02/2020	None	None	None	None
EFF-001A	pH	Data Unavailable	=	7.05	SU	06/03/2020	None	None	None	None
EFF-001A	pH	Data Unavailable	=	7.24	SU	06/04/2020	None	None	None	None

Incomplete 24-hr comp sample due to shutdown

OSP....pdf
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Law Offices of
Thomas N. Lippe, APC

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Telephone: 415-777-5604
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Email: lippelaw@sonic.net

September 11, 2020

By Email: *EIR@ucsf.edu*
Ms Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Comprehensive Parnassus Heights Plan Draft Environmental Impact Report: Comments on Water Quality, Water Recreation, and Wastewater Public Services – Exhibit 14a

Dear Ms Wong:

This office represents San Franciscans for Balanced and Livable Communities (San Franciscans), a citizen's group composed of San Francisco residents.

We submitted to you by email a letter of today's date under separate cover regarding "Comments on Water Quality, Water Recreation, and Wastewater Public Services."

Due to the file size of Exhibit 14 to that letter, we are transmitting Exhibit 14 to you by email in two (2) separate electronic files, designated "Exhibit 14a," and "Exhibit 14b."

Attached, hereto, please find Exhibit 14a (page nos. SEP0001 through SEP0091).

Thank you for your attention to this matter.

Sincerely,

KellyMarie

Kelly Marie Perry

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EXHIBIT 14a

(page nos. SEP0001 through SEP0091)

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	February 8, 2016
Test Organism:	rainbow trout	Test ended:	February 12, 2016
Organism batch ID:	RT-1602	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	1	9	1	8	1	7	1	6	65
	replicate 2	10	1	9	0	9	1	8	1	7	

TUa **0.91**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	12.5	12.4	12.6	12.5	12.6	11.5	11.7	11.9	11.9	11.5
pH (units)	9.06	7.93	7.98	7.88	7.18	7.01	7.00	6.91	7.02	6.92
Dissolved oxygen (mg/L)	10.8	11.2	13.4	12.3	12.1	7.4	7.0	7.8	6.3	5.0
Residual chlorine (mg/L)	-1.0	0.0	-1.1	-0.9	0.0	-2.4	-1.1	-2.1	-1.9	-0.1
Alkalinity (mg/L)	78				54	252	280	258	280	272
Hardness (mg/L)	NT				NT	NT	NT	NT	NT	NT
Conductivity (µS/cm)	355				207	2877	2849	2312	2276	2028
Total ammonia (mg/L)	0.51				0.52	36.6	46.6	38.8	46.1	42.8

NT = Not taken

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration (~100 bubbles/min) of effluent and control exposure solutions from 72-hours after test initiation through test-termination to ensure adequate dissolved oxygen levels.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	February 22, 2016
Test Organism:	rainbow trout	Test ended:	February 26, 2016
Organism batch ID:	RT-1603	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	0	10	0	10	0	10	1	10	85
	replicate 2	10	1	9	1	8	1	7	0	7	

TUa **0.69**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.4	11.5	11.6	12.6	12.5	11.4	11.4	11.5	11.7	11.9
pH (units)	6.52	6.35	7.81	7.89	8.30	6.72	6.83	6.82	6.80	6.85
Dissolved oxygen (mg/L)	8.2	6.8	6.6	7.9	7.8	7.9	7.4	7.5	6.9	6.9
Residual chlorine (mg/L)	-0.2	0.0	0.0	0.0	0.0	-0.9	-1.3	-1.5	-0.2	-0.2
Alkalinity (mg/L)	34				34	236	260	260	262	270
Hardness (mg/L)	50				40	230	200	228	218	204
Conductivity (µS/cm)	160				144	2080	2750	1718	2181	2091
Total ammonia (mg/L)	0.5				0.3	36.4	38.0	49.5	45.2	48.3

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Static-Renewal Bioassay Test -- REPORT

Southeast Plant Wet Weather Discharge

PDS (EFF-001B)

Exposure volume: 4L
Test Organism: Rainbow trout
Organism batch ID: RT-1603
Sample Date: February 18, 2016
Sample Lab-ID: 16-EFF-011

Test Started: February 18, 2016
Test Ended: February 22, 2016
Prepared by: L. Targgart
Approved by: R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	
Effluent	rep 1	10	0	10	0	10	0	10	0	10	90
	rep 2	10	0	10	0	10	0	10	2	8	

TUa **0.59**

Water Quality Data

Control	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.1	11.3	10.9	11.3	10.9	11.0
pH (units)	7.49	7.51	7.42	7.64	7.62	7.52
Dissolved oxygen (mg/L)	10.5	10.7	10.4	10.6	10.9	9.2
Hardness (mg/L)	92			98		98
Alkalinity (mg/L)	50			56		56
Conductivity (µS/cm)	267			294		318

Effluent	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.3	11.5	11.4	11.8	11.5	11.5
pH (units)	6.81	7.29	7.24	6.85	7.27	7.33
Dissolved oxygen (mg/L)	9.6	11.5	10.8	9.3	10.3	9.1
Hardness (mg/L)	50			62		56
Alkalinity (mg/L)	38			36		44
Conductivity (µS/cm)	354			358		351
Residual chlorine (mg/L)	-1.4					
Total ammonia (mg/L)	3.9					

Comments: In order to maintain dissolved oxygen levels of at least 60% saturation, control and effluent test solutions were aerated from five- through 96-hours after test initiation.
Effluent exposures (and a concurrent control) were oxygenated from two- through 46-hours after test initiation in order to maintain adequate dissolved oxygen levels.

Reference:

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Static-Acute Bioassay Test -- REPORT

North Point Wet-Weather Facility Final Effluent (EFF-003)

Exposure volume: 4L
Test Organism: Rainbow trout
Organism batch ID: RT-1603
Sample Date: February 18, 2016
Sample Lab-ID: 16-EFF-010

Test Started: February 18, 2016
Test Ended: February 22, 2016
Prepared by: L. Targgart
Approved by: R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	
Effluent	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	

TUa **0.00**

Water Quality Data

Control	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.1	11.3	10.9	11.3	10.9	11.0
pH (units)	7.49	7.51	7.42	7.64	7.62	7.52
Dissolved oxygen (mg/L)	10.5	10.7	10.4	10.6	10.9	9.2
Hardness (mg/L)	92			98		98
Alkalinity (mg/L)	50			56		56
Conductivity (υS/cm)	267			294		318

Effluent	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.6	11.4	11.1	11.9	11.1	11.3
pH (units)	6.61	7.31	7.12	6.67	7.26	7.27
Dissolved oxygen (mg/L)	9.4	13.4	9.6	9.8	13.8	9.5
Hardness (mg/L)	68			74		72
Alkalinity (mg/L)	38			38		36
Conductivity (υS/cm)	583			578		572
Residual chlorine (mg/L)	-6.5					
Total ammonia (mg/L)	7.1					

Comments: In order to maintain dissolved oxygen levels of at least 60% saturation, control and effluent test solutions were aerated from five- through 96-hours after test initiation.
Effluent exposures (and a concurrent control) were oxygenated from five- through 92-hours after test initiation in order to maintain adequate dissolved oxygen levels.

Reference:

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=1348862

INF-001	Flow	Maximum Daily (MDEL)	=	125	MGD	02/18/2016	None
INF-001	Flow	Average Monthly (AMEL)	=	61.1	MGD	02/29/2016	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	533	mg/L	02/01/2016	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	302	mg/L	02/29/2016	None

Total Calculated Data Points: 102

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1006953	02/08/2016	Acute Toxicity	Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported val	None	Case Worker	Water Board Staff
1006955	02/08/2016	Acute Toxicity	Acute Toxicity 11-Sample Median limit is 90 % effluent and reported value was 85	None	Case Worker	Water Board Staff
1006956	02/22/2016	Acute Toxicity	Acute Toxicity 11-Sample Median limit is 90 % effluent and reported value was 85	None	Case Worker	Water Board Staff

Total Violations: 3

Attachments

File Name	Description	Size
2016 February Bayside Wet Weather Report.pdf	2016 February Wet Weather Report	30 KB
SEP E001A Toxicity 201602.pdf	E001A	43 KB
SEP E001B Toxicity 201602.pdf	E001B	32 KB
SEP E003 Toxicity 201602.pdf	E003	32 KB
SEP Shoreline 201602.pdf	Shoreline Report	35 KB

Total Attachments: 5

Cover Letter

File Name
2016 February SEP.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
January 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Mon/11	Tue/12
202_Lagoon								
202.4	97	31	122				161	
202.5	31						75	
210.1	20						345	
211	201						345	< 10
220								
300.1	52						40	
301.1	3873	**11199**	4884	5794	602		246	
301.2	63						< 10	
320	109		**> 24196**	**> 24196**	**> 24196**	3076	683	

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Mon/11	Tue/12
202_Lagoon								
202.4	52	20	31				98	
202.5	< 10						31	
210.1	< 10						< 10	
211	31						< 10	< 10
220								
300.1	10						< 10	
301.1	399	**650**	259	85	20		41	
301.2	10						< 10	
320	20		**> 24196**	**> 24196**	**3080**	75	75	

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Fri/08	Sat/09	Mon/11	Tue/12
202_Lagoon								
202.4	**262**	**146**	98				52	
202.5	< 10						10	
210.1	< 10						10	
211	10						**292**	< 10
220								
300.1	20						< 10	
301.1	**336**	**2282**	**816**	**110**	< 10		63	
301.2	20						10	
320	10		**24196**	**8164**	**292**	31	20	

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202_Lagoon, 202.4, 202.5	01/03 0.02
Aquatic Park	210.1, 211	01/04 0.09
Mission Creek	220	01/05 1.18
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	01/06 1.30 01/07 0.05
Islais Creek	320	01/09 0.20

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
January 2016

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/18	Tue/19	Wed/20	Thu/21	Fri/22	Sat/23	Sun/24	Mon/25	30-day Geometric Mean[2]
202_Lagoon		**> 24196**	830						
202.4		5794	146					41	154
202.5		4352	171					31	140
210.1		3076	836					10	178
211		428	259					20	107
220	**> 24196**	**> 24196**	**24196**	7701	**12033**	8664	754		9783
300.1		6488	5794	317				85	358
301.1		5794	4884	605				717	2162
301.2	**17329**	959	644	341				98	301
320	**> 24196**	**> 24196**	**> 24196**	**> 24196**	6867			98	5489

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/18	Tue/19	Wed/20	Thu/21	Fri/22	Sat/23	Sun/24	Mon/25	30-day Geometric Mean[2]
202_Lagoon		**1043**	86						
202.4		266	20					< 10	40
202.5		**426**	< 10					< 10	27
210.1		**749**	110					< 10	38
211		63	52					< 10	22
220	**17329**	**> 24196**	**2613**	**402**	**833**	**441**	110		1509
300.1		**588**	**1670**	20				31	63
301.1		**697**	231	31				10	109
301.2	384	**414**	158	63				10	55
320	**7270**	**> 24196**	**> 24196**	**> 24196**	368			31	1578

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/18	Tue/19	Wed/20	Thu/21	Fri/22	Sat/23	Sun/24	Mon/25	30-day Geometric Mean[2]
202_Lagoon		**2187**	20						
202.4		**399**	10					20	77
202.5		**495**	< 10					< 10	22
210.1		**148**	52					< 10	24
211		**216**	20					< 10	33
220	**1674**	**> 24196**	**563**	85	**384**	**216**	41		488
300.1		**1467**	**670**	41				20	74
301.1		**882**	**256**	10				10	126
301.2	**448**	**959**	**110**	10				30	60
320	**2187**	**> 24196**	**17329**	**487**	97			< 10	481

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202_Lagoon, 202.4, 202.5	01/13	0.18	01/18	0.23
Aquatic Park	210.1, 211	01/14	0.15	01/19	1.20
Mission Creek	220	01/15	0.17	01/22	0.42
Candlestick Point	300.1, 301.1, 301.2	01/16	0.27	01/23	0.01
State Recreation Area		01/17	1.07	01/29	0.40
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
STATION SAMPLED due to Combined Sewer Discharge

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed b R Duggan

SEP0006b

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
January 2017

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/03	Wed/04	Thu/05	Sun/08	Mon/09	Tue/10	Tue/10	Wed/11	Thu/12	Fri/13	Sat/14
202.4	41				201	161		2098	882	213	
202.5	275				146			1236			
210.1	148				231			1046	583		
211	187				573	794		**11199**	6294		
300.1	697	410			1198	**24196**		1187	650		
301.1	4352	**19863**	882		4611	6131		**> 24196**	**12033**	3873	
301.2	51				2755	4884		1071			
320	201			**> 24196**	**> 24196**	**19863**	**> 24196 ***	**> 24196**	**> 24196**	**11199**	3873

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/03	Wed/04	Thu/05	Sun/08	Mon/09	Tue/10	Tue/10	Wed/11	Thu/12	Fri/13	Sat/14
202.4	10				20	31		**934**	275	74	
202.5	< 10				31			96			
210.1	86				52			346	74		
211	85				75	122		**6867**	350		
300.1	74	41			85	**1483**		145	52		
301.1	292	**1014**	31		146	**269**		**1439**	145	75	
301.2	20				253	98		168			
320	< 10			**> 24196**	**> 24196**	**959**	**8664 ***	**> 24196**	**8164**	331	108

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/03	Wed/04	Thu/05	Sun/08	Mon/09	Tue/10	Tue/10	Wed/11	Thu/12	Fri/13	Sat/14
202.4	< 10				**121**	63		**1565**	**450**	< 10	
202.5	< 10				20			86			
210.1	< 10				30			**243**	41		
211	10				**414**	**428**		**345**	20		
300.1	**350**	75			**464**	**3441**		**107**	10		
301.1	**1119**	**2282**	63		**546**	**573**		**1201**	98	52	
301.2	10				**399**	**278**		41			
320	< 10			**> 24196**	**3873**	**223**	**789 ***	**24196**	**383**	10	52

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	01/01	0.04	01/08	1.32
Aquatic Park	210.1, 211	01/02	0.09	01/09	0.10
Candlestick Point	300.1, 301.1, 301.2	01/03	0.41	01/10	2.25
State Recreation Area		01/04	0.78	01/11	0.08
Islais Creek	320	01/07	0.72	01/12	0.31

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge (CSD)
* STATION sampled on same day due to another CSD
[1] A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
January 2017 (cont.)

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Tue/17	Wed/18	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Tue/24	Wed/25	Mon/30	30-day Geometric Mean[2]
202.4	213			2359	882 ***	2282 ***	201			160	400
202.5	**> 24196**	1191		1872			504			759	1003
210.1	145			548			336			74	283
211	134			1956			504			135	780
300.1	1153	4352	624	3076**	4352	1500	683			1211	1514
301.1	313						**> 24196**	1576		884	4144
301.2	121			327			609			246	507
320	435		**> 24196**	**> 24196**	**> 24196**	**> 24196**	**> 24196**	**> 24196**	6867	521	9491

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Tue/17	Wed/18	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Tue/24	Wed/25	Mon/30	30-day Geometric Mean[2]
202.4	41			97	10 ***	84 ***	20			20	48
202.5	10	41		52			10			122	31
210.1	< 10			86			41			< 10	50
211	< 10			122			20			10	92
300.1	98	**2359**	110	**546** **	275	201	98			< 10	147
301.1	20						**1119**	41		< 10	139
301.2	10			31			52			< 10	44
320	20		**19863**	**> 24196**	**11199**	**> 24196**	**> 24196**	**24196**	211	20	2382

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Tue/17	Wed/18	Thu/19	Fri/20	Sat/21	Sun/22	Mon/23	Tue/24	Wed/25	Mon/30	30-day Geometric Mean[2]
202.4	< 10			**156**	**109** ***	63 ***	20			< 10	57
202.5	10	41		< 10			< 10			52	21
210.1	< 10			20			< 10			< 10	22
211	20			20			10			< 10	43
300.1	**350**	**1725**	84	**160** **	**109**	31	63			30	148
301.1	30						**556**	20		< 10	178
301.2	41			< 10			30			10	39
320	41		**1860**	**9208**	**909**	**6867**	**1529**	**464**	31	10	484

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)	
01/18	0.76
01/19	0.20
01/20	0.93
01/21	0.35
01/22	0.85
01/23	0.55

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
** STATION sampled this day in error
*** STATION de-posted in error

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
750 Phelps Street
San Francisco, CA 94124
T 415.920.4600
F 415.550.9371

March 10, 2016

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP NPDES/CA0037664 5-day Report

Dear Ms. Watkins:

Consistent with the five-day reporting requirements of the National Pollutant Discharge Elimination System (NPDES) permit for discharges from the Southeast Water Pollution Control Plant (SEP) (NPDES No. CA0037664, Order No. R2-2013-0029), this report provides information regarding a wet weather discharge of equivalent-to-primary-treated effluent at the Mariposa Street Outfall (#029) into San Francisco Bay that occurred on Saturday, March 5, 2016.

This incident was reported to the California Office of Emergency Services (Control #16-1381) within 2-hours of the San Francisco Public Utilities Commission (SFPUC) Wastewater Enterprise being aware of the situation.

1) Incident description and cause;
The NPDES permit states: "The Mariposa Pump Station shall be operated at design capacity prior to any combined sewer discharge through Discharge Point No. 029." The Mariposa Pump Station consists of two dry weather pumps and two wet weather pumps. During a wet weather event on March 5, 2016, one wet weather pump ceased operation due to an "overcurrent" state on the variable frequency drive; the pump and equipment performed as designed to protect the equipment from further damage. The wet weather pump was returned into service at 2011. A combined sewer discharge (CSD) event began while this pump was not in service; therefore the "design capacity" was not achieved. Two dry weather pumps and one wet weather pump continued to operate thoughout the event and discharged at a rate of approximately 5.9 to 6.0 MGD which is less than the 10 MGD wet weather design capacity.

An inspection performed after the event discovered debris in the impeller of the wet weather pump which continued operating throughout the event, see picture at left.

Edwin M. Lee
Mayor
Vince Courtney
President
Ann Moller Caen
Vice President
Francesca Vietor
Commissioner
Anson Moran
Commissioner
Art Torres
Commissioner
Harlan L. Kelly, Jr.
General Manager

2) Location of threatened or involved waterway(s) or storm drains;
San Francisco Bay at the Mariposa Street Outfall (#029) in San Francisco, CA.

3) Date and time the unauthorized discharge started;
Saturday, March 5, 2016 at approximately at 1759.

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;
The discharge event started at approximately 1759 and the wet weather pump was returned to service at approximately 2011 (67 minutes duration of intermittent discharge). The CSD volume during this period is estimated at approximately 131,000 gallons. No volume was recovered.

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on);
The discharge was wet weather equivalent-to-primary-treated effluent which was discharged to the Mariposa Street Outfall (#029).

6) Identity of the person reporting the unauthorized discharge.
George Engel, Operations Superintendent at the Southeast Water Pollution Control Plant.

Within five business days, the Discharger shall submit a written report that includes, in addition to the information required above, the following:
1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;
The discharge site is a permitted discharge point in wet weather.

2) Efforts implemented to minimize public exposure to the unauthorized discharge;
The area of discharge is an active maritime industrial facility with limited recreational access. No recreational activities are typical during inclement weather as occurred on March 5, 2016.

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;
No adverse impacts were observed. The Mariposa Outfall has an automatic sampler that collected samples throughout the discharge event (analysis pending).

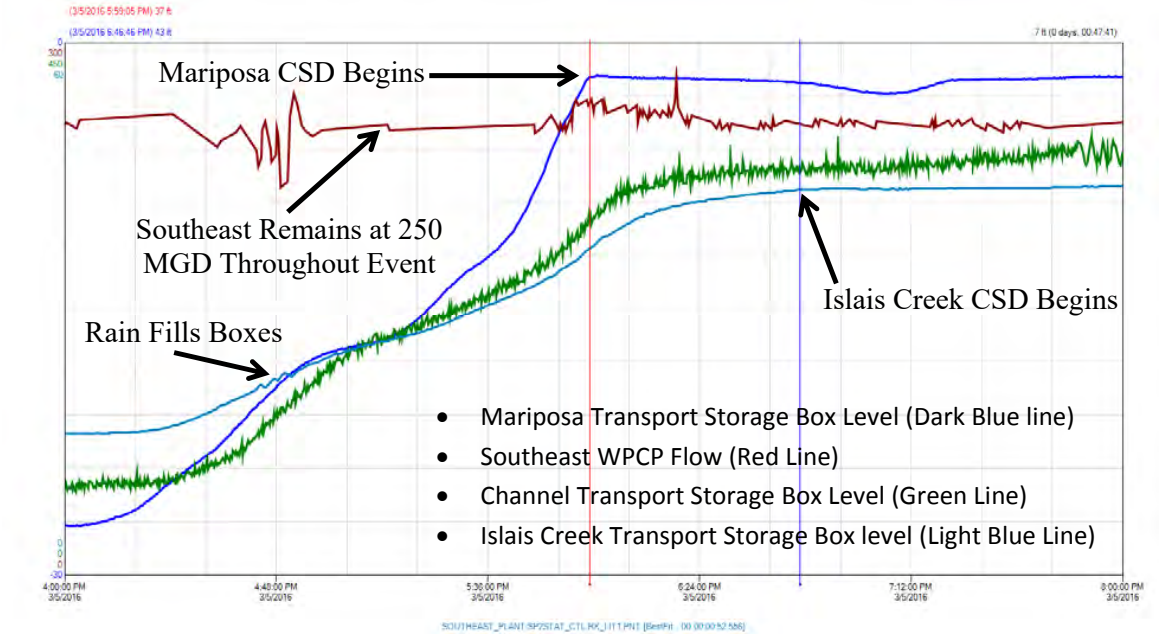
4) Corrective measures taken to minimize the impact of the unauthorized discharge;
An SFPUC electrician was brought onsite to reset the wet weather pump drive and return the pump to service at approximately 2011 (during the discharge event).

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;
None, the protective system operated as designed.

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges;
No changes are necessary.

7) Quantity and duration of the unauthorized discharge, and the amount recovered.
The discharge event started at approximately 1759 and the wet weather pump was returned to service at approximately 2011 (67 minutes duration of intermittent discharge). The CSD volume during this period is estimated at approximately 131,000 gallons. No volume was recovered.

Prior to the CSD at the Mariposa Street Outfall (#29), the Southeast Water Pollution Control Plant was operating at its' maximum flow of 250 MGD as shown in the image below. Treatment capacity at the Southeast Plant was maximized hours prior to any CSD occurring. Mariposa Pump Station discharges into the Islais Creek drainage basin, and a CSD from the Islais Creek Transport/Storage system began at approximately 1846 (47 minutes after the Mariposa Street CSD). Thus, flows not pumped from the Mariposa Pump Station due to the limited wet weather pump operation, merely discharged at the Mariposa Street Outfall versus the Islais Creek outfalls (#31-35); all storage was maximized as per the NPDES permit language to "maximize the use of the collection system". The system-wide CSD volume will not be adversely affected by this incident (in fact, more volume may have been discharged at Islais Creek if Mariposa Pump Station operated at a higher flow rate or the "design capacity"). The Mariposa Street Outfall (#29) and the Islais Creek outfalls (#31-35) are all located in the Central Basin as defined by the NPDES permit, and the CSD count is unaffected by this incident.



Please contact Laura Pagano at lpagano@sfwater.org, or (415) 554-3109, or me with any questions.

Sincerely,

George W. Engel
Superintendent, Bayside Operations
Southeast Water Pollution Control Plant
415-920-4944

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
750 Phelps Street
San Francisco, CA 94124
T 415.920.4600
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March 30, 2016

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
February 2016

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) February 2016 Monthly Discharge Monitoring Report.

Two acute toxicity flow-through bioassay tests, started on February 8 and February 22, were conducted with results of 65% and 85% final survival, respectively. The 11-sample median for January was 85% which was below the minimum limit of 90%. The 11-sample 90th percentile for February was 45% which was below the minimum limit of 70%.

Pursuant to the Regional Board letter of August 21, 2015 approving adjusted acute toxicity accelerated monitoring, on February 8 through 12, an additional investigative flow-through bioassay was conducted with twice the effluent flow of the compliance test performed on the same dates; the result was 40% final survival. On February 22 through 26, two additional investigative flow-through bioassays were conducted; one with twice the effluent flow of the compliance test performed on the same dates resulted in 40% final survival, and another with effluent passed through a zeolite filter resulted in 90% final survival. Additionally, 48-hour static tests were performed in the laboratory on February 19 and 22 to determine if pH can be maintained under static conditions; preliminary results indicate that it is possible to maintain effluent pH under static conditions.

In February, 0.76 inch of rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility operated during one wet weather event and processed a total of 30.66 MG. There were no combined sewer discharge (CSD) events.

Wet Weather Discharge Summary

Drainage Area CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This Month	0	0	0
2015-16 Season	4	7	2
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, George Engel, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

George W. Engel
Superintendent, Bayside Operations

Edwin M. Lee
Mayor
Vince Courtney
President
Ann Moller Caen
Vice President
Francesca Vietor
Commissioner
Anson Moran
Commissioner
Art Torres
Commissioner
Harlan L. Kelly, Jr.
General Manager

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=1348863

EFF-003	Enterococci	Monthly Geometric mean	<	1.81	mL	03/31/2016	None
EFF-003	Fecal Coliform	Maximum Daily (MDEL)	=	4	MPN/100 mL	03/07/2016	None
EFF-003	Fecal Coliform	Average Monthly (AMEL)	=	1	MPN/100 mL	03/31/2016	None
EFF-003	Flow	Maximum Daily (MDEL)	=	125	MGD	03/10/2016	None
EFF-003	Flow	Average Monthly (AMEL)	=	75.2	MGD	03/31/2016	None
EFF-003	Oil and Grease	Maximum Daily (MDEL)	=	12	mg/L	03/04/2016	None
EFF-003	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	66	mg/L	03/04/2016	None
EFF-003	pH	Monthly Minimum	=	6.8	SU	03/04/2016	None
EFF-003	pH	Monthly Maximum	=	6.8	SU	03/04/2016	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	295	mg/L	03/31/2016	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Maximum Daily (MDEL)	=	528	mg/L	03/31/2016	None
INF-001	Cyanide, Total (as CN)	Maximum Daily (MDEL)	<	3	ug/L	03/16/2016	None
INF-001	Flow	Maximum Daily (MDEL)	=	252	MGD	03/13/2016	None
INF-001	Flow	Average Monthly (AMEL)	=	75	MGD	03/31/2016	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	642	mg/L	03/31/2016	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	259	mg/L	03/31/2016	None

Total Calculated Data Points: 104

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1013155	03/05/2016	Order Conditions	From SMR cover letter: "On March 10, 2016, the SFPUC submitted a 5-day Written R	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
2016 March Bayside Wet Weather Report .pdf	March 2016 Bayside Wet Weather Report	30 KB
SEP 1668c PCB Congeners Qtrly 201603.pdf	PCB Congeners Report	593 KB
SEP E001A Toxicity 201603.pdf	E001A	10 KB
SEP E001B Toxicity 201603.pdf	E001B	6 KB
SEP E003 Toxicity 201603.pdf	E003	6 KB
SEP Shoreline 201603.pdf	Shoreline Report	42 KB

Total Attachments: 6

Cover Letter

File Name
SEP 03-2016.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	April 4, 2016
Test Organism:	rainbow trout	Test ended:	April 8, 2016
Organism batch ID:	RT-1607	Prepared by:	A. Loveland
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	1	9	0	9	0	9	0	9	90
	replicate 2	10	1	9	0	9	0	9	0	9	

TUa **0.59**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (℃)	12.2	12.6	13.6	11.9	11.9	12.6	12.5	13.3	11.6	11.9
pH (units)	7.66	6.62	6.76	6.44	7.27	6.85	6.78	6.91	7.02	6.88
Dissolved oxygen (mg/L)	8.3	8.9	7.6	8.8	10.3	7.0	8.4	8.5	9.1	7.3
Residual chlorine (mg/L)	-0.8	-0.1	-0.5	-0.4	-0.2	-2.7	0.0	-1.2	-0.3	-0.5
Alkalinity (mg/L)	40				44	248	270	270	280	280
Hardness (mg/L)	50				64	180	184	174	184	184
Conductivity (µS/cm)	155				161	1786	1920	1817	1909	2076
Total ammonia (mg/L)	0.17				<0.02	39.4	53.2	43.8	47.7	48.2

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration (~100 bubbles/min) of effluent and control exposure solutions from 0 hrs through termination of test.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CETIS Summary Report

Echinoid Embryo-Larval Development Test — **SanFrancisco PUC, Natural Resources Division**

Batch ID:	08-1467-2108	**Test Type:**	Development	**Analyst:**	
Start Date:	19 Apr-16 13:50	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Receiving Water
Ending Date:	22 Apr-16 14:45	**Species:**	Strongylocentrotus purpuratus	**Brine:**	Frozen Seawater
Duration:	73h	**Source:**	David Gutoff, San Diego, CA	**Age:**	
Sample ID:	11-5452-4846	**Code:**	16-EFF-026	**Client:**	SFPUC Wastewater Enterprise
Sample Date:	18 Apr-16 23:59	**Material:**	POTW Effluent	**Project:**	WET Semi-annual Compliance (1st)
Receive Date:	19 Apr-16 07:30	**Source:**	SEP Final Effluent		
Sample Age:	14h	**Station:**	EFF-001		

Sample Note: ammonia add-back to zeolite-treated effluent

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
14-2703-1099	Proportion Normal	10	>10	N/A	11.9%	10	Equal Variance t Two-Sample Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
14-2703-1099	Proportion Normal	Control Resp	0.752	0.8 - NL	Yes	Below Acceptability Criteria
	Proportion Normal	Control Resp	0.73	0.8 - NL	Yes	Below Acceptability Criteria
14-2703-1099	Proportion Normal	PMSD	0.1185	NL - 0.25	No	Passes Acceptability Criteria

Proportion Normal Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
10	AddBack	5	0.73	0.7029	0.7571	0.63	0.81	0.0324	0.07246	9.93%	0.0%
10	UnManipulated	5	0.752	0.7248	0.7792	0.63	0.81	0.03262	0.07294	9.7%	-3.01%

Proportion Normal Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
10	AddBack	0.63	0.7	0.81	0.79	0.72
10	UnManipulated	0.81	0.63	0.79	0.79	0.74

CETIS Summary Report

Echinoid Embryo-Larval Development Test — **SanFrancisco PUC, Natural Resources Division**

Batch ID:	08-1467-2108	**Test Type:**	Development	**Analyst:**	
Start Date:	19 Apr-16 13:50	**Protocol:**	EPA/600/R-95/136 (1995)	**Diluent:**	Receiving Water
Ending Date:	22 Apr-16 14:45	**Species:**	Strongylocentrotus purpuratus	**Brine:**	Frozen Seawater
Duration:	73h	**Source:**	David Gutoff, San Diego, CA	**Age:**	
Sample ID:	05-3025-9724	**Code:**	16-EFF-026	**Client:**	SFPUC Wastewater Enterprise
Sample Date:	18 Apr-16 23:59	**Material:**	POTW Effluent	**Project:**	WET Semi-annual Compliance (1st)
Receive Date:	19 Apr-16 07:30	**Source:**	SEP Final Effluent		
Sample Age:	14h	**Station:**	EFF-001		

Sample Note: un-manipulated effluent

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
11-9493-6084	Proportion Normal	<2.5	2.5	N/A	9.42%	>40	Bonferroni Adj t Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
00-8468-8302	Proportion Normal	EC5	0.9018	0.4366	2.885	110.9	Linear Interpolation (ICPIN)
		EC10	3.708	0.4463	13.66	26.97	
		EC15	10.34	2.73	11.8	9.669	
		EC20	11.15	9.053	13.27	8.972	
		EC25	12.01	10.37	15.11	8.329	
		EC40	14.97	12.13	16.25	6.68	
		EC50	15.78	14	16.87	6.336	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
00-8468-8302	Proportion Normal	Control Resp	0.862	0.8 - NL	Yes	Passes Acceptability Criteria
11-9493-6084	Proportion Normal	Control Resp	0.862	0.8 - NL	Yes	Passes Acceptability Criteria
11-9493-6084	Proportion Normal	PMSD	0.09416	NL - 0.25	No	Passes Acceptability Criteria

Proportion Normal Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Dilution Water	5	0.882	0.8654	0.8986	0.81	0.92	0.01985	0.04438	5.03%	0.0%
0	Brine high%	5	0.842	0.8259	0.8581	0.8	0.91	0.01934	0.04324	5.14%	4.54%
2.5		5	0.778	0.765	0.791	0.72	0.81	0.01562	0.03493	4.49%	11.79%
5		5	0.774	0.7543	0.7937	0.72	0.83	0.02358	0.05273	6.81%	12.24%
10		5	0.752	0.7248	0.7792	0.63	0.81	0.03262	0.07294	9.7%	14.74%
15		5	0.516	0.4592	0.5728	0.3	0.67	0.06801	0.1521	29.47%	41.5%
20		5	0.032	0.02646	0.03754	0.01	0.05	0.006633	0.01483	46.35%	96.37%

Proportion Normal Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Dilution Water	0.9	0.92	0.81	0.91	0.87
0	Brine high%	0.91	0.81	0.84	0.8	0.85
2.5		0.72	0.8	0.78	0.78	0.81
5		0.72	0.83	0.78	0.82	0.72
10		0.81	0.63	0.79	0.79	0.74
15		0.61	0.58	0.67	0.42	0.3
20		0.01	0.03	0.03	0.04	0.05

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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April 29, 2016

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
March 2016

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) March 2016 Monthly Discharge Monitoring Report.

One acute toxicity flow-through bioassay test, started on March 15, was conducted with the result of 100% final survival. Another bioassay, started on March 22, was not valid due to wet weather conditions.

A total of seven mercury samples were collected in March. An elevated result of 0.0431 µg/L was detected from the first sample collected on March 15; accelerated monitoring was performed as required, with all sample results returning below monitoring and effluent limits. The monthly average for mercury was 0.00983 µg/L (below the permit limit).

On March 10, 2016, the SFPUC submitted a 5-day Written Report regarding a wet weather discharge of equivalent-to-primary-treated effluent at the Mariposa Street Outfall (#029) into San Francisco Bay that occurred on Saturday, March 5, 2016. During this incident, only one of two wet weather pumps was operational during a combined sewer discharge event and the Mariposa Pump Station did not maintain the design capacity of the facility as required in the NPDES permit. The cause of the pump failure was an "overcurrent" state detected on the variable frequency drive, likely attributable to wet weather debris. The pump was returned to service during the discharge event after being checked by a SFPUC operator and electrician. It was estimated that the relevant volume of discharge was 131,000 gallons over 67 minutes.

The quarterly PCB congener report is included with this submission.

Wet weather samples were collected and monitored for priority pollutants in March.

In March, 5.63 inches of rain were recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility operated during five wet weather event and processed a total of 365.67 MG. There were three combined sewer discharge (CSD) events in the North Shore Basin, four CSD events in the Central Basin, and no CSD event in the Southeast Basin.

Wet Weather Discharge Summary

Drainage Area CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This Month	3	4	0
2015-16 Season	7	11	2
Design Criteria	4	10	1

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If you have any questions concerning this report, please call: Superintendent, George Engel, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

George W. Engel
Superintendent, Bayside Operations

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Services of the San Francisco Public Utilities Commission

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May 30, 2016

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
April 2016

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) April 2016 Monthly Discharge Monitoring Report.

One acute toxicity flow-through bioassay test, started on April 4, was conducted with the result of 90% final survival. Two additional tests conducted during the month were invalidated due to wet weather operations.

A non-compliance chronic kelp sporophyll test was conducted April 19 to April 21. This test was invalidated as it did not meet acceptability criteria.

As directed by the Regional Board in a letter dated November 10, 2014, the semi-annually required chronic toxicity results with comments (zeolite treated effluent - 5 TUc and untreated effluent - 40 TUc) are included with this report as attachments in CIWQS. A report of ammonia add-back testing at 10% effluent toxicity is also included as an attachment. No result was/could be uploaded to CIWQS for ammonia add-back testing at 10% effluent.

In April, 0.98 inch of rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility operated during two wet weather events and processed a total of 33.18 MG. There were no combined sewer discharge (CSD) events in the North Shore Basin, Central Basin, or Southeast Basin.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	0	0	0
2015-16 Season	7	11	2
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, George Engel, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

George W. Engel
Superintendent, Bayside Operations

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June 24, 2016

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP NPDES/CA0037664 5-day Report

Dear Ms. Watkins:

Consistent with the five-day reporting requirements of the National Pollutant Discharge Elimination System (NPDES) permit for discharges from the Southeast Water Pollution Control Plant (SEP) (NPDES No. CA0037664, Order No. R2-2013-0029), this report provides information regarding an unauthorized discharge of final effluent (secondary treatment with disinfection/dechlorination) near the Pier 80 Outfall into San Francisco Bay that was first identified on Monday, June 20, 2016.

This incident was reported to the California Office of Emergency Services (Control #16-3722) and the San Francisco Department of Public Health within 2 hours of the San Francisco Public Utilities Commission (SFPUC) Wastewater Enterprise being aware of the situation.

1) Incident description and cause;
The final effluent pipeline leading to Discharge Point 001 (Pier 80 Outfall) was observed to have a leak in a section of the pipeline at the end of Pier 80 within 800 feet of the final discharge location. Initial observations are that two joint restraints and a pipe strap failed, and two pipe segments separated. The volume of the leak is variable depending on the discharge conditions (e.g. tide levels) and the operating pressure within the pipeline (e.g. treatment plant flow), at a rate of approximately 0.5 gallons/minute during a higher operating pressure and a rising tide.

2) Location of threatened or involved waterway(s) or storm drains;
San Francisco Bay within 800 feet of the Pier 80 Outfall in San Francisco, CA.

3) Date and time the unauthorized discharge started;
Port of San Francisco personnel notified SFPUC Operations of the observed leak on Monday, June 20, 2016 at 1302.

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;
An external inspection on June 21, 2016 by SFPUC and Port of San Francisco personnel revealed no leakage at a low tide and a low pipeline operating pressure, and approximately 0.5 gallon/minute during a higher operating pressure and a rising tide. The respective section of pipe cannot be safely observed from above the Bay during

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high tide conditions due to the pipe becoming submerged and the low clearance between the Bay and the bottom of the pier.

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on);
The discharge is final effluent (secondary treatment with disinfection/dechlorination).

6) Identity of the person reporting the unauthorized discharge.
George Engel, Operations Superintendent at the Southeast Water Pollution Control Plant.

Within five business days, the Discharger shall submit a written report that includes, in addition to the information required above, the following:
1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;
The discharge site is at the end of Pier 80 and within 800 feet of the permitted discharge point.

2) Efforts implemented to minimize public exposure to the unauthorized discharge;
Islais Creek Channel has been sampled at the Islais Landing fishing pier from June 20-present date. All results have been below state standards for Rec-1 use. The Pier 80 location was sampled from the northern end of the pier on June 21 and 22, 2016 near the discharge site. Both results were below state standards for Rec-1 use. Sampling at Pier 80 posed safety concerns due the lack of railings on the pier and has been discontinued.

The area of discharge is an active maritime industrial facility with limited recreational access. No recreational activities are typical. The adjacent Islais Creek Channel was physically posted with an international "No Swimming" sign and public notifications (email, hotline, web and mobile app) were performed on June 20, 2016. The site at Islais Creek Channel remains posted with the physical sign and on the web and mobile app even though the bacteria counts have been below the level of concern for water contact recreation. Recreational observations have been recorded when water samples have been collected and so far there are no records of recreational use.

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;
No adverse impacts were observed. Accessible areas near Pier 80, including public access at the adjacent Islais Creek Channel, have been sampled daily. No elevated bacteria levels have been observed.

4) Corrective measures taken to minimize the impact of the unauthorized discharge;
Port of San Francisco and SFPUC personnel investigated the leak via boat on June 21, 2016. Underwater Resources performed an external inspection via boat under subcontract with the SFPUC on June 23, 2016. An internal inspection by divers to obtain accurate measurements and perform a condition assessment is being planned. A plant shutdown has been scheduled for July 13, 2016, during which we anticipate that Underwater Resources' divers will perform all needed internal and external repairs, pending the results of the internal inspection. Additional dives may be required to finalize repairs.

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;
Underwater Resources' divers are expected to perform all needed internal and external repairs to the pipeline.

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges;
No changes are necessary.

Please contact Laura Pagano at lpagano@sfwater.org, or (415) 554-3109, or me with any questions.

Sincerely,

George W. Engel
Superintendent, Bayside Operations
Southeast Water Pollution Control Plant
415-920-4944

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=1348866

EFF-001A	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	27	mg/L	06/30/2016	None
EFF-001A	Total Suspended Solids (TSS), Percent Removal	Percent Reduction	=	91	%	06/30/2016	None
EFF-001A	pH	Monthly Maximum	=	6.9	SU	06/08/2016	None
EFF-001A	pH	Monthly Minimum	=	6.4	SU	06/20/2016	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Maximum Daily (MDEL)	=	422	mg/L	06/25/2016	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	312	mg/L	06/30/2016	None
INF-001	Cyanide, Total (as CN)	Maximum Daily (MDEL)	<	3	ug/L	06/16/2016	None
INF-001	Flow	Maximum Daily (MDEL)	=	60.7	MGD	06/30/2016	None
INF-001	Flow	Average Monthly (AMEL)	=	54.7	MGD	06/30/2016	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	542	mg/L	06/25/2016	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	309	mg/L	06/30/2016	None

Total Calculated Data Points: 59

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1013159	06/20/2016	Order Conditions	From SMR cover letter: "It was reported on June 20, 2016 that the final effluent	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
June 2016 Bayside Wet Weather Report.pdf	June 2016 Bayside Wet Weather Report	29 KB
SEP E001A Toxicity 201606.pdf	E001A	20 KB
SEP Shoreline 201606.pdf	Shoreline Report	37 KB

Total Attachments: 3

Cover Letter

File Name
SEP 06-2016.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
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EFF-001A	Total Suspended Solids (TSS), Percent Removal	Percent Reduction	=	91	%	07/31/2016	None
EFF-001A	pH	Monthly Minimum	=	6.6	SU	07/07/2016	None
EFF-001A	pH	Monthly Maximum	=	6.9	SU	07/21/2016	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Maximum Daily (MDEL)	=	529	mg/L	07/16/2016	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	337	mg/L	07/31/2016	None
INF-001	Cyanide, Total (as CN)	Maximum Daily (MDEL)	DNQ	4.14	ug/L	07/05/2016	None
INF-001	Flow	Maximum Daily (MDEL)	=	78.3	MGD	07/14/2016	None
INF-001	Flow	Average Monthly (AMEL)	=	55.4	MGD	07/31/2016	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	618	mg/L	07/29/2016	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	336	mg/L	07/31/2016	None

Total Calculated Data Points: 58

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1013158	07/31/2016	Category 1 Pollutant (Effluent Violation for Group 1 Pollutant)	Total Suspended Solids (TSS) Monthly Average (Mean) limit is 30 mg/L and reporte	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
July 2016 Wet Weather Report.pdf	Wet Weather Report	84 KB
SEP E001A Toxicity 201607.pdf	E001A	17 KB
SEP Shoreline 201607.pdf	Shoreline Report	48 KB

Total Attachments: 3

Cover Letter

File Name
SEP 07-2016.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

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San Francisco Water Power Sewer
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July 29, 2016

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
June 2016

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) June 2016 Monthly Discharge Monitoring Report.

Two acute toxicity flow-through bioassay tests were conducted in June with both resulting in 100% final survival.

It was reported on June 20, 2016 that the final effluent pipeline leading to Discharge Point 001 (Pier 80 Outfall) was observed to have a leak in a section of the pipeline at the end of Pier 80 within 800 feet of the final discharge location (California Office of Emergency Services Control #16-3722). A 5-day report was submitted to the Regional Board on June 24, 2016. The pipeline was repaired and the leak ceased on July 13, 2016.

In June, no rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility did not operate and there were no combined sewer discharge (CSD) events.

Wet Weather Discharge Summary

Drainage Area CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This Month	0	0	0
2015-16 Season	7	11	2
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, George Engel, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

George W. Engel
Superintendent, Bayside Operations

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San Francisco Water Power Sewer
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August 30, 2016

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
July 2016

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) July 2016 Monthly Discharge Monitoring Report.

Two acute toxicity flow-through bioassay tests were conducted in July with both resulting in 100% final survival.

The calculated value for the July monthly final effluent TSS was 31 mg/L which is an exceedance of the 30 mg/L limit. The plant upset occurred subsequent to a planned plant shutdown on July 13, 2016. During the shutdown, critical jobs on the chlorine contact channels, the Pier 80 outfall pipeline, the primary sedimentation tanks, the secondary sedimentation tanks, and the electrical system were performed. During the period of July 22-27, 2016, the plant's oxygen generating system experienced malfunctions causing dissolved oxygen level issues in the aeration basins. It was later determined that the activated sludge biomass was depleted based upon microscopic examination. Corrective actions were taken to briefly stop then later resume a lower wasting rate in order to increase the biomass, increase oxygen levels in the aeration basins, provide consistent influent loading rates, and add ferric chloride and polymer to the mixed liquor channels to enhance settling. TSS levels returned to compliance limits. Although another plant shutdown occurred on August 17, 2016, no additional TSS issues have occurred. As of August 25, 2016, the August monthly average TSS value is 24.5 mg/L.

In July, no rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility did not operate and there were no combined sewer discharge (CSD) events.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	0	0	0
2016-17 Season	0	0	0
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, George Engel, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

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Sincerely,

George W. Engel
Superintendent, Bayside Operations

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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November 30, 2016

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
October 2016

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) October 2016 Monthly Discharge Monitoring Report.

An acute toxicity flow-through bioassay test was conducted in October resulting in 80% final survival.

Pursuant to the Regional Board in a letter dated November 10, 2014, the semi-annually required chronic toxicity results with comments (zeolite treated effluent - 5 TUc and untreated effluent-40 TUc) are included with this report as attachments in CIWQS. A report of ammonia add-back testing at 10% effluent toxicity is also included as an attachment. The CWIQS would not accept uploaded ammonia add-back testing at 10% effluent.

A category 3 SSO occurred on October 20, 2016 at Mission Bay Blvd. between 3rd St. and 4th St. Due to a broken sewer line approximately 200 gallons of sewage flowed through to a catch to Mission Bay Pump #4 Pump Station. All flow was captured at Mission Bay PS #4 and pumped to the combined sewer. The event was reported in CIWQS.

In October, 2.32 inches of rain were recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility did operate seven times during wet weather events and processed 184.2 MG. There were two combined sewer discharge (CSD) events.

A bypass was approved by the Regional Board, occurred from approximately October 16, 2016, at 12:16 p.m. to October 17, 2016, at 12:50 a.m. at the Southeast Plant. The bypass occurred due to necessary construction which limited the wet weather capacity of the plant during a rain event.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	0	2	0
2016-17 Season	0	2	0
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, Mark Harris, at 415-920-4923, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

Sincerely,

Mark A. Harris

Edwin M. Lee
Mayor

Anson Moran
President

Ike Kwon
Vice President

Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Vince Courtney
Commissioner

Harlan L. Kelly, Jr.
General Manager

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

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December 2, 2016

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast Water Pollution Control Plant/ NPDES CA0037664, 5-Day Report

Dear Ms. Watkins:

This letter provides information about an incident at the Southeast Water Pollution Control Plant (SEP) that was reported to the California Office of Emergency Services at 01:40 on November 23, 2016 (Control #16-7096) by Andy Clark, Acting Operations Superintendent. The report stated that SEP was "unable to maintain secondary treatment due to a power outage" and that approximately 4,375,000[1] gallons of primary treated and disinfected effluent was discharged to San Francisco Bay.

The report was made because of a PG&E power outage at SEP that lasted from 00:16 until 01:56 (all times in this report are approximate). At the time of the report, the effects of the power loss were not fully known, but it was understood that secondary treatment processes could be affected. After review of the incident, we believe that all discharges on November 23 received appropriate treatment. More details are provided below and in the attachment, which includes summaries of information available from the Distributed Control System (DCS) and accessed through PI Coresight. We will provide another written update if our continued examination of the event reveals additional relevant information.

Incident description and cause:
PG&E power to SEP was lost at 00:16 and was not restored until 01:56 on November 23, 2016. The outage occurred at the end of a rainstorm. At the time of the outage SEP was in wet weather mode with influent flows exceeding 110 mgd, and was discharging secondary treated and disinfected effluent from EFF-001 (Pier 80 Outfall) and EFF-002 (Quint Street Outfall).

During the power outage, flows continued through all treatment processes and were discharged to San Francisco Bay. Influent flow continued because power to the Channel and Bruce Flynn Pump Stations (PS) was not interrupted. Flow through the primary, secondary, and disinfection processes continued by gravity. Most of the final effluent was discharged through EFF-001 because pumping at the Booster PS was unaffected except for 22 minutes.[2] Effluent flows continued by gravity through EFF-002.

[1] This volume was based on very preliminary assumptions that effluent flow from SEP was 90 mgd and that that the duration of discharge was 70 minutes.
[2] The pumps at the Booster PS were briefly stopped twice because of power interruption. They stopped pumping from 00:16 to 00:32, and from 00:46 to 00:52.

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The two liquid treatment processes most affected by power loss are disinfection and secondary aeration. When power is lost, the hypochlorite and sodium bisulfite pumps stop. The stationary engineer assigned to Building 521 must initiate hypochlorite and sodium bisulfite dosing using gravity chemical feed. The dosing is controlled using information from rotameters and colorimetric titrations to determine chlorine concentrations pre and post-dechlorination, and to adjust dosing as needed to meet set targets. Excerpts from the SEP 2015/2016 Operations Manual that describe these protocols are included as an attachment. The assigned stationary engineer followed these protocols and initiated hypochlorite and sodium bisulfite gravity flows at approximately 00:17, one minute after the power outage began, and performed titrations at least hourly. None of the titrations registered a positive chlorine residual in the final effluent.

Secondary treatment processes require power for oxygen generation, mixing, and return activated sludge pumping to support aerobic biological processes. These activities ceased at 00:16 when the outage occurred. Under dry weather conditions, influent flow would typically be stopped and flows would be stored in the transport/storage structures until power is restored and plant start-up procedures completed. On November 23, the Chief ordered pumping to continue because wet weather levels in the Channel Transport/Storage box were high and continued pumping to SEP was needed to prevent a CSD from occurring in Mission Creek. Around 02:40, after the storm was over and Channel box levels had decreased, pumping from the Channel PS and into the secondary aeration tanks was stopped, effectively stopping plant flows. All pumping and processes were back online shortly before 05:00.

Estimated quantity and duration of the discharge:
From the time of the power loss (00:16) until pumping into the secondary aeration tanks was stopped (02:43) approximately 5,370,000 gallons of final effluent were discharged. All effluent passed through primary, secondary and disinfection processes.

Level of treatment prior to discharge:
Flows received primary treatment, secondary treatment, disinfection and dechlorination. The results of 24-hour composite sampling on November 23 were 47 mg/L for COD and 22 mg/L for TSS.

Efforts to minimize public exposure:
No posting occurred because the discharge was disinfected and dechlorinated.

Visual observations of the impacts to receiving waters, and the extent of sampling if conducted:
No visual inspection occurred. A grab sample was collected on November 23 at 07:12 from the Islais Creek kayak launch ramp. The sample had a total coliform concentration of 145 MPN/100 mL, an E. coli concentration of less than 10 MPN/100 mL, and an enterococcus concentration of less than 10 MPN/100 mL.

Corrective measures planned or taken:
During the event, the decision to continue flow through SEP prevented CSDs at Mission Creek.

Additionally, while the details of what caused the PG&E power loss are unknown, the SFPUC has a capital project planned to provide a redundant power feed to SEP that may have prevented or reduced the duration of a similar event. SEP, the Booster Pump Station and the Bruce Flynn Pump Station are each connected to the PG&E Hunter's Point Switchyard through a separate power feed. The planned project would include an additional feed to SEP from PG&E's Potrero Switchyard. A Conceptual Engineer Report has been completed and the project is entering design.

Sincerely,

Mark Harris
Superintendent, Bayside Operations
Southeast Water Pollution Control Plant
Wastewater Enterprise
San Francisco Public Utilities Commission

Enclosure: November 22-23, 2016 Distributed Control System Data Trendlines
SEP 2015/2016 Operations Manual Excerpts
November 23 Building 521 Logsheet

cc (via email): Bill Johnson, San Francisco Bay Regional Water Quality Control Board Ken Greenberg, United State Environmental Protection Agency
Eric Magnan, United States Environmental Protection Agency

San Francisco Water Power Sewer
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December 30, 2016

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
November 2016

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) November 2016 Monthly Discharge Monitoring Report.

Acute toxicity flow-through bioassay test was conducted in November resulting in 90% final survival.

An incident occurred November 23, 2016 and was reported to the California Office of Emergency services at 01:40AM (Control #16-7096). The report stated that SEP was unable to maintain secondary treatment due to a PG&E power outage and that approximately 4,375,000gallons of primary treated and disinfected effluent was discharged to San Francisco Bay.

The five day report was submitted to the California Regional Water Quality Control Board on December 2nd 2016.

In November, there was rain was 1.7 "recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility did operate six times and there were 122.3MGD treated.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	0	1	0
2016-17 Season	0	3	0
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, Mark Harris, at 415-920-4923, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

Sincerely,

Mark A. Harris
Superintendent, Bayside Operations

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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February 1, 2017

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland CA 94612

NPDES/CA 0037664
2016 Annual Report

RE: Southeast Water Pollution Control Plant and Bayside Wet Weather Facilities 2016 Annual Self-Monitoring Report

Dear Jessica:

Transmitted herewith is the annual self-monitoring report for the Southeast Water Pollution Control Plant (WPCP), the North Point Wet Weather Facility (WWF), and Bayside Wet Weather Facilities and Wastewater Collection System for the calendar year 2016, pursuant to Order No. R2-2013-0029, NPDES Permit No. CA0037664 (Southeast WPCP NPDES Permit).

A. Treatment Plant Compliance and Performance

1. Volume Treated

The Southeast WPCP treated a total of 2.47123 billion gallons of combined sanitary, industrial, and storm water in 2016 while the North Point Wet Weather Facility treated a total of 408.1 million gallons of combined sanitary, industrial and storm water. The average dry weather flow for the Southeast WPCP was 54.50 million gallons per day (MGD), calculated using flows from three consecutive dry weather months (July, August, and September).

2. Combined Sewer Discharges

The table below shows the frequency of combined sewer discharges (CSDs) during 2016. A complete wet weather annual report covering the wet weather season from July 2016 through June 2017 will be submitted in July 2017 and will include all the wet weather events for that period.

2016 Combined Sewer Discharge Frequency

	Month												Total
	J	F	M	A	M	J	J	A	S	O	N	D	
North Shore Basin	3	0	3	0	0	0	0	0	0	0	0	1	7
Central Basin	4	0	4	0	0	0	0	0	0	2	1	4	15
Southeast Basin	1	0	0	0	0	0	0	0	0	0	0	0	1

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General Manage

3. Discussion of Treatment Plant Performance and Compliance

Summary of Plant Performance

The San Francisco Public Utilities Commission (SFPUC) is exempt from submittal of an annual compliance summary table and tabular and graphical summaries of monitoring data because all data for the Southeast WPCP are reported electronically. *See* Southeast WPCP NPDES Permit, Monitoring and Reporting Program (MRP), Attachment E at E-17 and Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D, Attachment G (2010) at G-18.

Consistent with the Waste Discharge Requirements for Mercury and PCBs from Municipal and Industrial Wastewater Discharges to San Francisco Bay (Order No. R2-2012-0096, NPDES No. CA0038849), Attachment A summarizes the mercury concentrations of each final effluent sample collected in 2016, the corresponding flow on the dates the sample was collected, and the annual estimated mercury load. The Southeast Plant reported USEPA Method 1668c PCB congener data with the Self-Monitoring Reports for March 2016, May 2016, August 2016, and November 2016.

Discussion of Compliance

During the January 18, 2016 storm event, Plant Operations notified Millbrae Dispatch that CSDs occurred, but did not notify Millbrae Dispatch that they occurred from Northshore. As a result, public notification and/or sampling did not occur or did not occur within a day of the discharge at the beaches potentially affected by these CSDs. Specifically:

- Crissy Field Beach and Aquatic Park Beach were not posted or sampled following a CSD at Baker St on January 6, 2016.
- Crissy Field Beach and Aquatic Park Beach were not posted or sampled following CSDs at Baker St, Pierce St and Sansome on January 18, 2016.
- Jackrabbit Beach was not posted on January 18, 2016 following a CSD at Yosemite on January 18, 2016. Other public notification modes were employed in a timely fashion.

To improve communication, the SFPUC implemented an I-Info email/text notification program in January 2016. These alerts from Plant Operations are now directed to both Millbrae Dispatch and to the responding on-call Biologist. In addition, a back-up notification method has been developed and launched. This method uses level and other sensor data from the Distributed Control System (DCS) and PI Coresight (PI) to automatically send an email to Millbrae Dispatch when information in a transport storage box indicates that a CSD is occurring or imminent. Implementation of this back-up notification method is being tested and refined.

The plant did not meet the acute toxicity 11-sample 90th percentile requirement during January 2016 due to the test result of 60% reported during the November 2015. A test result in February 2016 of 65% survival caused the average to continue to be lower than the requirement in March, April, May, June, and July 2016. The plant met the 11-sample 90th percentile requirement in August 2016 and every month after that in 2016.

The plant did not meet the acute toxicity 11-sample median requirement during 2016 in January, February, March, April and May due to test results below 90%. The plant met the acute toxicity compliance requirement for June 2016 through December 2016. Accelerated testing continued until the end of July when the 11-sample percentile compliance requirement was met.

An elevated result of 0.0431 µg/L for mercury was detected from the first sample collected on March 15; accelerated monitoring was performed as required, with all sample results returning below monitoring and effluent limits. The monthly average for mercury was 0.00983 µg/L (below the permit limit).

On March 5, 2016, during a combined sewer discharge event at the Mariposa outfall, one of two wet weather pumps was operational at the Mariposa Pump Station. The pump failure cause was an overcurrent state detected on the frequency drive, likely attributable to wet weather debris. An estimate volume of 131,000 gallons was discharged over a 67 minute period. As the system was at capacity during this discharge, the pump failure resulted in relocating combined wastewater which would have been discharged at the Islais Creek outfalls to the Mariposa outfall instead; all storage in the system was maximized. On March 10, 2016, the SFPUC submitted a 5-day Written Report regarding this event.

On June 20, 2016, the SFPUC reported that the final effluent pipeline leading to Discharge Point 001 (Pier 80 Outfall) had a small leak in a section of the pipeline at the end of Pier 80 within 800 feet of the final discharge location. This event was reported to California Office of Emergency Services Control (#16-3722) and a 5-day report was submitted to the Regional Board on June 24, 2016. The pipeline was repaired on July 13, 2016.

The calculated value for the July monthly final effluent TSS was 31 mg/L which exceeded the 30 mg/L limit. This result followed a lengthy planned plant shutdown on July 13, 2016 for critical work on the chlorine contact channels, the Pier 80 outfall pipeline, the primary sedimentation tanks, the secondary sedimentation tanks, and the electrical system. In addition to this shutdown, the plant's oxygen generating system experienced malfunctions causing dissolved oxygen level issues in the aeration basins from July 22-27, 2016, which likely contributed to this TSS result.

A category 3 SSO occurred on October 20, 2016 at Mission Bay Blvd. due to a broken sewer line. Approximately 200 gallons of sewage flowed to a catch basin and was captured at the Mission Bay Pump #4 Pump Station which pumped the flow to the combined sewer.

A bypass occurred at the treatment plant on October 17, 2016 during a wet weather event when the plant influent was limited due to necessary construction. This bypass was subsequently approved by the Regional Board.

On November 23, 2016, SFPUC reported a plant power outage during a wet weather event to the California Office of Emergency services (Control #16-

7096). The five day report was submitted to the California Regional Water Quality Control Board on December 2, 2016.

4. Actions Taken or Planned to Improve Plant Performance & Reliability

The following capital projects are planned for, underway or recently completed for the Southeast WPCP, North Point Wet Weather Facility and associated collection system:

2016 Capital Improvement Projects

- Booster Pump Station (SEP 550) Pump-Motor Maintenance/ Repair: This project was to service and repair the four (4)-pump-motor units at the facility. NTP was in December 2014, and Maintenance repair and rehabilitation were completed in 2016.
- Booster Pump Station (SEP 550) Power Cell Upgrades: This project included as-needed repairs and performance testing of fifty (50) existing 700 HP power cells. NTP was September 2015, and the work was completed August 2016.
- Bruce Flynn Pump Station (BFS) VFD Replacement: This project removed and replaced six (6) Wet Weather Robicon Variable Frequency Drive (VFD) controllers. NTP was October 2015, and the project was completed August 2016.
- Bruce Flynn Pump Station (BFS) Bar Screen Parts Replacement: This project replaced chains, rakes, and guide assemblies for both bar screens at the BFS. NTP was July 2016, and the work was completed November 2016.
- Channel Pump Station (CHS) Bubbler Compressor Upgrade and Concrete Repair: This project is to upgrade existing bubbler air compressors and provide concrete repair at the Division Street Outfall (DVO; Discharge Point #026). NTP was September 2016, and the target for substantial completion is August 2017.
- Fixed Gas Monitoring System Upgrades: The project was to install fixed gas detectors and monitoring systems in various process buildings. Construction started in June 2014, and the construction work for Southeast Plant (SEP) and BFS was completed in December 2015. The Contract includes 3-year service and maintenance of the installed fixed gas systems at SEP and BFS, with expected completion in November 2018.
- Instrumentation & Backup Power Systems Improvements: This project includes the replacement of 33 bubbler systems (bubblers) used for level and flow measurement; 29 bubblers are being replaced in-kind while four bubblers are to be replaced with Ultrasonic type systems. The project also includes the replacement of seven Distributed Control System (DCS) Uninterruptible Power Supply (UPS) units for SEP Liquid Treatment and BFS, and installing new ferrous chloride injection system flowmeters and DCS monitoring for Griffith Pump Station and

North Point Facility. NTP was July 2014, and the project was substantially completed October 2016.

- Islais Creek System Flush Control Valve Upgrade: This project re-established the functionality of the flush control valves at the Islais Creek Transport/Storage Box (ICT). Project received NTP March 2016, and the work was substantially completed December 2016, awaiting final testing.
- Mariposa Pump Station (MPS) Roof Replacement: This project replaced the dilapidated roof at MPS. NTP was January 2016, and the project was substantially completed August 2016.
- North Point Wet Weather Facility (NPF) Dewatering Pump Replacement & Electrical Upgrade: This project is to repair and rehabilitate the existing deficient and deteriorated dewatering pumping and electrical systems for NPF sedimentation and chlorination process structures. NTP was November 2015. The project was substantially completed November 2016.
- North Point Outfall (NPO) Rehabilitation: The project is to repair reinforced concrete sewers, reline outfall pipes, remove and dispose of Bay sediments from inside, outside, and surrounding diffusers, install a corrosion protection system for outfall pipes and associated structural supports, and install air release mechanism. The bid opening was in December 2016. Commission approval and contract award is planned for January 2017. The construction duration is one year.
- Pierce Street Weir Structure Improvements: This project pressure-grouted various leaks along the Pierce St. weir structure. Additional improvements were identified for the Pierce Street Outfall (Discharge Point #010). The original project received NTP June 2016, and the work was substantially completed December 2016.
- Selby and Marin Outfall Upgrades: This project is to provide precast covers over the existing outfall structures, including concrete repairs and baffle installation. The project received NTP July 2016, and substantial completion is targeted for June 2017.
- SEP & BFS Fire Alarm Systems: This project which replaces and upgrades the existing deteriorated and outdated fire alarm systems at SEP and BFS to current codes and standards was completed in October 2016. Additionally, the project will provide audible and visible field notification devices in high noise level process equipment areas and install missing fire alarm systems at modular buildings within SEP. The Contract includes 2-year service and maintenance of the installed fire alarm systems at SEP and BFS, with expected completion in November 2018.
- SEP Chemical System Relocation and Facility Upgrades: The scope includes replacing the existing sodium hypochlorite storage tanks, pumping and piping systems, and mixers, for odor control and disinfection, and providing upgrades at the plant's headworks, primary treatment, and secondary treatment facilities to improve process control.

Construction started in March 2014, and the construction work was approximately 95% complete as of December 2016.

- SEP Primary and Secondary Clarifiers Upgrade: The project is to improve the reliability of the equipment and processes at Primary and Secondary Clarifiers. The major scope of work includes the installation of a ventilation system for the primary sedimentation tanks for odor control plus mechanical upgrades to and concrete coating of primary sedimentation tanks and several secondary clarifiers. Other mechanical and electrical works are also included. NTP was March 2016, and the construction work was approximately 45% complete as of December 2016.
- SEP 042 Drum Screen Modification: This project modifies the existing drum screen to allow Operations to safely retrieve primary screenings from ground level. NTP was March 2016, and Substantial Completion was December 2016.
- SEP 042-044 Valve Actuator Improvements: This project replaced eleven (11) existing actuators in the primary sedimentation system with upgraded models to improve personnel safety. NTP was April 2016, and Substantial Completion was December 2016.
- SEP 230 Secondary Clarifier Handrail and Concrete Repairs: NTP was October 2015, and the project was substantially completed July 2016.
- SEP 260 OCU Replacement: Existing Secondary Sludge Control Building Odor Control Unit (OCU) was replaced. The new unit was commissioned/ completed in June 2016.
- SEP 260 RAS Pump VFD Upgrade: Existing Secondary Sludge Control Building RAS pump VFDs are in the process on being upgraded, and pump sensor status is to be reported via the SEP Distributed Control System (DCS). Project completion is expected in March 2017.
- SEP 275 Oxygen Generation Plant Replacement: The project was to install two new Vacuum Pressure Swing Adsorption (VPSA) Oxygen Plants to replace the aging Cryogenic Oxygen Plant. Construction started in January 2013. Excessive noise issues delayed project completion. Substantial Completion was January 2016, and Final Completion was April 2016.
- SEP 521/522 Disinfection Upgrades: The objective is to upgrade the controls and chemical sampling station at SEP 521 – Postchlorination Building, relocate the electrical equipment into a new building (SEP 522 – Disinfection Electrical/HPU Structure), improve the No. 3 water system (process water), and replace valves and actuators. Concrete repair to stop leaks and coating of the chlorine contact channels for corrosion protection are also included. NTP was issued March 2016, and the construction work was approximately 43% complete as of December 2016.
- SEP 785 Gravity Belt Thickener Control Improvements: Existing process controls and fixed gas detectors and controllers were deteriorated. A Job Order Contract (JOC) was used to relocate process

control systems to a new enclosure adjacent to but outside the humid and corrosive process building, SEP 785, and to upgrade the obsolete fixed gas detection system. NTP was in February 2015, and the project was substantially completed January 2016.

- SEP 785 Gravity Belt Thickener Refurbishment: Refurbishment parts were procured in July 2016. Staff targets 2017 for parts installation.

5. Effluent Characterization Study

For this evaluation, all constituents listed in Attachment G, Table C, except for those pollutants with effluent limitations, that were detected above the method Minimum Levels (ML) were evaluated. Estimated concentrations of constituents detected below the MLs were excluded from this evaluation because the uncertainty in the result when a constituent is detected below the ML prevents useful comparison.

Nine constituents were detected above the method MLs: Antimony, Cadmium, Chloroethane, Chloroform, Chromium III, Lead, Nickel, Toluene, and Zinc. The 2016 maximum detected level of each of the nine constituents was compared to the Maximum Effluent Concentration (MEC) as presented in Table F-9 of the Southeast Permit (Reasonable Potential Analysis). The MECs were used as the general indicators of past performance of the detected constituents.

Eight out of the nine detected constituents showed deceases or no statistically significant changes or increases compared to the corresponding MECs.

Antimony increased slightly, from 0.71 to 0.902 µg/L. No obvious reasons were identified for the increase and the increase was less than one order of magnitude of the MEC in Table F-9. The increases were potentially statistical variations caused by variability in sampling and analytical procedures. The constituents will be monitored and evaluated again in 2017.

The detected constituents and evaluations are summarized in the table below.

Trends for Selected Constituents

Constituent	Method Minimum Level (ML, µg/L)	2016 Maximum Detected Level (µg/L)	Past Performance[1] (µg/L)	Governing Criterion or Objective (µg/L)	Comment
Antimony	0.5	0.902	0.71	4300	Continue to Monitor
Cadmium	0.25	0.396	1.3	9.36	Decrease
Chloroethane	0.5	0.654	11	No Criteria	Decrease
Chloroform	0.5	7.53	11	No Criteria	No change or increase
Chromium III	0.5	0.891	3.7	No Criteria	Decrease
Lead	0.5	1.12	1.6	8.5	No change or increase
Nickel	1	5.2	5.1	13	No change or

					increase
Toluene	0.5	1.01	1.5	200,000	No change or increase
Zinc	1	51.9	55	86	No change or increase

1. The Maximum Effluent Concentration (MEC) or the minimum detection level, as listed in Table F-9. Reasonable Potential Analysis in the Southeast Permit, NPDES NO. CA0037664, Order No. R2-2013-0029, is used as an indicator for past performance.

6. Sludge Disposal

In 2016, the Southeast Treatment Plant disposed of 11,832 dry metric tons of sludge at the following locations:

Location	**Dry Metric Tons**
Sonoma County Land Application	3,873
Sacramento County Land Application	937
Landfill Beneficial Use	3,859
Vasco	754
Potrero	2,968
Altamont	3,300
Central Valley Compost	137
TOTAL	**11,832**

B. APPROVED LABORATORY ANALYSES

See Attachment B for a list of analyses for which the SFPUC is certified. All analyses were performed in-house by the SFPUC except for the following:

- Dioxin, method EPA 1613, is performed by Frontier Analytical;
- Semi-volatile Organic Compounds, EPA 625, Caltest Analytical; and
- Tributyltin by Gas Chromatography/Mass Spectrometry, Calscience

C. FACILITY INFORMATION

1. Plan View Drawing or Map of Facility

See Attachment C.

2. Results of Annual Facility Inspection to Verify Stormwater Pollution Prevention Plan Elements

Southeast WPCP is exempt from this requirement because it routes all stormwater that falls on the facility property to the headworks of the treatment plant. *See* Southeast WPCP NPDES Permit, Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D), Attachment G (2010) at G-3.

3. Results of Annual Facility Report Reviews

Contingency Plan

The Contingency Plan was updated in November 2016. Staff are working to update the Spill Prevention Plan.

Operations and Maintenance Manual

The Operations Manual was updated in November 2016. The Operations and Maintenance Manuals for preliminary treatment, primary treatment, cryogenic air separation, secondary treatment, disinfection, solids thickening, anaerobic digestion and solids dewatering are currently being updated.

Wastewater Facilities Status Report

San Francisco is utilizing a Wastewater Asset Management Program to enhance reliability of the plant process equipment and optimize its maintenance and operations activities by assessing the criticality of the equipment based on which equipment carries the most risk. Based on the risk of the equipment, the appropriate Maintenance, and Repair and Rehabilitation (R&R) Program strategy can be implemented to enhance plant reliability. The highest risk equipment will have the more rigorous maintenance procedures including Routine and Preventive Maintenance, Predictive Maintenance, Condition-based Maintenance, and Reliability-Centered Maintenance. The R&R Program sets priorities based on the highest risk equipment, and the equipment at the end of its useful life. San Francisco uses a CMMS (Computerized Maintenance Management Software) to plan, schedule, initiate and track preventive and corrective work, and record equipment condition assessments.

D. Collection System Update

Launched in 2007, the SFGreasecycle program aims to minimize the amount of FOG discharged to the sewer system by providing a free waste grease pickup service for commercial establishments and free drop-off services for residents. The program was developed to address both source control, through collection services and public outreach, and end use, through the production of biodiesel from waste grease. To date, SFGreasecycle has collected approximately 2.4 million gallons of waste grease from 838 participating food service establishments and 8 residential drop-off points located throughout San Francisco. Since 2007, the program has generated over $4 million in revenue for San Francisco and is expected to reduce the annual costs expended on grease related sewer blockages by sewer operations maintenance crews.

The FSEs currently participating in the program represent approximately 35% of the total number of FSEs in San Francisco and new commercial accounts continue to sign up daily. The annual grease collected from commercial FSEs began at 6,000 gallons in 2007, grew to 400,896 gallons in 2013, and has remained steady since. The residential recycling program component has focused on resident outreach and education and now collects over 11,000 gallons a year from 8 convenient drop-off sites located throughout San Francisco at such retail vendors as Whole Foods Market and Costco. In 2016, SFGreasecycle's annual two-month holiday outreach campaign captured over 1,100 gallons of residential grease or roughly 19 gallons a day.

E. Participation in in Regional Efforts

In 2016, the SFPUC continued its financial support of and participation in the San Francisco Estuary Institute's Regional Monitoring Program in order to fulfill the receiving water monitoring requirements of the Southeast WPCP NPDES permit. *See* Southeast WPCP NPDES Permit at E-12.

As a principal member of the Bay Area Clean Water Agencies, the SFPUC also continued to support nutrient receiving water monitoring and science plan development and implementation; participate in the development of Total

Maximum Daily Loads and site-specific objectives; support implementation of the Mercury and PCBs Watershed Permit; and support implementation of the regional copper action plans.

If you have any questions concerning this report, please contact one of the following people: Superintendent, Mark Harris, at 415-920-4923; Laboratory Services Manager Kenneth Lee, at 415-920-4965 or Supervising Chemist, Dolson Kwan, at 415-920-4957.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Mark Harris
Superintendent, Bayside Operations
SFPUC Wastewater Enterprise/Southeast WPCP

ATTACHMENTS
Attachment A 2015 Mercury Sampling Results
Attachment B List of Analyses for which the SFPUC is Certified
Attachment C Plant Flow Diagram

ATTACHMENT A

Mercury Information Reporting Form

Discharger: City and County of San Francisco, Southeast WW Treatment Plant

Calendar Year Reporting: 2016 Monitoring Station: E-001

Month	Sample Date	Effluent Flow to Surface Waters (mgd)	Total Mercury Concentration (µg/L)	Average Monthly Mass Load (kg/mo)	
January	1/27/16	52.80	0.0022	0.0133	
February	2/23/16	56.40	0.0052	0.0340	
March	3/15/16	76.30	0.0431		0.3796
	3/26/16	56.80	0.0028		0.0180
	3/27/16	57.40	0.0026		0.0175
	3/28/16	54.40	0.0036		0.0229
	3/29/16	55.80	0.0054		0.0345
	3/30/16	54.80	0.0053		0.0338
	3/31/16	54.90	0.0060		0.0383
	Mo Avg			0.0778	
April	4/6/16	54.10	0.0021	0.0132	
May	5/16/16	54.50	0.0029	0.0182	
June	6/28/16	55.10	0.0044	0.0278	
July	7/12/16	50.20	0.0041	0.0237	
August	8/2/16	49.00	0.0054	0.0307	
September	9/27/16	53.80	0.0050	0.0311	
October	10/5/16	52.00	0.0025	0.0149	
November	11/4/16	51.20	0.0037	0.0220	
December	12/6/16	57.40	0.0050	0.0331	
Total Mass (sum)				0.3397	
Weighted Annual Mass Emission				0.3397	
Average			0.0062	0.0283	

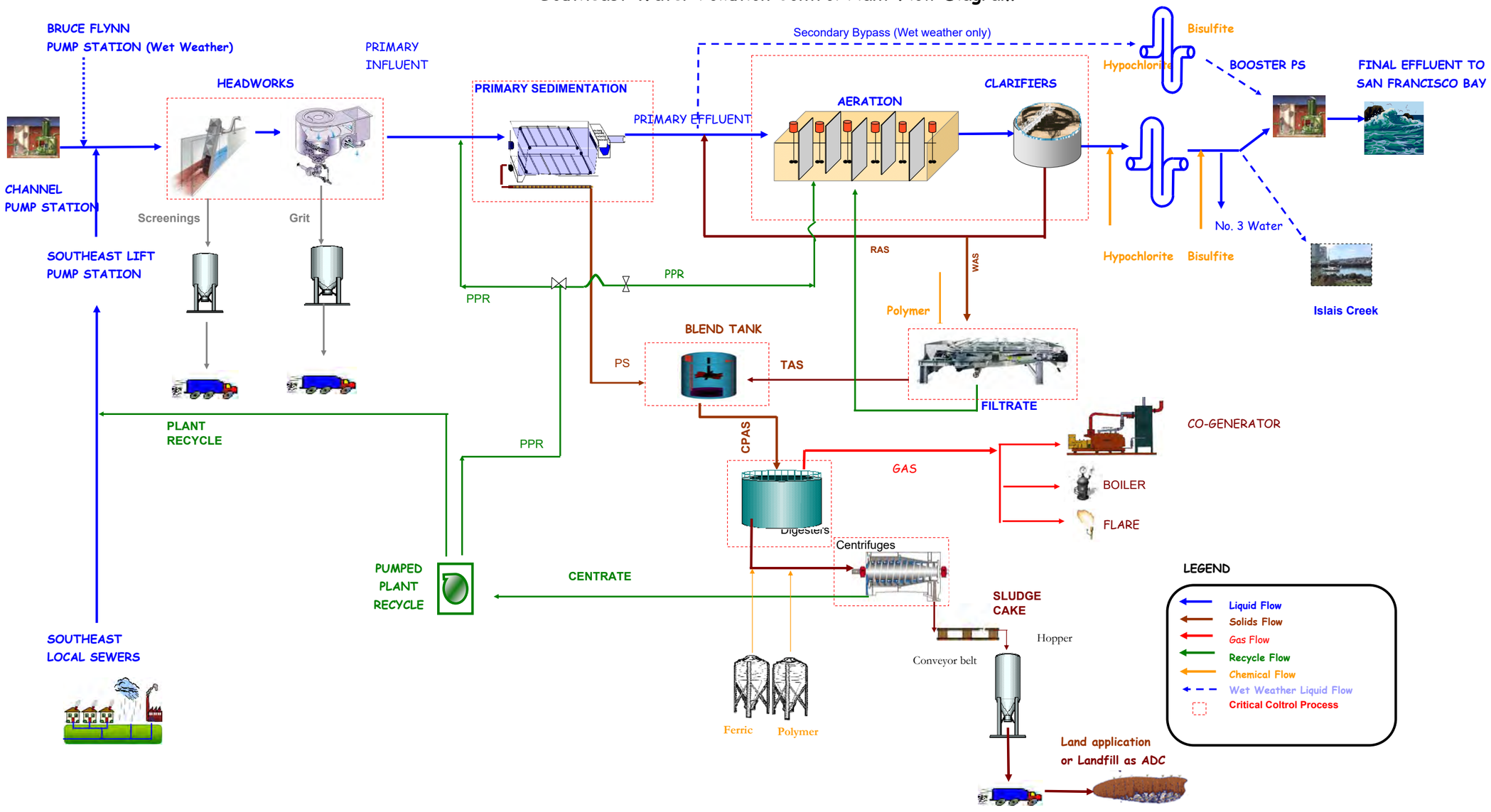
ATTACHMENT B

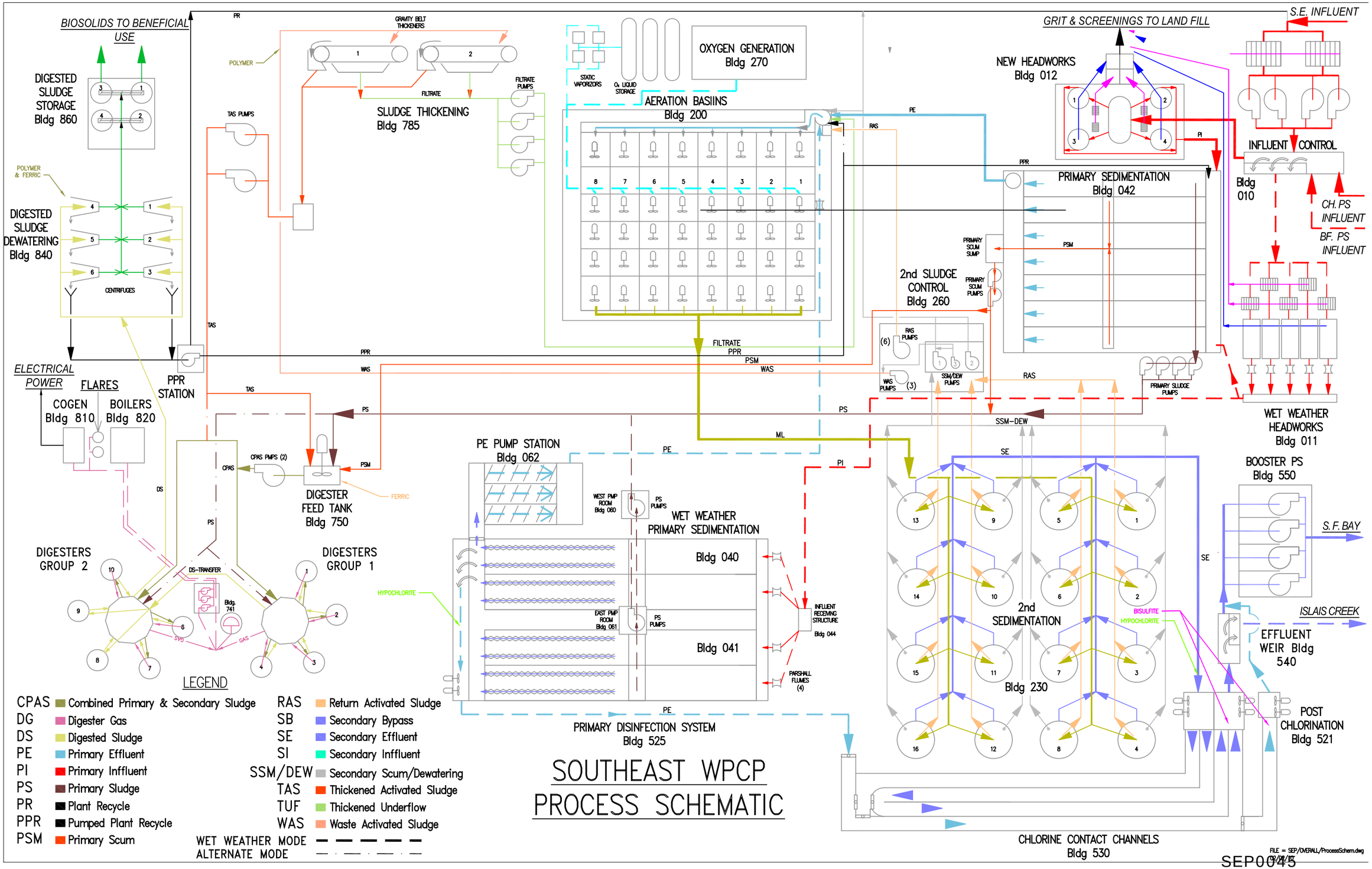
References for Analyses Cited

Type of Test	Reference	Method Number
Ammonia	Standard Methods	4500-NH3B,C
Bioassay	EPA	2019 (EPA-821-R-02-012) 600/R-95/136 Development Test
Biochemical Oxygen Demand	Standard Methods	5210 B
Carbonaceous BOD	Standard Methods	5210 B
Chemical Oxygen Demand	Standard Methods	5220C/HACH8000
Chlorine Residual	Standard Methods	4500-Cl C
Coliform	Standard Methods	9222 B,D
Conductivity	Standard Methods	2510B
Cyanide	Standard Methods	4500-CN C & 4500-CN^- E
Enterococci, IDEXX	EPA	Enterolert
Kjeldahl Nitrogen	Standard Methods	4500-NH3C
Mercury	EPA	1631E/245.1
Metals	EPA	200.7/200.8
Nitrate-nitrite	Standard Methods	4500-NO3 E
Nitrite	Standard Methods	4500-NO2 B
Oil & Grease	EPA	1664A
PAH	EPA	610/625
Pesticide/PCBs	EPA	608
pH	EPA/Standard Methods	150.2/4500-H^+ B
Phosphate, Ortho	Standard Methods	SM4500-P E
Phosphorus, Total	Standard Methods/EPA	SM4500-P E/200.7
Semi -Volatile Organic Compounds	EPA	625
Settleable solids	Standard Methods	2540 F
Temperature	Standard Methods	2550 B
Total solids	Standard Methods	2540 B
Total Suspended solids	Standard Methods	2540 D
Turbidity	Standard Methods	2130 B
Volatile Organic Compounds	EPA	624

Attachment C

Southeast Water Pollution Control Plant Flow Diagram





LEGEND

CPAS	Combined Primary & Secondary Sludge	RAS	Return Activated Sludge
DG	Digester Gas	SB	Secondary Bypass
DS	Digested Sludge	SE	Secondary Effluent
PE	Primary Effluent	SI	Secondary Inffluent
PI	Primary Inffluent	SSM/DEW	Secondary Scum/Dewatering
PS	Primary Sludge	TAS	Thickened Activated Sludge
PR	Plant Recycle	TUF	Thickened Underflow
PPR	Pumped Plant Recycle	WAS	Waste Activated Sludge
PSM	Primary Scum	WET WEATHER MODE	
		ALTERNATE MODE	

SOUTHEAST WPCP PROCESS SCHEMATIC

eSMR PDF
Summary: DMR

NPDES Permit #: CA0037664 **Facility:** SOUTHEAST WPCP, NORTH POINT WWF, BAYSIDE WWF

DMR Parameters

Feature - LS: 001-Y **Monitoring Period:** 01/01/2016 - 12/31/2016

Loc	Sea	Param	Param Text	Q1	Q2	C1	C2	C3	Excur Count	Analy Freq	Sample Type
1	0	71901	Mercury, total recoverable		0.3397 kg/yr Annual Total					Annual	CALCTD

January 24, 2017

Mr. Bruce Wolfe, Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, 14th Floor
Oakland, CA 94612

Subject: NPDES Permit Requirements for Receiving Water Quality Monitoring, TMDL/SSO Support, Mercury and PCBs Watershed Permit Support, and Implementation of Copper Action Plans

Dear Mr. Wolfe:

I am writing on behalf of the Bay Area Clean Water Agencies (BACWA) and its members that own and operate publicly-owned treatment works (POTWs) and that have National Pollutant Discharge Elimination System (NPDES) permits to discharge to San Francisco Bay Area waters. The NPDES permits issued to these agencies impose some requirements that are most efficiently fulfilled as a group. The purpose of this letter is to report on behalf of BACWA members that those requirements are being met, including permit provisions related to: (A) Receiving Water Quality Monitoring, (B) Support for the RMP through the Alternate Monitoring Requirements (AMR), (C) Total Maximum Daily Load and Site Specific-Objective Support, (D) Mercury and PCBs Watershed Permit Support, (E) Copper Action Plan Support; and (F) Nutrient Watershed Permit Support.

A. Receiving Water Quality Monitoring

Various NPDES permits require that the permittees support the Regional Monitoring Program for Water Quality in the San Francisco Estuary (RMP), administered by the San Francisco Estuary Institute (SFEI), and established by San Francisco Bay Regional Water Quality Control Board (Regional Water Board) Resolution 92-043, adopted April 15, 1992. BACWA members have and continue to fulfill this requirement by participating in and providing funding to the RMP. A letter from SFEI, dated January 18, 2017, confirming BACWA member agencies' contributions to the RMP, is attached for reference.

B. Participation in the Alternate Monitoring Plan

In March 2016, the Regional Water Board adopted the Alternate Monitoring Requirements (AMR)[1], an Order that allows POTWs to reduce monitoring frequencies for specific pollutants in exchange for increased funding to the RMP. The Order calculates the additional fee for each agency to opt into the AMR based on its estimated cost savings associated with reduced

[1] Order No. R2-2016-0008 Alternate Monitoring and Reporting Requirements for Municipal Wastewater Dischargers for the Purpose of Adding Support to the San Francisco Bay Regional Monitoring Program (RMP).

monitoring requirements. The agencies who have opted into the AMR are listed in the attached January 12, 2017 letter from SFEI.

C. Total Maximum Daily Load and Site-Specific Objective Support

Some POTW permits previously included a requirement that permittees report to the Regional Water Board any actions taken in support of the development of Site-Specific Objectives (SSOs) and Total Maximum Daily Loads (TMDLs) for 303(d) listed pollutants. Support for these efforts has been provided largely through support of the RMP.

As part of the site-specific objectives (SSO), NPDES dischargers are required to calculate the 3-event rolling average of total cyanide concentrations in each segment of the Bay, based on RMP data. In 2016, the last three RMP water cruises (2011, 2013, and 2015) were used to update the averages.

In 2014, the RMP convened a Selenium Strategy Team and developed a Selenium Strategy in the Multi-Year Plan, and coordination within the Strategy Team continued in 2016. The new strategy includes measuring selenium in small tissue samples from sturgeon collected using non-lethal methods. In 2016, tissue samples were collected from sturgeon during non-lethal fish trawls in North Bay and during the Sturgeon Derby in Martinez. The tissue samples were analyzed for selenium to track implementation of the North Bay Selenium TMDL.

D. Mercury and PCBs Watershed Permit Support

The Mercury and PCBs Watershed Permit was reissued in 2012, and became effective on January 1, 2013[2]. The reissued permit has no requirements for Mercury Special Studies. BACWA will continue to work with the RMP to develop and implement an updated mercury science strategy.

The Regional Monitoring Program continues to perform the status and trend (S&T) monitoring and special studies needed to support management of mercury and PCBs in the Bay. Recent S&T monitoring for mercury has included sport fish in 2014 and 2015 (report coming in Q2 2017), open Bay sediment in 2014 (to be reported in the 2017 Pulse), water in 2015, margins sediment in 2015 (report coming in Q2 2017), and bird eggs in 2016.

Recent S&T monitoring for PCBs has included the same elements mentioned for mercury, with the addition of bivalves in 2014. Special studies for PCBs have also recently been a significant part of the RMP. The RMP PCB Strategy called for a multi-year study plan beginning in 2015 focusing on monitoring the response of priority margin unit receiving waters to management actions in high-leverage watersheds. Conceptual models and mass balances are being developed for four priority margin units (Emeryville Crescent, San Leandro Bay, Steinberger Slough, and Richmond Harbor). A report on Emeryville Crescent will be completed in January 2017. Using SEP funds, an extensive field study is also being conducted in San Leandro Bay to support development of the conceptual model, a mass balance, and a food web model in support of the possible revision of the PCBs TMDL.

[2] Waste Discharge Requirements for Municipal and Industrial Wastewater Discharges of Mercury to San Francisco Bay, Order No. R2-2012-0096; NPDES No. CA0038849

In 2016 BACWA's Bay Area Pollution Prevention Group (BAPPG) continued to reach out to dental assistant and dental hygienist students to educate them about proper amalgam management and disposal. In 2016, this campaign reached approximated 164 people at 7 speaking engagements. In December 2016, the Dental presentation was updated to reflect the new EPA Dental Rulemaking as well as the FDA's September 2016 ban of triclosan, triclocarban and 17 other antimicrobials in hand soaps and body washes (effective September 2017). In 2017, BAPPG will continue to provide the guest speaker to local colleges. The instructors have come to rely on these annual visits and have interwoven the BAPPG program into their instructional calendar.

The permit requires that permittees conduct or participate in programs to reduce mercury-related risks to humans from the consumption of Bay fish. In 2016 BACWA continued funding two grants worth $25,000 each to the California Indian Environmental Alliance, and APA Family Support Services, to conduct activities related to reducing risk from fish consumption in vulnerable populations. Work related to both grants began in 2015 and will be completed by 2017. BACWA coordinated with the grantees to provide a progress update on their risk reduction activities to the Regional Water Board on October 25, 2016.

E. Copper Action Plan

The copper action plan contained in many Bay Area POTW permits requires permittees to implement a plan to reduce copper discharges, conduct studies to reduce copper pollutant impact uncertainties, and implement additional measures should the three-year rolling mean in various parts of the Bay exceed site-specific concentration triggers. In 2016, the RMP analyzed water and sediment samples for copper to provide data relative to the implementation of the Copper Action Plan.

Regarding studies to reduce uncertainties in terms of the impact of copper on beneficial uses, in 2013, the RMP contracted with the National Oceanic and Atmospheric Administration Northwest Fisheries Science Center in Seattle to study the olfactory toxicity of copper on salmonids. The studies indicate that even at very high concentrations of copper in seawater (> 100 µg/L), Chinook salmon's sense of smell is not impaired. For juvenile salmon, copper concentrations up to 50 µg/L did not have impacts on the olfactory system at salinities >10 ppt. A journal article describing these results was published in 2016[3].

In addition to the measures being taken by individual agencies to reduce copper in discharges in 2015, BAPPG supported one presentation at a plumbing class at Laney Community College, Oakland (15 students) about BAPPG's flux and flushing BMPs.

During the public comment period of the U.S. EPA Review of Pesticides, BACWA asked that U.S. EPA evaluate risks and examine risk mitigation options for Copper products that are used in swimming pool, spa, and fountain treatments because pools, spas, and fountains are often discharged to POTWs in lieu of discharging to gutters/storm drains, and fabric treatments and subsequent discharges to POTWs during washing of the treated end product (e.g., clothing).

[3] Sommers F, Mudrock E, Labenia J, Baldwin D. Effects of salinity on olfactory toxicity and behavioral responses of juvenile salmonids from copper. Aquatic Toxicology. 2016 ;175.

F. Nutrient Watershed Permit Compliance

The Nutrient Watershed Permit[4] was adopted on April 2014, with an effective date of July 1, 2014. Through the nutrient surcharge levied on permittees, BACWA is funding compliance with the following provisions of the Nutrient Watershed Permit on behalf of its members:

- Group Annual Reporting – BACWA submitted the second Group Annual Report on October 1, 2016. All the permittees under the Nutrient Watershed Permit participated in the Group Annual Report.
- Optimization and facilities upgrade studies – Studies are ongoing, and an update was provided to Regional Water Board staff at BACWA's Annual Pardee Technical Seminar in October 2016. A progress update was submitted per permit requirement on July 1, 2016. A Final Report on the studies is expected prior to the July 2018 permit deadline.
- Support of scientific studies as part of the Nutrient Management Strategy – BACWA has provided $880K to SFEI in 2016. An update on the science plan for the 2016 calendar year will be submitted by February 1, 2017.

Please contact me if you have any questions about the information contained in this letter.

Respectfully,

David R. Williams

David R. Williams
BACWA Executive Director

Encl:
SFEI Letter regarding RMP Participation, January 18, 2017.

CC:
Mr. Bill Johnson, NPDES Permitting Division Chief, Regional Water Board
Mr. Richard Looker, Water Resources Control Engineer, Regional Water Board
Ms. Laura Pagano, BACWA Executive Board Chair
Mr. Eric Dunlavey, BACWA Permits Committee Chair

[4]Waste Discharge Requirements for Municipal Wastewater Discharges of Nutrients to San Francisco Bay, Order No. R2-2014-0014; NPDES No. CA0038873

SAN FRANCISCO ESTUARY INSTITUTE
4911 Central Avenue, Richmond, CA 94804 • p 510-746-7334 • f 510-746-7300 www.sfei.org

January 18, 2017

David R. Williams
Executive Director
Bay Area Clean Water Agencies
PO Box 24055, MS 59
Oakland, CA 94623

Dear Mr. Williams:

The Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) is the only comprehensive environmental monitoring program to measure pollutants and trends in the Bay. The RMP, which began in 1993 and is still going strong, is a successful partnership of scientists, government, municipalities, and industries to understand and improve the health of the Bay.

The goal of the RMP is to collect data and communicate information about water quality in the San Francisco Estuary in support of management decisions. The accomplishments of the RMP over the past two years is summarized in the "RMP Update" report that was published in October 2016. The full report can be downloaded from http://www.sfei.org/rmp/update.

In 2016, 35 wastewater treatment facilities collectively contributed the full amount of the core RMP program costs assigned to publicly owned treatment works ($1,549,043, see Table 1 for a complete list of agencies). The process used to determine the core fees for each participant group are outlined in the Program Charter: http://www.sfei.org/documents/charter-regional-monitoring-program-water-quality-san-francisco-bay.

In March 2016, the Water Board adopted Order R2-2016-0008, establishing an alternative monitoring requirement (AMR) for municipal wastewater discharges to San Francisco Bay and its tributaries, in exchange for a set schedule of increased payments to the RMP. Participating wastewater treatment facilities who opt-in to this alternative are able to reduce their effluent monitoring costs for most organic priority pollutants and chronic toxicity sensitive species rescreening. In exchange for the reduced monitoring requirements, facilities make supplemental payments to the RMP for regional studies to inform management decisions about water quality in the Bay. In 2016, 30 wastewater treatment facilities made supplemental contributions to the Program under Order R2-2016-0008 ($235,077, see Table 1).

This support is essential to the Program. Through these financial contributions, the RMP is able to conduct regional monitoring to assess the cumulative impact of multiple sources of pollutants to the Bay. We thank you and your members for the support and look forward to serving you in 2017.

Sincerely,

Philip Trowbridge, PE
RMP Manager

Table 1

Wastewater Treatment Facilities Contributing to the RMP in 2016

POTW Dischargers	Core RMP Fees	AMR Order Fees
American Canyon, City of		
Benicia, City of	YES	YES
Burlingame, City of	YES	
Calistoga, City of	YES	YES
Central Contra Costa Sanitary District	YES	YES
Central Marin Sanitation Agency	YES	YES
Crockett Community Services District, Port Costa Sanitary Department		YES
Delta Diablo	YES	YES
East Bay Dischargers Authority	YES	YES
Union S.D.		YES
Oro Loma		YES
Hayward		YES
San Leandro		YES
Livermore		YES
Dublin San Ramon Services District		YES
East Bay Municipal Utilities District WWTP	YES	YES
Fairfield-Suisun Sewer District	YES	YES
Las Gallinas Valley Sanitary District	YES	
Marin County (Paradise Cove), Sanitary District No. 5 of	YES	YES
Marin County (Tiburon), Sanitary District No. 5 of	YES	YES
Millbrae, City of	YES	YES
Mt. View Sanitary District	YES	YES
Napa Sanitation District	YES	YES
Novato Sanitary District	YES	YES
Palo Alto, City of	YES	YES
Petaluma, City of	YES	YES
Pinole, City of	YES	
Rodeo Sanitary District	YES	
San Francisco, City and County Of, San Francisco International Airport	YES	YES
San Francisco (Southeast Plant), City and County of	YES	
San Jose/Santa Clara Water Pollution Control Plant and Cities of San Jose and Santa Clara	YES	YES
San Mateo, City of	YES	YES
Sausalito - Marin City Sanitary District	YES	YES
Sewerage Agency of Southern Marin	YES	YES
Silicon Valley Clean Water	YES	YES
Sonoma Valley County Sanitary District	YES	YES
South San Francisco and San Bruno, Cities of	YES	YES

St. Helena, City of	YES	
Sunnyvale, City of	YES	YES
US Department of Navy (Treasure Island)	YES	YES
Vallejo Sanitation and Flood Control District	YES	YES
West County Agency		YES
Richmond Municipal Sewer District		YES
West County Wastewater District	YES	YES
Yountville, Town of	YES	YES

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

750 Phelps Street
San Francisco, CA 94124
T 415.920.4923

February 28, 2017

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: 5-Day Report re Pier 80 leak reported February 21, 2017, Southeast Water Pollution Control Plant/ NPDES CA0037664

Dear Ms. Watkins:

This is the 5-Day Report for the Pier 80 final effluent leak for which the San Francisco Public Utilities Commission (SFPUC) received notification about and reported on February 21, 2017.

Incident description and cause:
At approximately 11:00 a.m. on February 21, 2017, the SFPUC received notification by email from a Port employee that there was a leak, possibly from the Southeast Treatment Plant final effluent force main located under Pier 80. See Attachment A for a location map. The notification occurred at the end of a rainstorm. At that time, the Southeast Treatment Plant was in wet weather mode receiving influent flows at approximately 250 MGD and discharging an effluent mixture of primary and secondary disinfected effluent, in compliance with permit requirements. The leak occurred approximately 500 feet from the outfall diffuser discharge point.

SFPUC staff immediately investigated and determined that the cause was a missing section of a vent pipe for SFPUC's final effluent pipe that had broken off from the side of a thrust block. See Attachment B for a schematic drawing of the vent pipe. Staff developed a plan and mobilized a specialty marine inspection and construction company, Underwater Resources Inc., to effectuate a repair. On February 23, Underwater Resources attempted to install a plug in the leak but could not get close enough to the site due to tides. A second, successful repair effort was made on February 24 to install a temporary plug. This plug has halted almost all of the leak flow; however a small leak of approximately 0.5gpm remains. Crews will go out on February 28, 2017, when tides are favorable to attempt to eliminate this leak. A final repair to remove the plug and reconnect the vent to the final effluent outfall pipe is planned in the next two weeks.

Methods used to delineate the geographical extent of the discharge within receiving waters
Staff used the following factors to determine an estimate of the leak flow rate: effluent flow velocity (based on field observation) and area of the pipe hole. Staff calculated a leak flow rate estimate of 1214 gpm.

Efforts implemented to minimize public exposure to the discharge
Public exposure to the discharge is very limited. As indicated in the Attachment A, the leak is from infrastructure located underneath Pier 80 which is inaccessible to the

Edwin M. Lee
Mayor

Anson Moran
President

Ike Kwon
Vice President

Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Vince Courtney
Commissioner

Harlan L. Kelly, Jr.
General Manager

public. The nearest shoreline access is the kayak ramp located in Islais Creek at the intersection of Quint Street and Cargo Way. This location was posted from February 21-25, 2017.

Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted
Visual observations of the leak and receiving waters were initially conducted on February 21, 2017 at approximately 1:00 p.m. No impacts were observed.

Final effluent was analyzed for fecal indicator bacteria daily from February 20th through February 24th, 2017 as part of the NPDES permit required monitoring for SEP. All results were below permit effluent limitations.

The leak site has accessibility challenges; sampling from the Pier 80 poses unacceptable safety risks to staff and the shoreline nearest the leak is privately owned. Although staff were able to take a sample from the privately owned shoreline area on February 21, 2017, permission for on-going access was not forthcoming, so staff selected the routine shoreline Islais Creek kayak launch ramp as the best location for monitoring water quality where public use is highest. See Attachment A for sampling locations.

Receiving water samples were collected from the Islais Creek kayak launch ramp and analyzed for fecal indicator bacteria. As part of the beach monitoring program administered by the SFPUC and the San Francisco Department of Public Health, sampling and posting is conducted at the ramp after CSDs occur in Islais Creek and every day thereafter if the sample results are above the California Department of Public Health's fecal indicator bacteria standards related to recreational use. CSDs occurred in Islais Creek on January 17th and January 20th. Fecal indicator bacteria concentrations were elevated in samples collected daily at the ramp between January 17th and January 23nd. The elevated concentrations are believed to be caused by the January 20th CSDs, which were very large in volume due to the large amount of rainfall (more than two inches over a 24 hour period). Concentrations were below recreational use standards on January 24th and January 25th. The site was de-posted on January 25th.

The special receiving water sample SFPUC collected from a location closer to the leak on February 21 had elevated fecal indicator bacteria. The concentrations are lower than, but within the same order of magnitude, as the sample collected the same day at the launch ramp. Both receiving water samples are orders of magnitude lower than the final effluent sample collected the same day. This information indicates that the elevated concentrations in the special sample are attributable to the January 20th CSDs and not the final effluent leak.

All sampling results are included in Attachment C.

Corrective measures taken to minimize the impact of the discharge
Staff mobilized quickly to determine infrastructure ownership and to develop a plan to stop the leak. Specific steps involved contracting with Underwater Resources and shutting the plant down twice (one shutdown of one hour and a second shutdown of 6 ½ hours) to make repairs shortly after the leak notification. The discharge was final treated effluent and located only approximately 500 feet from the authorized discharge point, and any potential risk of impacts on receiving waters was minimal.

San Francisco Public Utilities Commission
February 28, 2017

Measures to be taken to minimize the chances of a similar discharge occurring in the future
Staff plans to conduct an investigation and condition assessment of the vent line to determine if additional repair or replacement is necessary. Staff anticipate that this work will take place in the next three months.

Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future discharges
No changes to the Spill Prevention Plan or O&M Manual are needed.

Quantity and duration of the discharge, and the amount recovered
From the time of discovery at 11:00 a.m. on February 21, 2017 until the vent leak was plugged at 6:00 p.m. February 24, 2017, approximately 5.17 MG of final effluent were discharged. A small leak of 0.5 gpm remains which crews will attempt to eliminate on February 28, 2017.

As the leak discharged directly into receiving waters, it was not possible to recover any volume.

Location of threatened or involved waterway(s) or storm drains
San Francisco Bay at Pier 80.

Date and Time the discharge started:
The SFPUC was notified about the leak on February 21, 2017 at approximately 11:00 a.m.

Level of treatment prior to discharge:
All flows received permit-required treatment levels, which was a mixture of primary and secondary treatment, plus disinfection and de-chlorination.

Corrective measures planned or taken:
A plug of cast iron material was successfully installed on February 24, 2017 at 6:00 p.m. to secure the leak. Almost all flow is now discharging through the authorized discharge point at EFF-001 (Pier 80 Outfall); however, a small 0.5 gpm leak remains. Crews will attempt to eliminate this leak on February 28, when the tides are favorable. A final repair to remove the temporary plug and reconnect the vent to the final effluent outfall pipe is planned to take place in the next two weeks, after which staff will conduct a condition assessment of the vent line to determine if additional repair or replacement is needed.

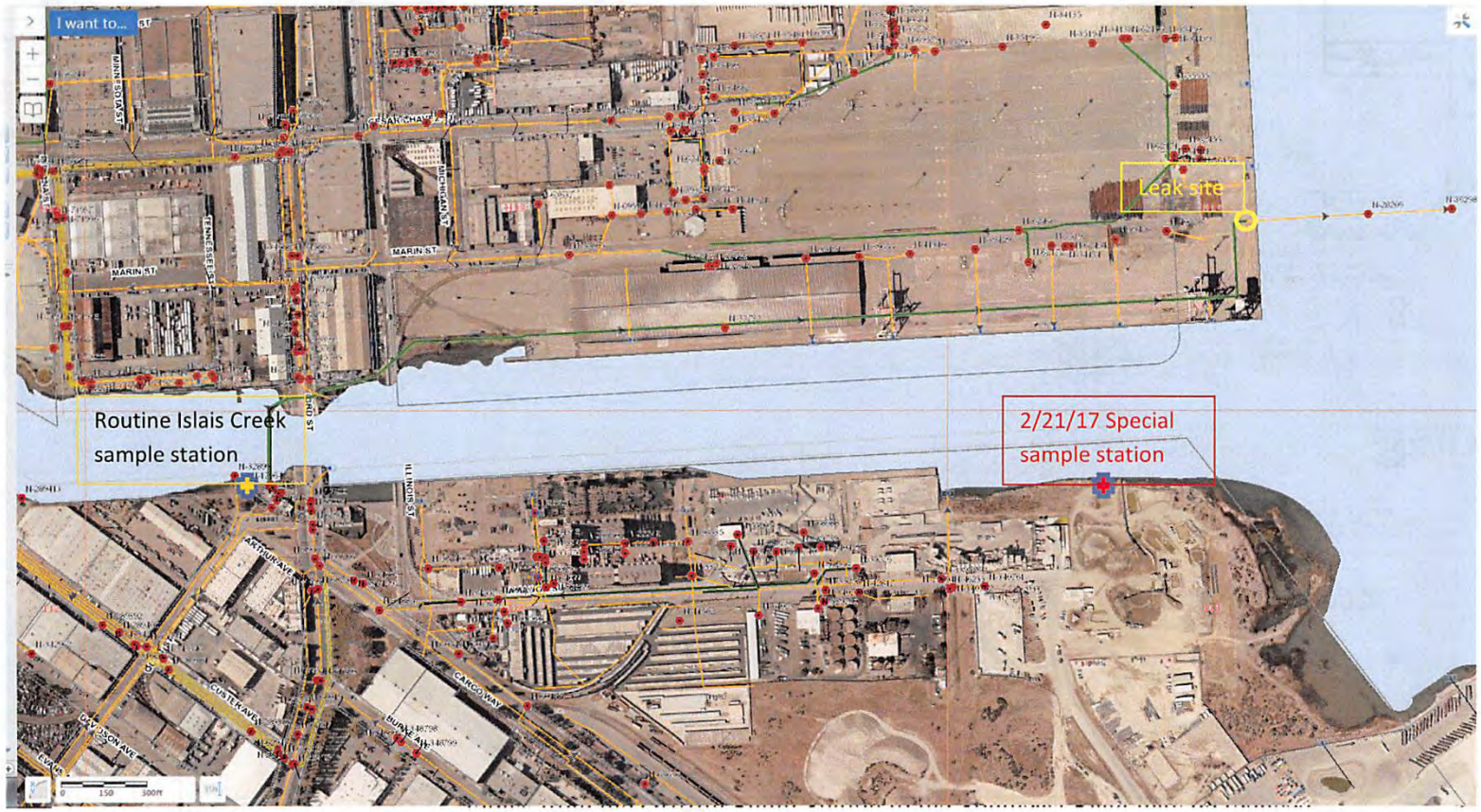
Identity of the person reporting the unauthorized discharge.
Andy Clark, Acting Superintendent of the Southeast Treatment Plant, reported the leak on February 21, 2017 to the California Office of Emergency Services at 12:40 p.m. (Control #17-1591), and the Department of Health Services at approximately 1:15 p.m.

Sincerely,

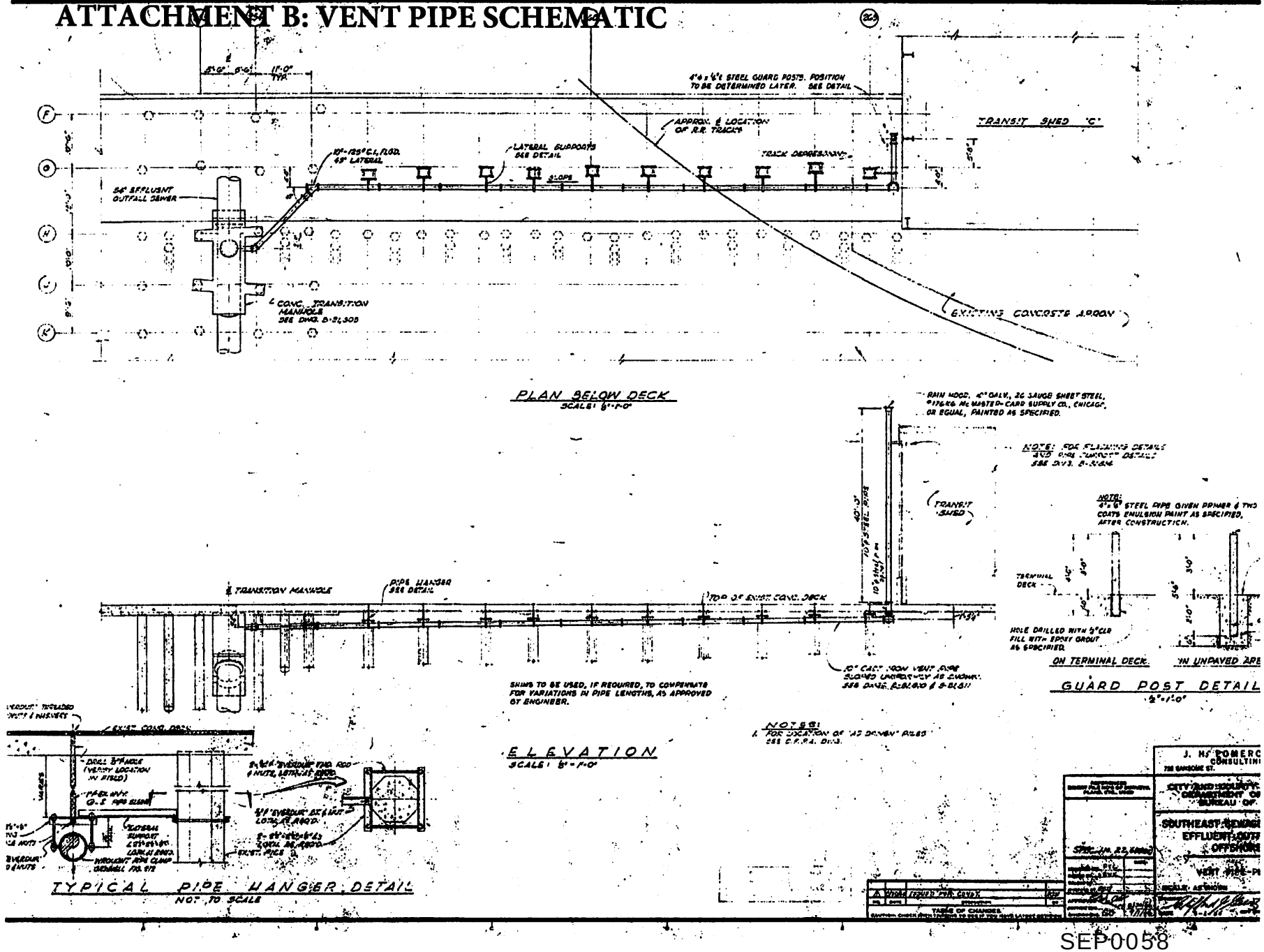
Mark A. Harris

Mark Harris
Superintendent, Bayside Operations
Southeast Water Pollution Control Plant

ATTACHMENT A: MAP OF LEAK AND SAMPLING LOCATIONS



ATTACHMENT B: VENT PIPE SCHEMATIC



ATTACHMENT C: SAMPLING RESULTS

Table 1. Final Effluent Sampling Results

Sample Point Name	Sample Point Description	Sample Date	Analyte	Results (MPN/100mL)
SEP FINAL EFF - PIER 80 - WET	EFF-001B	02/20/17	Enterococcus	10
SEP FINAL EFF - PIER 80 - WET	EFF-001B	02/20/17	Fecal Coliform	80
SEP FINAL EFF - PIER 80 - DRY	EFF-001A	02/21/17	Fecal Coliform	<2
SEP FINAL EFF - PIER 80 - DRY	EFF-001A	02/22/17	Fecal Coliform	2
SEP FINAL EFF - PIER 80 - DRY	EFF-001A	02/23/17	Fecal Coliform	13
SEP FINAL EFF - PIER 80 - DRY	EFF-001A	02/24/17	Fecal Coliform	11

Table 2. Receiving Water Sampling Results

Sample Point Name	Sample Point Description	Sample Date	Analyte	Results (MPN/100mL)
BAY#320_SL	Islais Kayak Launch Ramp	02/20/17	E. coli	>24196
BAY#320_SL	Islais Kayak Launch Ramp	02/20/17	Total Coliform	>24196
BAY#320_SL	Islais Kayak Launch Ramp	02/20/17	Enterococcus	9208
BAY#320_SL	Islais Kayak Launch Ramp	02/21/17	E. coli	>24196
BAY#320_SL	Islais Kayak Launch Ramp	02/21/17	Total Coliform	>24196
BAY#320_SL	Islais Kayak Launch Ramp	02/21/17	Enterococcus	4106
Pier 80 Special Site	Special Station	02/21/17	E. coli	19863
Pier 80 Special Site	Special Station	02/21/17	Total Coliform	>24196
Pier 80 Special Site	Special Station	02/21/17	Enterococcus	2382
BAY#320_SL	Islais Kayak Launch Ramp	02/22/17	E. coli	>24196
BAY#320_SL	Islais Kayak Launch Ramp	02/22/17	Total Coliform	>24196
BAY#320_SL	Islais Kayak Launch Ramp	02/22/17	Enterococcus	1236
BAY#320_SL	Islais Kayak Launch Ramp	02/23/17	E. coli	537
BAY#320_SL	Islais Kayak Launch Ramp	02/23/17	Total Coliform	6131
BAY#320_SL	Islais Kayak Launch Ramp	02/23/17	Enterococcus	52
BAY#320_SL	Islais Kayak Launch Ramp	02/24/17	E. coli	52
BAY#320_SL	Islais Kayak Launch Ramp	02/24/17	Total Coliform	1063
BAY#320_SL	Islais Kayak Launch Ramp	02/24/17	Enterococcus	20
BAY#320_SL	Islais Kayak Launch Ramp	02/25/17	E. coli	110
BAY#320_SL	Islais Kayak Launch Ramp	02/25/17	Total Coliform	1935
BAY#320_SL	Islais Kayak Launch Ramp	02/25/17	Enterococcus	10
BAY#320_SL	Islais Kayak Launch Ramp	02/27/17	E. coli	10
BAY#320_SL	Islais Kayak Launch Ramp	02/27/17	Total Coliform	275
BAY#320_SL	Islais Kayak Launch Ramp	02/27/17	Enterococcus	31

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EFF-003	pH	Monthly Maximum	=	6.2	SU	02/08/2017	None
EFF-003	pH	Monthly Minimum	=	6.2	SU	02/08/2017	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Maximum Daily (MDEL)	=	313	mg/L	02/15/2017	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	248	mg/L	02/28/2017	None
INF-001	Cyanide, Total (as CN)	Maximum Daily (MDEL)	<	4	ug/L	02/13/2017	None
INF-001	Flow	Maximum Daily (MDEL)	=	244	MGD	02/07/2017	None
INF-001	Flow	Average Monthly (AMEL)	=	120.3	MGD	02/28/2017	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	368	mg/L	02/02/2017	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	191	mg/L	02/28/2017	None

Total Calculated Data Points: 104

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1043568	02/21/2017	Order Conditions	Leaks to Islais Creek from the vent pipe connected to the Southeast Plant final	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP E001A Toxicity 201702.pdf	E001A	15 KB
SEP E001B Toxicity 201702.pdf	E001B	15 KB
SEP E003 Toxicity 201702.pdf	E003	15 KB
SEP Shoreline 201702.pdf	Shoreline Report	51 KB

Total Attachments: 4

Cover Letter

File Name
Bayside Drainage System 2-2017.pdf
SEP-2-2017.pdf

Total No. of Cover Letter Files: 2 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
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	20 Deg. C)						
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	273	mg/L	03/31/2017	None
INF-001	Cyanide, Total (as CN)	Maximum Daily (MDEL)	<	4	ug/L	03/08/2017	None
INF-001	Flow	Maximum Daily (MDEL)	=	223	MGD	03/21/2017	None
INF-001	Flow	Average Monthly (AMEL)	=	83.6	MGD	03/31/2017	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	1085	mg/L	03/12/2017	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	320	mg/L	03/31/2017	None

Total Calculated Data Points: 132

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1033302	03/31/2017	Category 1 Pollutant (Effluent Violation for Group 1 Pollutant)	Oil and Grease Monthly Average limit is 10 mg/L and reported value was 14 mg/L a	In its cover letter, the Discharger stated that it would increase sampling frequency; however, it only collected the one required monthly sample in the following months of April and May.	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP 1668c PCB Congeners Qtrly 201703.pdf	PCB Congeners by EPA 1668c	695 KB
SEP E001A Toxicity 201703.pdf	E001A	15 KB
SEP E001B Toxicity 201703.pdf	E001B	15 KB
SEP E003 Toxicity 201703.pdf	E003	15 KB
SEP Shoreline 201703.pdf	Shoreline Report	47 KB

Total Attachments: 5

Cover Letter

File Name
MARCH BAYSIDE DRAINAGE 2017B.pdf
SEP-03-2017B.pdf

Total No. of Cover Letter Files: 2 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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Cal/EPA | ARB | DPR | DTSC | OEHHA | SWRCB

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
750 Phelps Street
San Francisco, CA 94124
T 415.920.4600
F 415.550.9371

March 30, 2017

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
February 2017

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) **February 2017** Monthly Discharge Monitoring Report.

An acute toxicity flow-through bioassay test was conducted in February resulting in 100% final survival.

An incident occurred on February 21, 2017, which was reported to the California Office of Emergency services at 12:40 (Control # 17-1591). The report stated that while the plant was discharging through authorized EFF-001(Pier 80 Outfall), a discharge of fully treated effluent occurred due to a broken vent pipe approximately five hundred feet from the diffuser discharge point. The five day report for this event was submitted to the Regional Water Quality Control Board on February 28, 2017.

In February, 6.85" rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility operated thirteen times and treated 538.5 MG.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	3	4	0
2016-17 Season	9	14	3
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, Mark Harris, at 415-920-4923, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Mark A. Harris
Superintendent, Bayside Operations

Edwin M. Lee
Mayor
Vince Courtney
President
Ann Moller Caen
Vice President
Francesca Vietor
Commissioner
Anson Moran
Commissioner
Art Torres
Commissioner
Harlan L. Kelly, Jr.
General Manager

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Static-Renewal Bioassay Test -- REPORT

Southeast Plant Wet Weather Discharge

PDS (EFF-001B)

Exposure volume: 4L
Test Organism: Rainbow trout
Organism batch ID: RT-1705
Sample Date: April 7, 2017
Sample Lab-ID: 17-EFF-018

Test Started: April 7, 2017
Test Ended: April 11, 2017
Prepared by: L. Targgart
Approved by: R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	
Effluent	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	

TUa **0.00**

Water Quality Data

Control	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.0	12.0	11.9	11.7	12.1	12.0
pH (units)	7.09	7.69	7.48	7.07	7.24	7.52
Dissolved oxygen (mg/L)	10.4	10.4	9.3	10.8	9.5	9.2
Hardness (mg/L)	116			80		104
Alkalinity (mg/L)	62			60		70
Conductivity (µS/cm)	316			285		327

Effluent	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	11.4	12.0	11.9	13.2	12.0	11.9
pH (units)	6.86	7.46	6.96	8.17	7.13	7.24
Dissolved oxygen (mg/L)	10.1	13.9	9.9	10.2	9.3	8.6
Hardness (mg/L)	50			24		50
Alkalinity (mg/L)	22			42		30
Conductivity (µS/cm)	202			203		225
Residual chlorine (mg/L)	-3.8					
Total ammonia (mg/L)	2.0					

Comments: In order to maintain dissolved oxygen levels of at least 60% saturation, control and effluent exposures were gently aerated (60-100 bubbles/min) from three- through 89-hours after test initiation.
Effluent exposures (and concurrent controls) were also gently oxygenated from three- through 65-hours after test initiation in order to ensure adequate dissolved oxygen levels.

Reference:

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Static-Acute Bioassay Test -- REPORT

North Point Wet-Weather Facility Final Effluent (EFF-003)

Exposure volume: 4L
Test Organism: Rainbow trout
Organism batch ID: RT-1706
Sample Date: April 7, 2017
Sample Lab-ID: 17-EFF-017

Test Started: April 7, 2017
Test Ended: April 11, 2017
Prepared by: L. Targgart
Approved by: R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	
Effluent	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	

TUa **0.00**

Water Quality Data

Control	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (℃)	12.0	12.0	11.9	11.7	12.1	12.0
pH (units)	7.09	7.69	7.48	7.07	7.24	7.52
Dissolved oxygen (mg/L)	10.4	10.4	9.3	10.8	9.5	9.2
Hardness (mg/L)	116			80		104
Alkalinity (mg/L)	62			60		70
Conductivity (υS/cm)	316			285		327

Effluent	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (℃)	11	11.9	11.7	13.4	11.7	11.8
pH (units)	6.85	7.31	6.91	6.86	7.00	7.11
Dissolved oxygen (mg/L)	10.1	12.3	9.0	10.1	8.6	10.1
Hardness (mg/L)	44			40		46
Alkalinity (mg/L)	24			30		30
Conductivity (υS/cm)	614			356		383
Residual chlorine (mg/L)	-5.0					
Total ammonia (mg/L)	3.4					

Comments: In order to maintain dissolved oxygen levels of at least 60% saturation, control and effluent exposures were gently aerated (60-100 bubbles/min) from three-hours through 89-hours after test initiation. Effluent exposures (and a concurrent control) were also gently oxygenated from three- through 91-hours after test-initiation in order to ensure dissolved oxygen levels within protocol requirements.

Reference:

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	April 10, 2017
Test Organism:	rainbow trout	Test ended:	April 14, 2017
Organism batch ID:	RT-1706	Prepared by:	L Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	0	10	0	10	0	10	0	10	90
	replicate 2	10	0	10	1	9	1	8	0	8	

TUa **0.59**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.6	12.2	11.6	11.5	11.4	11.6	11.9	11.7	11.8	11.4
pH (units)	8.76	9.02	8.70	7.71	8.26	6.67	6.74	6.68	6.90	6.75
Dissolved oxygen (mg/L)	9.3	10.0	9.3	9.7	10.2	8.0	7.6	6.8	7.6	7.2
Residual chlorine (mg/L)	0.0	0.0	0.0	0.0	0.0	-1.0	-0.9	-0.6	-0.2	-0.1
Alkalinity (mg/L)	40				34	230	280	184	208	260
Hardness (mg/L)	56				64	200	196	146	154	176
Conductivity (µS/cm)	185				176	1645	1697	1240	1324	1579
Total ammonia (mg/L)	0.5				0.5	30.6	40.9	26.2	28.1	40.8

Note: From 48-hrs after test initaition through test termination, effluent and control exposures were gently aerated to ensure dissolved oxygen levels of at least 60% saturation.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

750 Phelps Street
San Francisco, CA 94124
T 415.920.4923

April 11, 2017

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: 5-Day Report re Pier 80 leak reported on April 4, 2017 to Cal OES (Control #17-2581), Southeast Water Pollution Control Plant/ NPDES CA0037664

Dear Ms. Watkins:

This letter constitutes the 5-Day Report regarding an intermittent leak from the concrete seawall under Pier 80 near the vent pipe for the Southeast Treatment Plant final effluent outfall pipe, which was discovered on April 4, 2017.

Incident description and cause:

At approximately 2:00 p.m. on April 4, 2017, influent flow to the Southeast Treatment Plant (SEP) was approximately 60 million gallons per day (MGD). Around this time divers were installing structural support to the vent pipe under Pier 80. The vent pipe, which connects to the SEP final effluent outfall pipe (discharge point EFF-001), is scheduled to be replaced in approximately six months. As described in the SFPUC's 5-Day report of February 28, 2017, there was an issue with the vent pipe losing a section, which was repaired on March 16, 2107 as a temporary measure to restore the pressure relief function of the vent pipe. After completing the structural support additions, the divers noticed water flow coming from the sea wall near the vent pipe. SFPUC staff reported this event to Cal EOS on April 4, 2017 at 3:35 p.m. (#17-2581).

After investigation, SFPUC staff have concluded that the water from the seawall leak is final effluent from SEP (fully treated, disinfected and dechlorinated wastewater meeting all effluent limitation requirements at point of discharge from the plant). The water is entering the vent pipe as part of a pressure release function and escaping through a break in the vent pipe line. However, identifying the exact location of the break is problematic because the relevant portion of the vent pipe is embedded in the concrete of the seawall and Pier 80 pavement.

Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters:

SFPUC Engineering and Operations staff tested the circumstances under which the seawall leak occurred by varying the pressure at Booster Pump Station and concluded that the leak happens at a rate of approximately 4 gallons per minute when Booster Pump Station (BPS) exceeds 9 psi. Using information from the Distributed Control System (DCS) to identify the time period where BPS exceeded 9 psi, staff have concluded that approximately 23,488 gallons of final treated effluent has discharged through the seawall leak from April 4-10, 2017.

Edwin M. Lee
Mayor

Anson Moran
President

Ike Kwon
Vice President

Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Vince Courtney
Commissioner

Harlan L. Kelly, Jr.
General Manager

San Francisco Public Utilities Commission
April 11, 2017

Flows received primary treatment, secondary treatment, disinfection and dechlorination, and met all effluent limitation requirements.

Identity of the person reporting the unauthorized discharge: Mark Harris, Superintendent of the Southeast Treatment Plant, reported the event on April 4, 2017 to the California Office of Emergency Services at 3:35 p.m. (Control #17-2581).

Sincerely,

Mark Harris
Superintendent, Bayside Operations
Southeast Water Pollution Control Plant

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

750 Phelps Street
San Francisco, CA 94124
T 415.920.4923

April 19, 2017

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: 5-Day Report for final effluent pipe leak in Islais Creek reported on April 12, 2017 to Cal OES (Control #17-2765), Southeast Water Pollution Control Plant/ NPDES CA0037664

Dear Ms. Watkins:

This letter constitutes the 5-Day Report regarding a leak into Islais Creek from the Southeast Treatment Plant (SEP) final effluent pipe, which was discovered on April 12, 2017.

Incident description and cause:

At approximately 10:45 a.m. on April 12, 2017, Operations staff in the field observed an upwelling on the surface water near the SFPUC's final effluent pipe where it crosses Islais creek. This section of the line is part the SEP final effluent outfall pipe that transports fully treated, disinfected and dechlorinated wastewater from the plant and discharges at Pier 80 (EFF-001). SFPUC staff reported this event to Cal EOS on April 12, 2017 at 12:28 p.m. (#17-2765), based on the preliminary information available at that time.

To investigate the cause of the upwelling, SFPUC staff shut down the SEP on Saturday morning (April 15), and had divers enter the pipe. Upon proceeding to the location of the upwelling, the divers identified a leak of approximately 48 inches long and one inch wide. The divers were able to install a temporary stainless steel patch that stopped the leak. The SFPUC plans to shut down the plant again on April 19, 2017 to have the divers install an injection patch with additional reinforcements.

In July 2015, the same section of the pipe crossing Islais Creek developed a leak (see the 5-Day Report of July 30, 2015). To address this issue, the SFPUC began a major capital project in September 2015, to replace this section of the outfall pipe costing, as a preliminary estimate, $30 million. Due to design and permitting processes, the project is scheduled to be completed in approximately two years.

Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters:

Using factors including the size of the damaged area (48 inches long by 1 inch wide) and an average of 10 psi, SFPUC Engineering and Operations staff have estimated that approximately 23.2 MG of final treated effluent was discharged through the effluent pipe leak from April 12-15, 2017.

Edwin M. Lee
Mayor

Anson Moran
President

Ike Kwon
Vice President

Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Vince Courtney
Commissioner

Harlan L. Kelly, Jr.
General Manager

approximately 23.2 MG of final treated effluent was discharged through the effluent pipe leak from April 12-15, 2017. Zero gallons have been recovered.

Location of the threatened or involved waterway(s) or storm drains:
Islais Creek, which flows into San Francisco Bay.

Level of treatment prior to discharge:
Flows received primary treatment, secondary treatment, disinfection and de-chlorination, and met all permit effluent limitation requirements.

Identity of the person reporting the unauthorized discharge: Andy Clark, Superintendent of the Southeast Treatment Plant, Andy Clark, reported the event on April 12, 2017 to the California Office of Emergency Services at 12:28 p.m. (#17-2765).

Sincerely,

Mark Harris
Superintendent, Bayside Operations
Southeast Water Pollution Control Plant

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
750 Phelps Street
San Francisco, CA 94124
T 415.920.4600
F 415.550.9371

April 28, 2017

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
March 2017

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) March 2017 Monthly Discharge Monitoring Report.

An acute toxicity flow-through bioassay test was conducted in September resulting in 90% final survival.

On March 20, 2017, Operations staff notified the Office of Emergency Services (OES) at approximately 11:38 pm (#17-2264) of a potential unauthorized discharge. At the time the report was made Operations had limited information but wanted to provide appropriate notification in case an event had occurred. After investigation it was determined that no unauthorized discharged had occurred. A Report regarding this investigation was submitted to Ms. Watkins on March 30, 2017.

The quarterly required PCB report is included with this submission to CIWQS. Oil & Grease exceeded the monthly average limit of 10mg/l at 14mg/l (there were no exceedances of the daily maximum (20mg/l) during the month). Due to this occurrence of an elevated monthly Oil & Grease result we will increase sampling frequency.

In March, 3.85" of rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility operated seven times and treated 563.47 MG. There were three combined sewer discharge (CSD) events.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	1	2	0
2016-17 Season	10	16	3
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, Mark Harris, at 415-920-4923, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Mark A. Harris
Superintendent, Bayside Operations

Edwin M. Lee
Mayor

Vince Courtney
President

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General Manager

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EFF-003	pH	Monthly Minimum	=	7	SU	04/06/2017	None
EFF-003	pH	Monthly Maximum	=	7.5	SU	04/08/2017	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Maximum Daily (MDEL)	=	425	mg/L	04/05/2017	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	319	mg/L	04/30/2017	None
INF-001	Cyanide, Total (as CN)	Maximum Daily (MDEL)	<	4	ug/L	04/10/2017	None
INF-001	Flow	Maximum Daily (MDEL)	=	177	MGD	04/07/2017	None
INF-001	Flow	Average Monthly (AMEL)	=	73.1	MGD	04/30/2017	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	834	mg/L	04/12/2017	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	257	mg/L	04/30/2017	None

Total Calculated Data Points: 104

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1043584	04/12/2017	Order Conditions	At approximately 10:45 a.m. on April 12, 2017, SFPUC discovered a leak from a 48	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP E001A Toxicity 201704.pdf	E001A	15 KB
SEP E001B Toxicity 201704.pdf	E001B	15 KB
SEP E003 Toxicity 201704.pdf	E003	13 KB
SEP Shoreline 201704.pdf	Shoreline Report	53 KB

Total Attachments: 4

Cover Letter

File Name
APRIL BAYSIDE DRAINAGE A.pdf
SEP--4-2017.pdf

Total No. of Cover Letter Files: 2 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
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CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	May 1, 2017
Test Organism:	rainbow trout	Test ended:	May 5, 2017
Organism batch ID:	RT-1707	Prepared by:	L Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	7	3	0	3	0	3	0	3	50
	replicate 2	10	3	7	0	7	0	7	0	7	

TUa **1.00**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.6	11.1	11.7	11.5	11.2	13.2	11.1	12.1	11.5	11.2
pH (units)	7.02	6.54	7.59	8.28	7.42	6.91	6.39	6.58	6.91	6.72
Dissolved oxygen (mg/L)	8.5	7.9	9.4	8.9	9.8	7.2	7.9	7.4	7.9	5.4
Residual chlorine (mg/L)	0.0	0.0	0.0	0.0	0.0	-0.8	-0.9	-0.1	0.0	-0.1
Alkalinity (mg/L)	42				54	260	286	262	284	298
Hardness (mg/L)	92				116	212	212	190	200	216
Conductivity (µS/cm)	NT				194	NT	NT	1779	1937	1902
Total ammonia (mg/L)	0.4				0.1	35.0	40.0	40.4	47.2	47.9

NT = Not taken

Note: From 50-hrs after test initaition through test termination, effluent and control exposures were gently aerated to ensure dissolved oxygen levels of at least 60% saturation.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
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San Francisco, CA 94124
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May 19, 2017

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
April 2017

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) April 2017 Monthly Discharge Monitoring Report.

An acute toxicity flow-through bioassay test was conducted in April resulting in 50% final survival. Investigative bioassay tests were conducted although initiation of accelerated bioassay was not required at this time (see NPDES permit at IV.A.4 (p8-9)).

Wet weather samples were collected at EFF-001B, EFF-002, and EFF-003 monitored for priority pollutants in March 2017 as required by the permit.

On April 4, 2017, Operations staff notified the Office of Emergency Services (OES) at approximately 14:02 pm (#17-2581) of a leak under Pier 80 near the vent pipe for the Southeast Treatment Plant. A Report regarding this investigation was submitted to Ms. Watkins of the California Regional Water Quality Control Board on April 11, 2017.

On April 12, 2017, Operations staff notified OES at approximately 12:28 pm (#17-2765) of a leak under Pier 80 near the vent pipe for the Southeast Treatment Plant. A Report regarding this investigation was submitted to Ms. Watkins of the California Regional Water Quality Control Board on April 19, 2017.

In April, 2.65" of rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility operated eleven times and treated 87.63 MG. There were two combined sewer discharge (CSD) events.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	1	1	0
2016-17 Season	11	17	3
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, Mark Harris, at 415-920-4923, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Mark A. Harris

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June 30, 2017

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
May 2017

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) May 2017 Monthly Discharge Monitoring Report.

An acute toxicity flow-through bioassay test was conducted in September resulting in 90% final survival.

Pursuant to the Regional Board's letter dated November 10, 2014, the semi-annually required chronic toxicity results with comments (zeolite treated effluent-5Uc and untreated effluent -20 TUc) have been uploaded to CIWQS. A report of ammonia add-back testing at 10% effluent toxicity has been included as a pdf to the CIWQS submission. .

The quarterly required PCB report is included with this submission to CIWQS.

In May, no rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility did not operate and there were no combined sewer discharge (CSD) events.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	0	0	0
2016-17 Season	10	16	3
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, Mark Harris, at 415-920-4923, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,
Mark A. Harris
Superintendent, Bayside Operations

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October18, 2017

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: 5-Day Report for final effluent chlorine exceedance through the Pier 80 outfall (discharge point EFF-001) reported on October 11, 2017 to Cal OES (Control #17-7423), Southeast Water Pollution Control Plant/ NPDES CA0037664.

Dear Ms. Watkins:

This letter constitutes the 5-Day Report regarding an incident at the Southeast Treatment Plant (SEP) that the San Francisco Public Utilities Commission (SFPUC) reported to Cal OES on October11, 2017 at 9:13 pm (#17-7423). SFPUC staff reported that due to a power outage, an estimated 300,000 gallons of effluent with positive chlorine residual were discharged through the Pier 80 final effluent outfall (EFF-001) at approximately 7:41 pm.

Upon investigation, staff has determined that only approximately 41,700 gallons had a positive chlorine residual at Monitoring Location EFF-001A (Monitoring Location EFF-001A is located at the treatment plant approximately two miles from discharge point EFF-001). During the power outage event, staff acted quickly to contain the flow and, upon first notification of the positive chlorine residual, took steps which eliminated the positive residual within two minutes of detection.

As an indication of the impact of this event, the SEP flow through bioassay sampling on October 10, 2017 through October 14, 2017 (which overlapped this event) had a survival rate of ninety percent. The test met all acceptable criteria for our discharge permit.

Incident description and cause:

On October 11, 2017, SEP was in dry weather mode and effluent flow from SEP was approximately 30 million gallons per day (MGD). At approximately 6:44 pm, a PGE power glitch occurred, causing the hypochlorite pumps and bisulfite pumps to fail. The automatic chemical flow controllers were also lost.

Staff opened the V-20 bypass at 6:56 pm (diverting flow from the outfall) and stabilized the hypochlorite and bisulfite dosing manually. Titrations being done approximately every 10 minutes showed no positive chlorine residual. A titration taken at approximately 7:41 pm, however, showed a positive residual of 0.5 (mg/L). Staff immediately increased the bisulfate dosing. The next titration, taken 2 minutes later,

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showed that the positive chlorine residual had been eliminated (-2.9 mg/L). All subsequent sampling (taken at 7:54 pm, 8:13 pm, then hourly) similarly showed no positive chlorine residual.

Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters:
Staff estimate that with the plant flow at 30 MGD, approximately 41,700 gallons had the potential for a positive chlorine residual at Monitoring Location EFF-001A.[1] Engineering and Operations staff utilized engineering knowledge of the plant infrastructure, log books, and DSC data regarding flow volumes for this calculation.

Efforts implemented to minimize public exposure to the discharge:
Public exposure to the chlorinated effluent was unlikely because the discharge occurred approximately 7,920 feet offshore for approximately two minutes. According to our biologist staff, any chlorine in the discharge would have dissipated shortly after the discharge.

Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted.
A visual inspection of the Bay in the vicinity of the discharge was conducted by vessel on October 12, 2017 at approximately 1:00 p.m. No adverse effects or impacts were observed (e.g., no discoloration or evidence of a fish kill). Birds (pelican, Western gull, cormorant, and tern) and California sea lions were observed in the area.

The event occurred in the evening after dark when it would have been unsafe for staff biologists to take a sample in a timely fashion for accurate testing for chlorine (which would need to be taken within an hour or two of the discharge). A sample was taken the next day (October 12) which did not test positive for chlorine.

Corrective measures taken to minimize the impact of the discharge:
Upon first notification of the positive chlorine residual, staff immediately increased the bisulfate feed. A second sample was taken two minutes later showed no positive chlorine residual. All subsequent samples also showed no positive chlorine residual.

Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future:
To minimize the chance of another power outage at the chlorination/dechlorination station, a project is currently in progress for installing a backup power generator which will increase station reliability. That project is scheduled to be completed within 60 days. Staff's response to this event was appropriate.

Summary of the Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges:
No modifications to the Spill Prevention Plan are needed at this time.

---

[1] This calculation is based on 30 MGD influent flow rate over a two minutes time period during which the positive chlorine residual occurred. This calculation is conservative; the amount discharged through Booster Pump Station was significantly reduced due to the open V-20 bypass. This volume estimate is less than the amount initially reported to CalOES because staff had incomplete information at the time and, in an excess of caution, reported a volume based on longer time period which encompassed potential exposure as understood at that time. The investigation has concluded that the time period of exposure was two minutes, resulting in a lower volume than initially reported to CalOES.

Estimated quantity and duration of the discharge, and the estimated amount recovered:
The estimated quantity was 41,700 gallons. The duration of the discharge was approximately two minutes. Zero gallons were recovered.

Location of the threatened or involved waterway(s) or storm drains:
The discharge point for the water affected by this event was EFF-001 (Latitude 37° 75' 50"N Discharge Point Longitude 122° 37' 25"W).

Level of treatment prior to discharge:
Flows received primary treatment, secondary treatment, disinfection and incomplete dechlorinating for approximately two minutes.

As a measure of the extent to which this had an impact on the final effluent, the results of SEP flow through bioassay sampling on October 10, 2017 through October 14, 2017 (during which this event occurred) had a survival rate of ninety percent. The test met all acceptable criteria for our discharge permit.

Identity of the person reporting the unauthorized discharge:
Carla Godfrey, Chief of Operations at the Southeast Treatment plant

Sincerely,

Mark A. Harris
Superintendent, Bayside Operations
Southeast Water Pollution Control Plant

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October 27, 2017

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: 5-Day Report for fully treated discharge through the Quint Street outfall (discharge point EFF-002) reported on October 20, 2017 to Cal OES (Control #17-7634), Southeast Water Pollution Control Plant/ NPDES CA0037664.

Dear Ms. Watkins:

This letter constitutes the 5-Day Report regarding an incident at the Southeast Treatment Plant (SEP) that the San Francisco Public Utilities Commission (SFPUC) staff reported to Cal OES on October 20, 2017.

Incident description and cause:

On October 20, 2017, SEP was in dry weather mode and treated effluent from SEP was discharging through the outfall at a rate of approximately 63 million gallons per day (MGD). Just after midnight, at 12:35 a.m., SEP experienced PG&E power outage (i.e., sustained power loss) which caused Booster Pump Station pumps to cease operation. A Booster Pump Station delivers the plant's final effluent to the outfall pipe which delivers the effluent to the outfall diffusers offshore of Pier 80. The PG&E power outage also stopped the bypass valve (V-20) from operating as well.

Without the ability to operate the Booster Pump Station, or utilize V-20 to keep the effluent within the plant, the final treated effluent built up behind the weir and discharged through EFF-002 (Quint Street outfall) at 12:37 a.m. Plant staff shut down the plant at 1:15 a.m. to stop the discharge. Approximately 228,600 gallons of final treated, disinfected and decholorinated effluent, was discharged through EFF-002 to Islais Creek. Staff reported the event to Cal OES (#17-7634).

Power was restored at approximately 6:00 a.m. and the plant was brought back on line at approximately 7:00 a.m.

Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters:

The volume of discharge that staff reported to CalOES was 13,900 gallons. This estimate was made with limited information and reflected staff's understanding of conditions at the time. Staff has refined the original estimate utilizing an alternative method of calculation, based on a time period of 28 minutes and a flow rate of 63 MGD, and concluded that 228,600 gallons were discharged. Sources of data for this

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conclusion include DCS data, log book entries, log sheet, and engineering knowledge of plant infrastructure.

Efforts implemented to minimize public exposure to the discharge:
Staff posted no swimming advisory signs at the nearest recreational access point to EFF-002, the Islais Creek kayak launch dock, on October 20, 2017, at approximately 8:00 a.m., and provided public notification (e.g., email list, website, hotline). The advisory sign was removed at 9:00 a.m., October 22, 2017 after all bacteria samples results were below state bacteria standards.

Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted.
A visual inspection was conducted on October 20, 2017 at approximately 8:00 a.m. No adverse effects or impacts were observed. Nor were any visible impacts to wildlife observed. Staff took bacteria samples at approximately 8:00 a.m. Samples were taken again on October 21, 2017. The results are as follows:

October 20
Total coliform 17,329 MPN/100mL
E. coli 31 MPN/100mL
Enterococcus 75 MPN/100mL

October 21
Total coliform 717 MPN/100mL
E. coli 41 MPN/100mL
Enterococcus 10 MPN/100mL

The only result which exceeded state bacterial standards was the October 20th Total Coliform (TC) result. Given that the other test results were below state standards, our biologist staff believe that the high TC result was caused by either resuspension of creek sediment due to the flow from the discharge, or a false positive from the IDEXX Colilert test. A sample taken of plant effluent at 9:30 a.m. on October 20, 2017 had a result of 50 MPN/100mL for fecal coliform.

Corrective measures taken to minimize the impact of the discharge:
Operations staff acted to shut down the plant within 40 minutes of the power outage at Booster Pump station to prevent additional discharge at EFF-002.

Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future:
A project has been approved to install a backup power generator which will be available to power V-20. This will improve the plant's ability to contain effluent and prevent it from discharging should Booster Pump Station lose power in the future. This project is scheduled to be completed 2020.

Summary of the Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges:
Staff acted appropriately for the circumstances. No modifications to the Spill Prevention Plan are needed were needed at this time.

Estimated quantity and duration of the discharge, and the estimated amount recovered:

The estimated quantity was 228,600 gallons, with duration of 40 minutes. Zero gallons were recovered.

Location of the threatened or involved waterway(s) or storm drains: South-east Treatment plant Discharge Point E-002 (Latitude 37° 75' 50"N Discharge Point Longitude 122° 37' 25"W).

Level of treatment prior to discharge:
Discharged flows received full primary treatment, secondary treatment, disinfection and complete dechlorinating.

Identity of the person reporting the unauthorized discharge: Andy Clark, Superintendent of Operations at the Southeast Treatment Plant.

Sincerely ,

Mark A. Harris
Operations Superintendent, Bayside
Southeast Water Pollution Control Pant

INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	296	mg/L	10/31/2017	None
INF-001	Cyanide, Total (as CN)	Maximum Daily (MDEL)	<	4	ug/L	10/02/2017	None
INF-001	Flow	Maximum Daily (MDEL)	=	85.9	MGD	10/20/2017	None
INF-001	Flow	Average Monthly (AMEL)	=	56.5	MGD	10/31/2017	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	904	mg/L	10/19/2017	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	323	mg/L	10/31/2017	None

Total Calculated Data Points: 59

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1043955	10/11/2017	Category 2 Pollutant (Effluent Violation for Group 2 Pollutant)	Chlorine, Total Residual Instantaneous Maximum limit is 0.0 mg/L and reported va	Bisulfite dosing was increased immediately. SFPUC reported that it will install a backup power generator to increase power reliability within 60 days.	Case Worker	Water Board Staff
1043956	10/20/2017	Order Conditions	Approximately 228,600 gallons of fully-treated, chlorinated and dechlorinated ef	In 2020, SFPUC plans to install a backup power generator to power the valve (V-20) that will prevent discharge should the Booster Pump Station lose power again in the future.	Case Worker	Water Board Staff

Total Violations: 2

Attachments

File Name	Description	Size
SEP E001A Toxicity 201710.pdf	E001A	15 KB
SEP Shoreline 201710.pdf	Shoreline Report	38 KB

Total Attachments: 2

Cover Letter

File Name
OCTOBER BAYSIDE DRAINAGE REPORT 2017.pdf
SEP-10-2017.pdf

Total No. of Cover Letter Files: 2 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
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CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Static-Acute Bioassay Test -- REPORT

North Point Wet-Weather Facility Final Effluent (EFF-003)

Exposure volume: 4L
Test Organism: Rainbow trout
Organism batch ID: RT-1714
Sample Date: November 9, 2017
Sample Lab-ID: 17-EFF-065

Test Started: November 9, 2017
Test Ended: November 13, 2017
Prepared by: L. Targgart
Approved by: R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	
Effluent	rep 1	10	0	10	4	6	6	0	-	0	0
	rep 2	10	0	10	7	3	3	0	-	0	

TUa **1.18**

Water Quality Data

Control	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.9	12.8	12.2	13.0	12.2	12.0
pH (units)	7.59	7.85	7.42	7.55	7.66	7.33
Dissolved oxygen (mg/L)	10.2	9.6	9.9	10.1	15.3	10.0
Hardness (mg/L)	90			96		92
Alkalinity (mg/L)	64			64		64
Conductivity (υS/cm)	307			309		321

Effluent	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours
Temperature (°C)	12.7	12.7	12.0	13.0	11.9
pH (units)	6.97	7.85	7.46	7.24	7.38
Dissolved oxygen (mg/L)	8.3	9.7	9.9	9.4	15.0
Hardness (mg/L)	90			76	84
Alkalinity (mg/L)	44			50	54
Conductivity (υS/cm)	516			512	507
Residual chlorine (mg/L)	-16.5				
Total ammonia (mg/L)	9.5				

Comments: In order to maintain dissolved oxygen levels of at least 60% saturation, control and effluent exposures were gently aerated (60-100 bubbles/min) from five-hours after test initiation through test termination. Effluent and control exposures were also gently oxygenated for two hours (from 71-hours through 73-hours after test-initiation) in order to ensure dissolved oxygen levels within protocol requirement

Reference:

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Static-Acute Bioassay Test -- REPORT

North Point Wet-Weather Facility Final Effluent (EFF-003)

Exposure volume: 4L
Test Organism: Rainbow trout
Organism batch ID: RT-1714
Sample Date: November 10, 2017
Sample Lab-ID: 17-EFF-066

Test Started: November 11, 2017
Test Ended: November 15, 2017
Prepared by: L. Targgart
Approved by: R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	
Effluent	rep 1	10	0	10	0	10	2	8	1	7	60
	rep 2	10	0	10	2	8	3	5	0	5	

TUa **0.94**

Water Quality Data

Control	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.1	11.7	11.9	13.5	12.3	12.6
pH (units)	7.72	7.80	7.54	7.56	7.35	7.61
Dissolved oxygen (mg/L)	10.3	10.4	10.4	9.6	15.3	11.9
Hardness (mg/L)	102			104		100
Alkalinity (mg/L)	76			64		58
Conductivity (υS/cm)	313			308		398

Effluent	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.3	12.3	12.3	13.3	12.8	12.6
pH (units)	7.19	7.41	7.44	7.34	7.34	7.42
Dissolved oxygen (mg/L)	8.9	8.1	9.7	7.2	14.2	10.6
Hardness (mg/L)	94			100		112
Alkalinity (mg/L)	96			92		88
Conductivity (υS/cm)	875			874		870
Residual chlorine (mg/L)	-11.0					
Total ammonia (mg/L)	18.4					

Comments: In order to maintain dissolved oxygen levels of at least 60% saturation, control and effluent exposures were gently aerated (60-100 bubbles/min) from test initiation through test termination.
Effluent and control exposures were also gently oxygenated from 24- through 94-hours after test initiation in order to ensure dissolved oxygen levels within protocol requirement

Reference:

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	November 27, 2017
Test Organism:	rainbow trout	Test ended:	December 1, 2017
Organism batch ID:	RT-1715	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	0	10	2	8	2	6	1	5	50
	replicate 2	10	0	10	2	8	2	6	1	5	

TUa **1.00**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	12.0	11.6	11.6	11.6	11.5	11.6	11.5	11.4	11.7	11.6
pH (units)	6.80	6.97	7.13	7.60	7.54	6.40	6.18	6.43	6.97	6.78
Dissolved oxygen (mg/L)	8.8	7.7	8.0	8.4	7.9	7.2	7.5	7.2	8.0	7.1
Residual chlorine (mg/L)	-0.1	0.0	0.0	0.0	0.0	-1.1	-1.2	-0.7	-1.2	-0.9
Alkalinity (mg/L)	18				20	96	190	236	254	252
Hardness (mg/L)	30				44	90	142	192	212	228
Conductivity (µS/cm)	76				55	747	1410	2117	2207	2386
Total ammonia (mg/L)	0.02				< 0.4	15.7	29.7	38.7	46.3	40.4

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration (~100 bubbles/min) of effluent and control exposure solutions from 45hrs after test-initiation through test-termination to maintain adequate dissolved oxygen levels.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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November 30, 2017

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
October 2017

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) October 2017 Monthly Discharge Monitoring Report.

An acute toxicity flow-through bioassay test was conducted in October resulting in 90% final survival.

On October 11, 2017, an incident was reported to CalOES (Control #17-17423). The 5-day report for this event (submitted to the Regional Board on October 18, 2017) stated that due to a power glitch, approximately 41,000 gallons with the potential for a positive chlorine residual were discharged through the Pier 80 final effluent outfall (EFF 001).

On October 20, 2017, an incident was reported to CalOES (Control #17-17634). The 5-day report for this event (submitted to the Regional Board on October 27, 2017) stated that due to a power outage, approximately 228,600 gallons of final treated, disinfected and declorinated effluent was discharged through the Quint Street outfall to Islais Creek (EFF 002).

In October, 0.19" rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility operated once but did not discharge any flow. There were no combined sewer discharge (CSD) events.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	0	0	0
2017-18 Season	0	0	0
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, Mark Harris, at 415-920-4923, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Mark A. Harris
Superintendent, Bayside Operations

Edwin M. Lee
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ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=1348883

INF-001	Cyanide, Total (as CN)	Maximum Daily (MDEL)	<	4	ug/L	11/07/2017	None
INF-001	Flow	Maximum Daily (MDEL)	=	249	MGD	11/16/2017	None
INF-001	Flow	Average Monthly (AMEL)	=	68.6	MGD	11/30/2017	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	612	mg/L	11/07/2017	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	323	mg/L	11/30/2017	None

Total Calculated Data Points: 111

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1043827	11/27/2017	Acute Toxicity	Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported val	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP 1668c PCB Congeners Qtrly 201711.pdf	PCB Congeners by EPA 1668C	648 KB
SEP E001A Toxicity 201711.pdf	E001A	15 KB
SEP E001B Toxicity 201711.pdf	E001B	15 KB
SEP E003 Toxicity 201711a.pdf	E003, 1 of 3	15 KB
SEP E003 Toxicity 201711b.pdf	E003, 2 of 3	15 KB
SEP E003 Toxicity 201711c.pdf	E003, 3 of 3	15 KB
SEP Semi-Annual Chronic Toxicity 201711 Ammonia Add-back 10% Effluent.pdf	Chronic - Ammonia Add-back	50 KB
SEP Semi-Annual Chronic Toxicity 201711 Untreated Effluent.pdf	Chronic - Untreated Effluent	13 KB
SEP Semi-Annual Chronic Toxicity 201711 Zeolite Treated Effluent.pdf	Chronic - Zeolite treated effluent	13 KB
SEP Shoreline 201711.pdf	Shoreline Report	50 KB

Total Attachments: 10

Cover Letter

File Name
NOVEMBER BAYSIDE DRAINAGE REPORT 2017.pdf
SEP-11-2017.pdf

Total No. of Cover Letter Files: 2 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

Back to Main Page | Back to Top of Page

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CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	December 4, 2017
Test Organism:	rainbow trout	Test ended:	December 8, 2017
Organism batch ID:	RT-1716	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	3	7	2	5	0	5	0	5	40
	replicate 2	10	4	6	3	3	0	3	0	3	

TUa **1.05**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.7	12.1	11.3	11.2	11.3	12.6	11.8	11.5	11.3	11.5
pH (units)	7.52	7.22	7.57	7.66	7.91	6.71	6.74	6.81	6.69	6.84
Dissolved oxygen (mg/L)	7.8	6.8	8.1	7.5	8.0	7.4	7.5	7.4	7.4	5.4
Residual chlorine (mg/L)	0.0	0.0	0.0	0.0	0.0	-2.1	-0.8	-1.3	-0.9	-1.2
Alkalinity (mg/L)	16				14	226	270	262	250	268
Hardness (mg/L)	12				20	260	252	252	236	210
Conductivity (µS/cm)	69				60	2521	2573	2336	2282	2318
Total ammonia (mg/L)	< 0.02				< 0.4	40.5	46.0	44.6	44.7	44.3

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration (~100 bubbles/min) of effluent and control exposure solutions from test-initiation through test-termination to maintain adequate dissolved oxygen levels.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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12/28/2017

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
November 2017

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) November 2017 Monthly Self-Monitoring Report.

Test organism survival during the November 2017 acute flow-through bioassay was 50%. The bioassay test met all test acceptability criteria. The combination of the May 2017 and November 2017 flow-through test results indicate that the 11-sample 90th percentile requirement for the SEP was not met. Staff initiated accelerated flow-through acute bioassay testing in December 2017 which will continue until the 11-sample 90th percentile requirement has been met. Staff also initiated additional static acute bioassay testing to identify the source of the increased toxicity that occurred during the November test and are investigating plant processes.

Samples were collected on 10/4/2017 at Monitoring Station EFF-001A for the permit required Effluent Characterization Study for dry weather. No priority pollutants tested were detected at or above applicable water quality criteria.

The quarterly required PCB congener report is included with this submission to CIWQS.

Pursuant to the Regional Board's letter dated November 10, 2014, the semi-annually required chronic toxicity results with comments (zeolite treated effluent-10 TUc and untreated effluent -40 TUc) have been uploaded to CIWQS. A report of ammonia add-back testing at 10% effluent toxicity has been included as a pdf attachment to the CIWQS submission.

In November, 2.8" rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility operated and treated 106.3 MG. There were two combined sewer discharge (CSD) events. One discharge occurred in the North Shore Basin and one in the Central Basin.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	1	1	0
2017-18 Season	1	1	0
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, Mark Harris, at 415-920-4923, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

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General Manager

Services of the San Francisco Public Utilities Commission that values environmental and community interests and sustains the resources entrusted to our care.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Mark A. Harris
Superintendent, Bayside Operations

EFF-001A	Orthophosphate, Dissolved (as P)	Maximum Daily (MDEL)	=	208	kg/day	12/31/2017	None
EFF-001A	Phosphorus, Total (as P)	Maximum Daily (MDEL)	=	3.84	mg/L	12/11/2017	None
EFF-001A	Phosphorus, Total (as P)	Maximum Daily (MDEL)	=	815	kg/day	12/31/2017	None
EFF-001A	Phosphorus, Total (as P)	Average Monthly (AMEL)	=	492	kg/day	12/31/2017	None
EFF-001A	Phosphorus, Total (as P)	Average Monthly (AMEL)	=	2.3175	mg/L	12/31/2017	None
EFF-001A	Total Kjeldahl Nitrogen (TKN) (as N)	Maximum Daily (MDEL)	=	45	mg/L	12/11/2017	None
EFF-001A	Total Kjeldahl Nitrogen (TKN) (as N)	Maximum Daily (MDEL)	=	9552	kg/day	12/31/2017	None
EFF-001A	Total Kjeldahl Nitrogen (TKN) (as N)	Average Monthly (AMEL)	=	7992	kg/day	12/31/2017	None
EFF-001A	Total Kjeldahl Nitrogen (TKN) (as N)	Average Monthly (AMEL)	=	37.65	mg/L	12/31/2017	None
EFF-001A	Total Suspended Solids (TSS)	High Weekly Average	=	28	mg/L	12/31/2017	None
EFF-001A	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	21	mg/L	12/31/2017	None
EFF-001A	Total Suspended Solids (TSS), Percent Removal	Percent Reduction	=	94	%	12/31/2017	None
EFF-001A	pH	Monthly Maximum	=	7.4	SU	12/05/2017	None
EFF-001A	pH	Monthly Minimum	=	6.6	SU	12/18/2017	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Maximum Daily (MDEL)	=	445	mg/L	12/16/2017	None
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Average Monthly (AMEL)	=	357	mg/L	12/31/2017	None
INF-001	Cyanide, Total (as CN)	Maximum Daily (MDEL)	<	4	ug/L	12/04/2017	None
INF-001	Flow	Maximum Daily (MDEL)	=	73.9	MGD	12/20/2017	None
INF-001	Flow	Average Monthly (AMEL)	=	54.1	MGD	12/31/2017	None
INF-001	Total Suspended Solids (TSS)	Maximum Daily (MDEL)	=	659	mg/L	12/15/2017	None
INF-001	Total Suspended Solids (TSS)	Average Monthly (AMEL)	=	366	mg/L	12/31/2017	None

Total Calculated Data Points: 58

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1043828	12/04/2017	Acute Toxicity	Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported val	None	Case Worker	Water Board Staff
1043959	02/12/2018	Acute Toxicity	Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported val	None	Case Worker	Water Board Staff

Total Violations: 2

Attachments

File Name	Description	Size
SEP E001A Toxicity 201712a.pdf	E001A, 1 of 2	15 KB
SEP E001A Toxicity 201712b.pdf	E001A, 2 of 2	15 KB
SEP Shoreline 201712.pdf	Shoreline Report	34 KB

Total Attachments: 3

Cover Letter

File Name
FINAL Dec 2017 eSMR Bayside.pdf
SMR-12-2017.pdf

Total No. of Cover Letter Files: 2 **Cover Leter Text: No**

Law Offices of
Thomas N. Lippe, APC

201 Mission Street
12th Floor
San Francisco, CA 94105

Telephone: 415-777-5604
Facsimile: 415-777-5606
Email: lippelaw@sonic.net

September 11, 2020

By Email: *EIR@ucsf.edu*
Ms Diane Wong
UCSF Real Estate - Campus Planning
654 Minnesota Street
San Francisco, CA 94143-0286

Re: Comprehensive Parnassus Heights Plan Draft Environmental Impact Report: Comments on Water Quality, Water Recreation, and Wastewater Public Services – Exhibit 14b

Dear Ms Wong:

This office represents San Franciscans for Balanced and Livable Communities (San Franciscans), a citizen's group composed of San Francisco residents.

We submitted to you by email a letter of today's date under separate cover regarding "Comments on Water Quality, Water Recreation, and Wastewater Public Services."

Due to the file size of Exhibit 14 to that letter, we are transmitting Exhibit 14 to you by email in two (2) separate electronic files, designated "Exhibit 14a," and "Exhibit 14b."

Attached, hereto, please find Exhibit 14b (page nos. SEP0092 through SEP0383).

Thank you for your attention to this matter.

Sincerely,

Kelly Marie

Kelly Marie Perry

T:\TL\UCSF\Administrative Proceedings\LOTNL Docs\WQ Ex\C014b Cover Ex 14b.wpd

EXHIBIT 14b

(page nos. SEP0092 through SEP0383)

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	January 2, 2018
Test Organism:	rainbow trout	Test ended:	January 6, 2018
Organism batch ID:	RT-1718	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	0	10	0	10	0	10	0	10	90
	replicate 2	10	0	10	0	10	1	9	1	8	

TUa **0.59**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.5	11.6	11.7	11.7	11.7	11.6	11.6	11.7	11.9	11.8
pH (units)	7.50	7.58	7.62	7.41	NT	6.85	6.37	6.84	6.95	6.71
Dissolved oxygen (mg/L)	8.0	9.0	8.9	8.5	9.0	7.0	7.7	7.3	6.5	7.1
Residual chlorine (mg/L)	0.0	0.0	0.0	0.0	0.0	-1.1	-0.4	-0.7	-0.5	-1.1
Alkalinity (mg/L)	22				26	236	250	198	230	136
Hardness (mg/L)	32				40	416	340	260	232	120
Conductivity (µS/cm)	82				90	4350	3760	2422	2335	1085
Total ammonia (mg/L)	< 0.02				< 0.4	43.5	42.8	40.5	41.2	19.9

NT = not taken

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration (~100 bubbles/min) of effluent and control exposure solutions from initiation through termination of test.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	January 29, 2018
Test Organism:	rainbow trout	Test ended:	February 2, 2018
Organism batch ID:	RT-1801	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	2	8	0	8	0	8	0	8	85
	replicate 2	10	0	10	0	10	0	10	1	9	

TUa **0.69**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.6	11.4	11.2	11.2	11.2	12.4	11.5	11.5	11.5	11.5
pH (units)	7.44	7.20	7.37	7.18	7.75	6.72	6.98	6.92	6.90	6.86
Dissolved oxygen (mg/L)	7.8	9.6	7.9	7.8	7.8	7.1	8.4	7.5	7.0	6.3
Residual chlorine (mg/L)	0.0	-0.1	0.0	0.0	0.0	-1.3	-0.9	-0.5	-0.4	-0.6
Alkalinity (mg/L)	10				10	226	276	252	268	262
Hardness (mg/L)	20				22	272	262	300	294	260
Conductivity (µS/cm)	50				50	2636	2622	2970	3060	2617
Total ammonia (mg/L)	< 0.02				< 0.02	48.8	49.0	46.8	50.4	52.6

NT = not taken

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration (~100 bubbles/min) of effluent and control exposure solutions for the first 20-hours of testing.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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January 30, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Southeast WPCP
NPDES/CA0037664
Monitoring Report
December 2017

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) December 2017 Monthly Self-Monitoring Report.

Two acute toxicity flow-through bioassay tests were conducted in December resulting in 40% and 100% survival rates. The 11-sample 90th percentile permit requirement for SEP was not met in December 2017 due to the acute flow-through test results from May, November and December 2017. Accelerated testing and additional investigations were initiated during December 2017 and will continue until the 11th-sample percentile requirement is met.

In December 0.07" rain was recorded at the Southeast Water Pollution Control Plant. The North Point Wet Weather Facility did not operate. There were no combined sewer discharge (CSD) events.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	0	0	0
2017-18 Season	1	1	0
Design Criteria	4	10	1

If you have any questions concerning this report, please call: Superintendent, Mark Harris, at 415-920-4923, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew M Clark

Andrew M. Clark
Superintendent, Bayside Operations

Edwin M. Lee
Mayor

Ike Kwon
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Vince Courtney
Vice President

Ann Moller Caen
Commissioner

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Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

750 Phelps Street
San Francisco, CA 94124
T 415.920-4944

February 1, 2018

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland CA 94612

NPDES/CA 0037664
2017 Annual Report

RE: Southeast Water Pollution Control Plant and Bayside Wet Weather Facilities 2017 Annual Self-Monitoring Report

Dear Jessica:

Transmitted herewith is the annual self-monitoring report for the Southeast Water Pollution Control Plant (WPCP), the North Point Wet Weather Facility (WWF), and Bayside Wet Weather Facilities and Wastewater Collection System for the calendar year 2017, pursuant to Order No. R2-2013-0029, NPDES Permit No. CA0037664 (Southeast WPCP NPDES Permit).

A. Treatment Plant Compliance and Performance

1. Volume Treated

The Southeast WPCP treated a total of 25.41 billion gallons of combined sanitary, industrial, and storm water in 2017 while the North Point Wet Weather Facility treated a total of 1.34 billion gallons[1] of combined sanitary, industrial and storm water. The average dry weather flow for the Southeast WPCP was 51.41 million gallons per day (MGD), calculated using flows from three consecutive dry weather months (July, August, and September).

2. Combined Sewer Discharges

The following table shows the frequency of combined sewer discharges (CSDs) during 2017. A complete wet weather annual report covering the wet weather season from July 2017 through June 2018 will be submitted in July 2018 and will include all the wet weather events for that period.

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Ike Kwon
President

Vince Courtney
Vice President

Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Anson Moran
Commissioner

Harlan L. Kelly, Jr.
General Manager

[1] In July, the North Point Wet Weather Facility (NPF) used its storage tanks to hold 1.32 million gallons of flow during a SEP shutdown event. This flow was eventually sent to SEP for treatment, not discharged at NPF, so this amount was not included in the NPF treated total.

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

2017 Combined Sewer Discharge Frequency

	Month												Total
	J[2]	F	M	A	M	J	J	A	S	O	N	D	
North Shore Basin	3	3	1	1	0	0	0	0	0	0	1	0	9
Central Basin	5	4	2	1	0	0	0	0	0	0	1	0	13
Southeast Basin	2	0	0	0	0	0	0	0	0	0	0	0	2

3. Discussion of Treatment Plant Performance and Compliance

Summary of Plant Performance

The San Francisco Public Utilities Commission (SFPUC) is exempt from submittal of an annual compliance summary table and tabular and graphical summaries of monitoring data because all data for the Southeast WPCP are reported electronically. *See* Southeast WPCP NPDES Permit, Monitoring and Reporting Program (MRP), Attachment E at E-17 and Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D, Attachment G (2010) at G-18.

Consistent with the Waste Discharge Requirements for Mercury and PCBs from Municipal and Industrial Wastewater Discharges to San Francisco Bay (Order No. R2-2012-0096, NPDES No. CA0038849), Attachment A summarizes the mercury concentrations of each final effluent sample collected in 2017, the corresponding flow on the dates the sample was collected, and the annual estimated mercury load. The Southeast Plant reported USEPA Method 1668c PCB congener data with the Self-Monitoring Reports for March 2017, May 2017, August 2017, and November 2017.

Discussion of Compliance

On January 8, 2017, recreational areas in the North Shore were not sampled or posted due to different initial staff evaluations about whether a discharge had occurred (a discharge occurred but the data which confirmed that was not available at the time). On-call staff responsible for sampling and posting beaches now receive automatically generated notifications when transport/storage boxes reach levels at which a CSD could occur and proactively sample and post based on those notifications.

On January 10, 2017 at approximately 7:10 p.m., while there was a discharge occurring at CSD-029 (Mariposa), the Mariposa Pump Station lost power for fifteen minutes due to PG&E outage. Power was restored fourteen minutes later at 7:24 p.m. During this power outage, 0.1 MG was discharged at CSD-029.

During the rain storm on January 20, 2017, at approximately 4:20 a.m., a HDPE pipe split lengthwise came into the plant and jammed the bar screen at North Point Wet Weather facility, which prevented the facility from achieving influent flow levels of 135-150 MGD within 60 minutes of discharge from CSD-013 (Beach) and CSD-017 (Jackson). The HDPE pipe

[2] The January SMR cover letter listed 4 CSDs for the North Shore Basin and 4 for the Central Basin; the correct count is 3 CSDs for the North Shore Basin and 5 for the Central Basin.

was removed and the bar screen restored to service approximately 120 minutes later. The total volume of North Shore basin discharges (CSD-009 Baker; CSD-010 Pierce; CSD-013 Beach; CSD-015 Sansome; and CSD-017 Jackson) during this time was 6.4 MG.

Also during the rain storm of January 20, 2017, Griffith Pump Station did not reach 125 MGD for approximately 3 hours while discharging at CSD-040 (Griffith), CSD-041 (Yosemite), and CSD-042 (Fitch) due to an electric duct buss failure which caused the loss of one pump. This event resulted in approximately 0.3 MG of additional CSD volume to be discharged in the Southeast basin at these CSD locations. However, as the system was at full capacity at this time, this volume would have been discharged as a CSD at Islais Creek basin had it been pumped from the Griffith Pump Station. Temporary cables have been installed at the pump station which enable operation, and the electric duct buss is in the process of being replaced with work expected to be completed in 2018.

In January, 2017, Oil & Grease exceeded the monthly average limit of 10 mg/L at 11mg/L (there were no exceedances of the daily maximum (20mg/L) during the month).

On February 21, 2017, a discharge of fully treated effluent occurred due to a broken vent pipe located approximately five hundred feet from the diffuser discharge point at EFF 001. This event was reported to CalOES (Control # 17-1591) and staff submitted a 5-Day Report to the Regional Water Quality Control Board on February 28, 2017. Divers installed a new section and reconnected the pipe.

In March, 2017, Oil & Grease exceeded the monthly average limit of 10mg/L at 14mg/L (there were no exceedances of the daily maximum (20mg/L) during the month).

On April 4, 2017, SFPUC staff notified the CalOES (#17-2581) of a leak under Pier 80 near the vent pipe for the Southeast Treatment Plant. A 5-Day Report regarding this event was submitted to the California Regional Water Quality Control Board on April 11, 2017. The SFPUC is in the process of replacing the entire vent pipe both buried and hung under the Pier 80 deck which is in the environmental review process. Currently the project is expected to be completed in 2018.

On April 12, 2017, SFPUC staff notified CalOES (#17-2765) of a leak from its final effluent outfall pipe from the Southeast Treatment Plant into Islais Creek. A 5-Day Report was submitted to the California Regional Water Quality Control Board on April 19, 2017. Divers installed a patch to repair the leak. A major capital project is underway to replace this section of the outfall pipe.

On October 11, 2017, due to a PG&E power interruption, approximately 41,700 gallons with the potential for a positive chlorine residual were discharged through the Pier 80 final effluent outfall (EFF 001). This event was reported to CalOES (#17-17423) and a 5-Day Report was submitted to the Regional Board on October 18, 2017.

On October 20, 2017, due to a PG&E power outage, approximately 228,600 gallons of final treated, disinfected and dechlorinated effluent was discharged through the Quint Street outfall to Islais Creek (EFF 002). This event was reported to CalOES (Control #17-17634) and a 5-Day Report was submitted to the Regional Board on October 27, 2017.

Test organism survival during the November 2017 acute flow-through bioassay was 50%. The combination of the May 2017 and November 2017 flow-through test results indicate that the 11-sample 90th percentile requirement for the SEP was not met. In addition, the 11-sample 90th percentile permit requirement was not met in December 2017 due to the acute flow-through test results from May, November and December 2017. Accelerated testing and additional investigations were initiated during December 2017.

4. Actions Taken or Planned to Improve Plant Performance & Reliability

The following capital projects are planned for, underway or recently completed for the Southeast WPCP, North Point Wet Weather Facility and associated collection system:

2017 Capital Improvement Projects

- Bruce Flynn Pump Station (BFS) Bar Screen Improvements: Mechanical components on the two bar screens were replaced, which included the chain-links, head shaft assemblies, wiper bar assemblies, and return rail and rake assemblies. In addition, the bar fields on the two existing screens were repaired and structurally reinforced in 2017.
- Channel Pump Station (CHS) Bubbler Compressor Upgrade and Concrete Repair: This project was to upgrade existing bubbler air compressor assembly at CHS and provide concrete repair at the Division Street Outfall (DVO; Discharge Point #026). Work was completed in October 2017.
- Fixed Gas Monitoring System Upgrades: The project was to install fixed gas detectors and monitoring systems in various process buildings. Construction started in June 2014, and the construction work for SEP and BFS was completed in December 2015. The Contract includes 3-year service and maintenance of the installed fixed gas systems at SEP and BFS, with expected completion in November 2018.
- Wastewater Enterprise Distributed Control System (DCS) Upgrades Project: This project includes a 15-year Progressive Design-Build contract which was awarded to Emerson Process Management, Inc. in December 2016 with a notice to proceed (NTP) granted in March 2017. The scope of work includes full replacement of an existing Foxboro DCS with an Emerson Ovation DCS at the SEP, including bayside pump stations, BFS and CHS. This contract also includes an option to perform the design of the DCS for the Oceanside Water Pollution Control Plant (OSP) and North Point Wet Weather Facility (NPF). The project is currently completing the pre-design phase and is entering into design activities which are scheduled to be completed during the fourth quarter

of 2018. Final completion of the Emerson Ovation DCS at SEP is estimated to be in the year 2023, with completion of the Sewer System Improvement Program's (SSIP's) Biosolids and Headworks projects.

- Griffith Street Pump Station (GFS) Improvements Project (WW-651): This project is a complete station overhaul, including replacement of Dry Weather Pumps (5), Wet Weather Pumps (5), Ferric Chloride Storage and Distribution System, Electrical Controls and Distribution, station monitoring and communication systems, Bar Screens (2), Sump Dewatering Pump and piping, Influent Channel Gate activation systems, sections of the Dry Weather Pumps' discharge manifold, pumps' discharge check valves (DW/WW manifolds), force main pressure relief valves, station HVAC system, and lighting. In addition, an existing emergency generator will be overhauled. Work will begin in early 2018 and proceed through 2019.
- Islais Creek Transport/Storage (T/S) System Flush Control Valves Upgrade: This project re-established the functionality of flush control valves at the Islais Creek Transport/Storage Box (ICT). Project received NTP March 2016, and the work was substantially complete December 2017; the final testing is targeted for summer 2018.
- Mariposa Pump Station (MPS) Improvements Project (WW-667): This project is to completely rebuild MPS' Dry Weather Pumping Station to meet increased flow projections for the portion of collection system that serves MPS. Dry weather capacity under this project will increase station capacity from 1.7 MGD to a peak capacity of 5 MGD to meet demands following buildout of the Mission Bay area. The project scope includes demolition of the existing Dry Weather Pumping Station and construction of a new dry weather pumping station with new influent sewer routing as well as a larger (14") dry weather pump discharge force main (DW force main). During the construction period (2018-2020), dry weather sanitary flows will be diverted to MPS' Wet Weather Pumping Station and will be discharged through the 20-inch wet weather pump discharge force main (WW force main). The new dry weather pumping station will feature a new trench-style wet well, four (4) dry pit submersible pumps, dewatering pump, bypass piping to the existing 20-inch WW force main, fiber communications, and security upgrades. This project is scheduled for completion in 2021.
- North Point Outfall (NPO) Rehabilitation: The project was to repair reinforced concrete sewers; reline outfall pipes; remove and dispose of Bay sediments from inside, outside, and surrounding diffusers; install a corrosion protection system, and associated structural supports, for outfall pipes; and install an air release mechanism. The project received NTP in March 2017, and the expected completion is February 2018.
- Selby and Marin Outfall Upgrades: This project is to provide pre-cast covers over existing outfall structures, including concrete repairs and baffle installation. The work at Marin Street Outfall (Discharge Point #032) has been completed. The pre-cast concrete covers for Selby Street

Outfall (Discharge Point #033) are still curing and are targeted to be installed in May 2018.

- Southeast Bay Outfall (SEO) Islais Creek Crossing Replacement: The project involves replacing the portion of the SEO that crosses Islais Creek (a.k.a., Islais Creek crossing; crossing, for short) immediately parallel to, and west of, the Third Street Bridge in San Francisco. The existing Islais Creek crossing is comprised of two ductile iron pipes (36-inch and 42-inch). A leak was observed and repaired in 2017. The new Islais Creek crossing will consist of two new 54-inch outside diameter high density polyethylene (HDPE) buried pipes to replace the existing crossing section. New structures on each side of Islais Creek are proposed to tie the new pipes to the existing SEO system. The project will include actuated valves and pipes to divert flow between the new and existing systems as well as associated electrical and mechanical improvements. GHD/AGS, Joint Venture, was awarded the design support contract in May 2017. The project team is currently working on the 35% design submittal. Final completion of the project is scheduled for the year 2022.
- SEP & BFS Fire Alarm Systems: This project which replaced and upgraded the existing deteriorated and outdated fire alarm systems at SEP and BFS to current codes and standards was completed in October 2016. Additionally, the project also provided audible and visible field notification devices in high noise level process equipment areas and install missing fire alarm systems at modular buildings within SEP. The Contract includes 2-year service and maintenance of the installed fire alarm systems at SEP and BFS, with expected completion in November 2018.
- SEP Chemical System Relocation and Facility Upgrades (WW-556): The scope included replacing and relocating existing sodium hypochlorite storage tanks, pumping and piping systems; providing new mixers, for odor control and disinfection; and providing upgrades at the plant's headworks, primary treatment, and secondary treatment facilities to improve process control. Construction started in March 2014, and the construction work was completed in December 2017.
- SEP 250 MGD New Headworks (WW-628): This project involves the construction of a new all-weather 250 MGD headworks facility, consisting of state-of-the-art influent pumping, screening, grit removal, and odor control technologies. The project will include demolition of two existing antiquated headworks facilities and an existing influent lift station. The 250 MGD headworks facility will install coarse screens, fine screens with washer/compactor units, and high-efficiency grit removal units. The new odor control system will comprise of two-stage odor treatment in order to minimize odor impacts. The project will also improve visual aesthetics of associated facilities. The project is divided into three (3) Scopes: Site Preparation (Scope I), Bruce Flynn Pump Station Improvements (Scope II), and Main Headworks (Scope III). NTP for Scope I construction activities was issued on 11/15/17, and

designs for Scope II and Scope III are ongoing. Final completion of the project is scheduled for June 2023.

- SEP Primary and Secondary Clarifiers Upgrade (WW-626): The project objective is to improve reliability of the equipment and processes at SEP's Primary and Secondary Clarifiers. The major scope of work includes (1) installation of a ventilation system for the primary sedimentation tanks for odor control plus (2) mechanical upgrades to and concrete coating of primary sedimentation tanks and several secondary clarifiers. Other mechanical and electrical works are also included. NTP was March 2016, and the construction work was more than 90% complete as of December 2017.
- SEP 260 RAS Pump VFD Upgrade: Existing SEP 260 - Secondary Sludge Control Building's Return Activated Sludge (RAS) pumps' VFDs were upgraded, and RAS pump sensor status is now reported via the SEP's Distributed Control System (DCS). Project completion was in March 2017.
- SEP Cryogenic Oxygen Plant Demolition and Liquid Oxygen System Upgrades (WW-599R): This project will demolish an existing cryogenic oxygen generation plant and liquid oxygen (LOX) storage tanks and vaporizers to install new LOX storage and vaporization systems and a gaseous oxygen (GOX) supply line. In addition, the project will provide a redundant air compressor and dryer for an existing Vacuum Pressure Swing Adsorption (VPSA) plant as well as eight (8) mass flow meters to allow improved process control. Project NTP was issued on 11/27/17.
- SEP 521/522 Disinfection Upgrades (WW-613): The project objective is to upgrade the controls and chemical sampling station at SEP 521 – Postchlorination Building, relocate the electrical equipment into a new building (SEP 522 – Disinfection Electrical/HPU Structure), improve SEP's No. 3 Water system (process water), and replace valves and actuators. Concrete repair (to stop leaks) and coating of the chlorine contact channels (for corrosion protection) are also included. NTP was issued in March 2016, and the construction work was approximately 70% complete as of December 2017.
- SEP Existing Digester Gas Handling Improvements (WW-632): The project consists of Process, Building Systems, Electrical, and Controls Upgrades. Process Upgrades address deficiencies related to digester gas compressors, heat exchangers and controllers; Combined Primary and Activated Sludge (CPAS) tank; boiler and boiler stacks; waste gas flares and cogeneration cooling water system; and biofuel tank. Building Systems Upgrades include replacing roof drains and upgrading ventilation. Electrical Upgrades are related to external lighting and installation of a fire alarm at the building at SEP 800, Controls Upgrades include installation of carbon monoxide gas monitors and replacing digester gas flow meters. NTP was issued in March 2017, and the construction work was approximately 50% complete as of December 2017.

- SEP Polymer System Improvements: Two (2) polymer transfer pumps with variable frequency drives were replaced, and one (1) storage tank dewatering pump and valves were provided to improve operational reliability and flexibility for this ancillary sludge dewatering process. The project was completed in November 2017.

5. Effluent Characterization Study

For this evaluation, all constituents listed in Attachment G, Table C, except for those pollutants with effluent limitations, that were detected above the method Minimum Levels (ML) were evaluated. Estimated concentrations of constituents detected below the MLs were excluded from this evaluation because the uncertainty in the result when a constituent is detected below the ML prevents useful comparison.

Nine constituents were detected above the method MLs: Antimony, Cadmium, Chloroethane, Chloroform, Chromium III, Lead, Nickel, Toluene, and Zinc. The 2017 maximum detected level of each of the nine constituents was compared to the Maximum Effluent Concentration (MEC) as presented in Table F-9 of the Southeast Permit (Reasonable Potential Analysis). The MECs were used as the general indicators of past performance of the detected constituents.

All nine detected constituents showed decreases or no statistically significant changes or increases compared to the corresponding MECs.

The detected constituents and evaluations are summarized in the following table.

Trends for Selected Constituents

Constituent	Method Minimum Level (ML, µg/L)	2017 Maximum Detected Level (µg/L)	Past Performance[1] (µg/L)	Governing Criterion or Objective (µg/L)	Comment
Antimony	0.5	0.737	0.71	4300	Increase
Cadmium	0.25	0.68	1.3	9.36	Decrease
Chloroethane	0.5	0.513	11	No Criteria	Decrease
Chloroform	0.5	7.13	11	No Criteria	Decrease
Chromium III	0.5	0.968	3.7	No Criteria	Decrease
Lead	0.5	1.5	1.6	8.5	Decrease
Nickel	1	4.24	5.1	13	Decrease
Toluene	0.5	0.604	1.5	200,000	Decrease
Zinc	1	39.5	55	86	Decrease

[1]The Maximum Effluent Concentration (MEC) or the minimum detection level, as listed in Table F-9. Reasonable Potential Analysis in the Southeast Permit, NPDES NO. CA0037664, Order No. R2-2013-0029, is used as an indicator for past performance.

6. Biosolids

In 2017, the Southeast Treatment Plant beneficially re-used 11,641 dry metric tons of biosolids at the following locations:

Location	Dry Metric Tons
Land Application	3,773
Solano County Land Application	3,463
Sacramento County Land Application	310
Landfill Beneficial Use	6,895
Vasco Road	2,865
Potrero Hills	3,940
Altamont	90
Lystek – Liquid Biofertilizer	973
TOTAL	**11,641**

B. Approved Laboratory Analyses

See Attachment B for a list of analyses for which the SFPUC is certified.

List of Analyses Performed for the Discharger:

- Dioxin, method EPA 1613, is performed by Frontier Analytical; and
- Semi-volatile Organic Compounds, EPA 625, Caltest Analytical

List of Waived Analyses: None

C. Facility Information

1. Plan View Drawing or Map of Facility

See Attachment C.

2. Results of Annual Facility Inspection to Verify Stormwater Pollution Prevention Plan Elements

Southeast WPCP is exempt from this requirement because it routes all stormwater that falls on the facility property to the headworks of the treatment plant. *See* Southeast WPCP NPDES Permit, Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D), Attachment G (2010) at G-3.

3. Results of Annual Facility Report Reviews

Contingency Plan

The Contingency Plan was updated in April 2017, and includes a finalized Spill Prevention Plan.

Operations and Maintenance Manual

The Chief Operations Manual and the Operations Wet Weather Manual were updated in October 2017.

Wastewater Facilities Status Report
San Francisco is implementing a Wastewater Asset Management Program to enhance reliability of the plant process equipment and optimize its maintenance and operations activities by assessing the criticality of the equipment based on which equipment carries the most risk. Based on the risk of the equipment, the appropriate Maintenance, and Repair and Rehabilitation (R&R) Program strategy can enhance plant reliability. Under the process being implemented, the highest risk equipment will have the more rigorous maintenance procedures including Routine and Preventive Maintenance, Condition-based Maintenance, and Reliability-Centered Maintenance. The R&R Program sets priorities based on the highest risk equipment, and the equipment at the end of its useful life. San Francisco uses a CMMS (Computerized Maintenance Management Software) to plan, schedule, initiate and track preventive and corrective work, and record equipment condition assessments.

D. COLLECTION SYSTEM FATS, OILS AND GREASE (FOG) UPDATE
Launched in 2007, the SFGreasecycle program aims to minimize the amount of FOG discharged to the sewer system by providing a free waste grease pickup service for commercial establishments and free drop-off services for residents. The program was developed to address both source control, through collection services and public outreach, and end use, through the production of biodiesel from waste grease. To date, SFGreasecycle has collected approximately 2.9 million gallons of waste grease from over 1,000 participating food service establishments and 7 residential drop-off points located throughout San Francisco. Since 2007, the program has generated over $4.7 million in revenue for San Francisco and is expected to reduce the annual costs expended on grease related sewer blockages by sewer operations maintenance crews.

The Food Service Establishments (FSE) currently participating in the program represent approximately 35% of the total number of FSEs in San Francisco. The annual grease collected from commercial FSEs began at 6,000 gallons in 2007, grew to 300,000 gallons in 2011, and has remained steady since. The residential recycling program component has focused on resident outreach and education and now collects over 11,000 gallons a year from 7 convenient drop-off sites located throughout San Francisco at such retail vendors as Whole Foods Market and Costco.

E. PARTICIPATION IN REGIONAL EFFORTS
In 2017, the SFPUC continued its financial support of and participation in the San Francisco Estuary Institute's Regional Monitoring Program in order to fulfill the receiving water monitoring requirements of the Southeast WPCP NPDES permit. *See* Southeast WPCP NPDES Permit at E-12.

As a principal member of the Bay Area Clean Water Agencies, the SFPUC also continued to support nutrient receiving water monitoring and science plan development and implementation; participate in the development of Total Maximum Daily Loads and site-specific objectives; support implementation of the Mercury and PCBs Watershed Permit; and support implementation of the regional copper action plans.

If you have any questions concerning this report, please contact one of the following people: Superintendent, Mark Harris, at 415-920-4923; Laboratory Services Manager Kenneth Lee, at 415-920-4965 or Supervising Chemist, Dolson Kwan, at 415-920-4957.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark

Andrew Clark, Superintendent
SFPUC Wastewater Enterprise/Southeast WPCP

ATTACHMENTS
Attachment A 2017 Mercury Sampling Results
Attachment B List of Analyses for which the SFPUC is Certified
Attachment C Plant Flow Diagram

ATTACHMENT A

Mercury Information Reporting Form

Discharger: City and County of San Francisco, Southeast WW Treatment Plant

Calendar Year Reporting: 2017 Monitoring Station: E-001

Month	Sample Date	Effluent Flow to Surface Waters (mgd)	Total Mercury Concentration (µg/L)	Average Monthly Mass Load (kg/mo)
January	1/27/17	89.20	0.0089	0.0919
February	2/15/17	68.00	0.0043	0.0338
March	3/2/17	65.00	0.0039	0.0293
April	4/4/17	59.60	0.0022	0.0154
May	5/16/17	54.90	0.0028	0.0177
June	6/13/17	58.90	0.0016	0.0108
July	7/18/17	56.60	0.0032	0.0210
August	8/8/17	55.50	0.0024	0.0155
September	9/26/17	57.50	0.0031	0.0207
October	10/24/17	56.60	0.0037	0.0240
November	11/14/17	58.90	0.0029	0.0198
December	12/27/17	53.80	0.0019	0.0120
Total Mass (sum)				0.3120
Weighted Annual Mass Emission				0.3120
Average			0.0034	0.0260

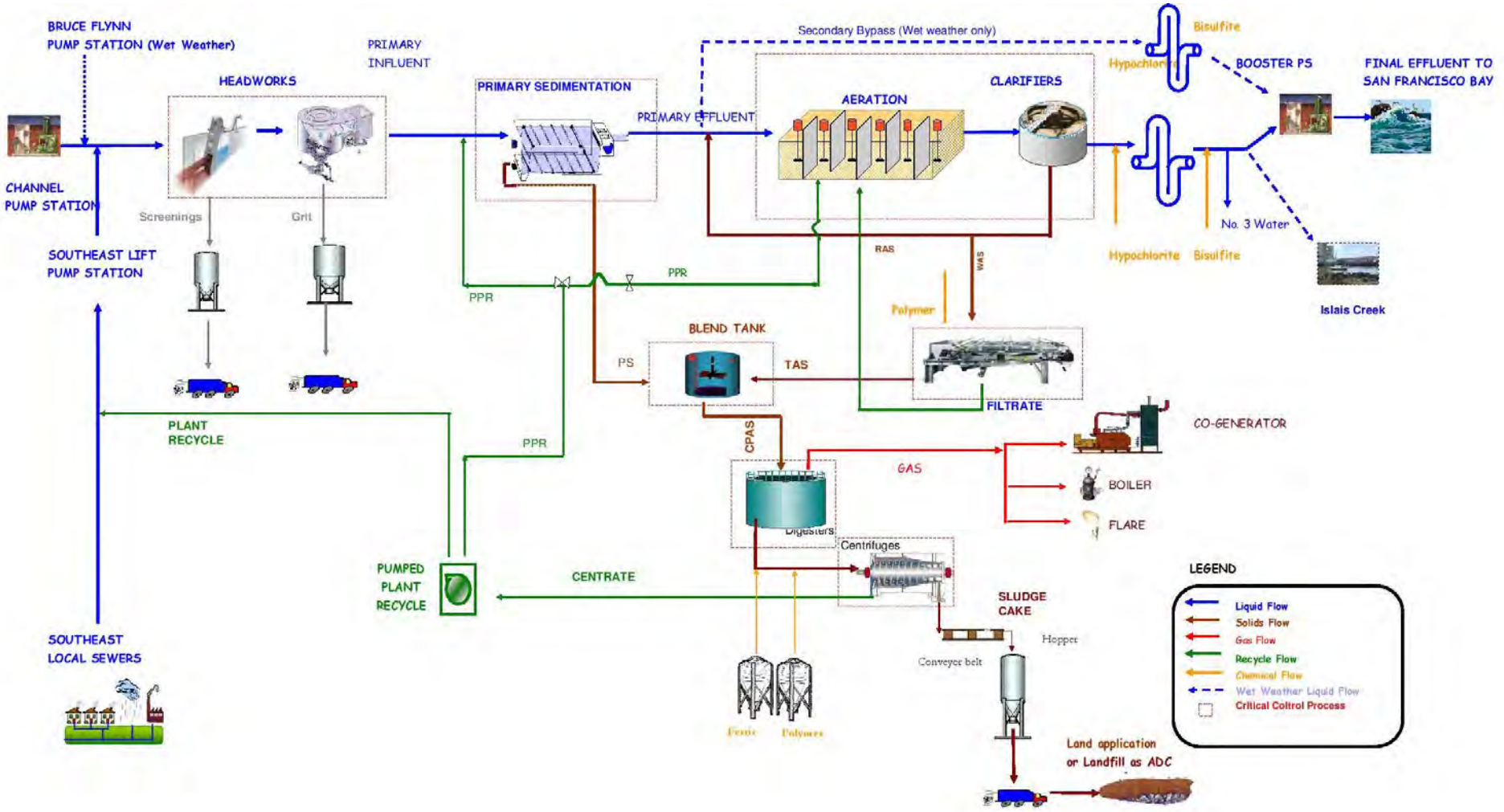
ATTACHMENT B

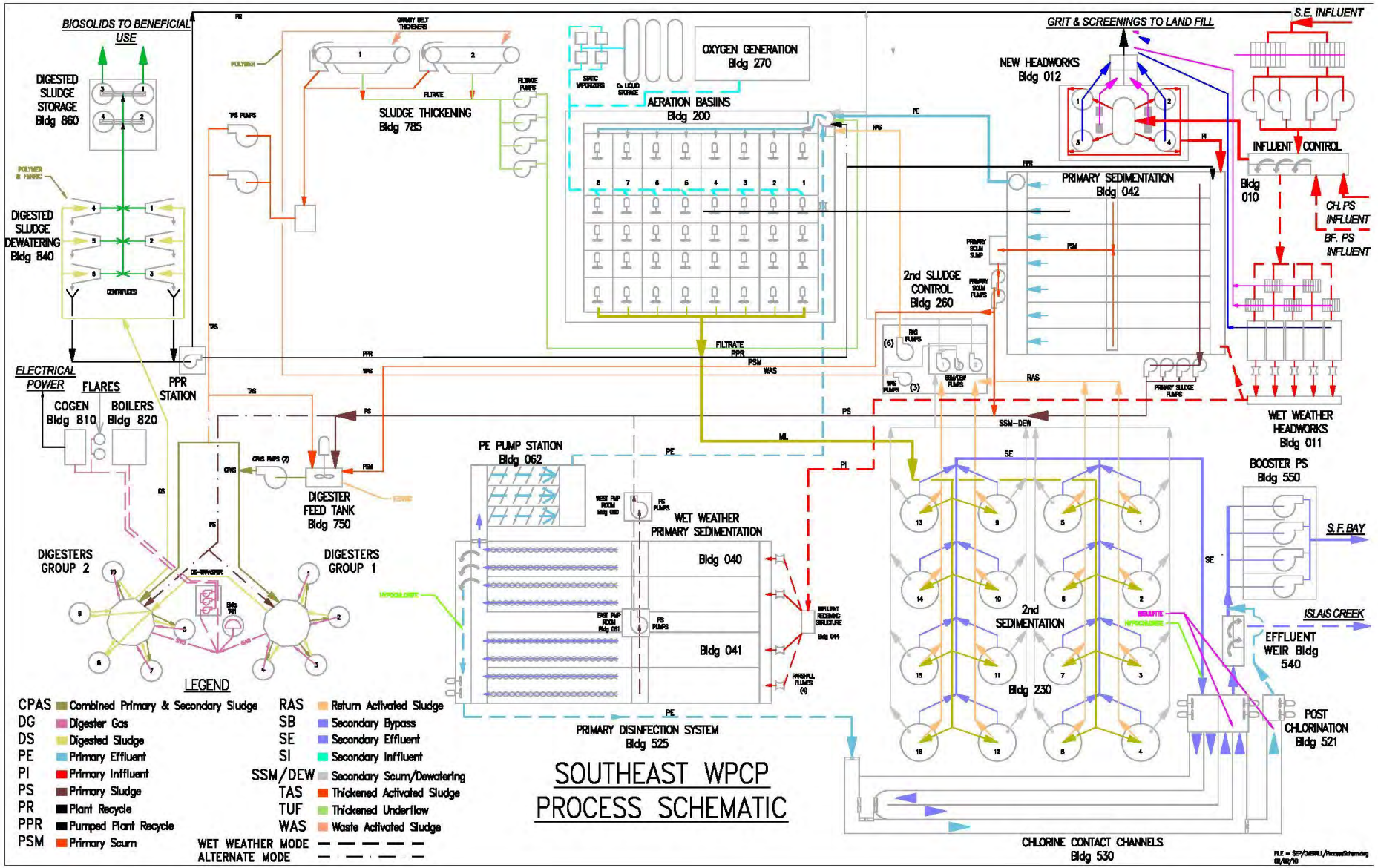
References for Analyses

Type of Test	Reference	Method Number
Ammonia	Standard Methods	4500-NH3 B,C
Bioassay	EPA	2019 (EPA-821-R-02-012) 600/R-95/136 Development Test
Biochemical Oxygen Demand	Standard Methods	5210 B
Carbonaceous BOD	Standard Methods	5210 B
Chemical Oxygen Demand	Standard Methods	5220 D/HACH8000
Chlorine Residual	Standard Methods	4500-Cl C
Coliform	Standard Methods	9221 B
Conductivity	Standard Methods	2510 B
Cyanide	Standard Methods	4500-CN^- C & 4500-CN^- E
Enterococci, IDEXX	EPA	Enterolert
Kjeldahl Nitrogen	Standard Methods	4500-NH3 C
Mercury	EPA	1631E/245.1
Metals	EPA	200.7/200.8
Nitrate-nitrite	Standard Methods	4500-$NO3^-$ E
Nitrite	Standard Methods	4500-$NO2^-$ B
Oil & Grease	EPA	1664A
PAH	EPA	625
Pesticide/PCBs	EPA	608
pH	EPA/Standard Methods	150.2/4500-H^+ B
Phosphate, Ortho	Standard Methods	SM4500-P E
Phosphorus, Total	EPA	200.7/HACH8190
Semi -Volatile Organic Compounds	EPA	625
Settleable Solids	Standard Methods	2540 F
Temperature	Standard Methods	2550 B
Total Solids	Standard Methods	2540 B
Total Suspended Solids	Standard Methods	2540 D
Turbidity	Standard Methods	2130 B
Volatile Organic Compounds	EPA	624

Revised 1/8/2018

ATTACHMENT C
Plant Flow Diagram
Southeast Water Pollution Control Plant




BIOSOLIDS TO BENEFICIAL USE
DIGESTED SLUDGE STORAGE Bldg 860
DIGESTED SLUDGE DEWATERING Bldg 840
SLUDGE THICKENING Bldg 785
OXYGEN GENERATION Bldg 270
AERATION BASINS Bldg 200
GRIT & SCREENINGS TO LAND FILL
NEW HEADWORKS Bldg 012
S.E. INFLUENT
INFLUENT CONTROL Bldg 010
CH. PS INFLUENT
BF. PS INFLUENT
PRIMARY SEDIMENTATION Bldg 042
2nd SLUDGE CONTROL Bldg 260
ELECTRICAL POWER
FLARES
COGEN Bldg 810
BOILERS Bldg 820
PPR STATION
DIGESTER FEED TANK Bldg 750
DIGESTERS GROUP 2
DIGESTERS GROUP 1
PE PUMP STATION Bldg 062
WET WEATHER PRIMARY SEDIMENTATION
Bldg 040
Bldg 041
PRIMARY DISINFECTION SYSTEM Bldg 525
WET WEATHER HEADWORKS Bldg 011
BOOSTER PS Bldg 550
S.F. BAY
ISLAIS CREEK
EFFLUENT WEIR Bldg 540
2nd SEDIMENTATION Bldg 230
POST CHLORINATION Bldg 521
CHLORINE CONTACT CHANNELS Bldg 530
LEGEND
CPAS Combined Primary & Secondary Sludge
DG Digester Gas
DS Digested Sludge
PE Primary Effluent
PI Primary Influent
PS Primary Sludge
PR Plant Recycle
PPR Pumped Plant Recycle
PSM Primary Scum
RAS Return Activated Sludge
SB Secondary Bypass
SE Secondary Effluent
SI Secondary Influent
SSM/DEW Secondary Scum/Dewatering
TAS Thickened Activated Sludge
TUF Thickened Underflow
WAS Waste Activated Sludge
WET WEATHER MODE
ALTERNATE MODE
SOUTHEAST WPCP
PROCESS SCHEMATIC

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	February 5, 2018
Test Organism:	rainbow trout	Test ended:	February 9, 2018
Organism batch ID:	RT-1802	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	3	7	1	6	0	6	0	6	70
	replicate 2	10	2	8	0	8	0	8	0	8	

TUa **0.87**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.4	11.3	11.3	11.5	11.5	11.7	11.4	11.2	11.6	11.4
pH (units)	6.95	7.25	7.45	7.23	7.25	6.80	6.82	6.86	6.86	6.53
Dissolved oxygen (mg/L)	6.3	6.3	8.0	7.5	8.1	7.4	7.5	7.3	6.7	6.1
Residual chlorine (mg/L)	-0.1	0.0	-0.1	0.0	0.0	-2.0	-1.3	-0.9	-0.2	-0.1
Alkalinity (mg/L)	14				26	236	254	240	256	246
Hardness (mg/L)	320				24	206	378	372	232	240
Conductivity (µS/cm)	57				89	2052	3960	3770	2313	2461
Total ammonia (mg/L)	< 0.02				< 0.4	40.6	44.3	41.9	49.2	41.2

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2mL glass pipets
procedure - gentle aeration (~100 bubbles/min) of effluent and control exposure solutions for the first 21-hours of testing.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	February 12, 2018
Test Organism:	rainbow trout	Test ended:	February 16, 2018
Organism batch ID:	RT-1803	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	3	7	1	6	2	4	0	4	45
	replicate 2	10	5	5	0	5	0	5	0	5	

TUa **1.02**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.5	11.3	11.2	11.3	11.6	12.0	11.5	11.6	11.4	11.8
pH (units)	7.33	6.85	7.12	7.23	7.40	6.75	6.76	6.60	6.54	6.63
Dissolved oxygen (mg/L)	7.7	7.5	7.9	7.8	7.7	7.1	7.6	7.6	7.2	6.1
Residual chlorine (mg/L)	0.0	0.0	-0.1	0.0	0.0	-1.7	-1.3	-0.5	-0.3	-0.2
Alkalinity (mg/L)	22				30	234	256	246	246	246
Hardness (mg/L)	44				32	228	272	228	188	184
Conductivity (µS/cm)	102				86	2293	2604	2195	2041	2437
Total ammonia (mg/L)	< 0.02				< 0.02	45.6	42.2	42.7	45.2	45.5

Aeration: none

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
Operations Division
750 Phelps Street
San Francisco, CA 94124
T (415) 920-4944

February 28, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Southeast WPCP
NPDES/CA0037664
Monitoring Report
January 2018

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) January 2018 Monthly Self-Monitoring Report.

Two acute toxicity flow-through bioassay tests were conducted in January; the first test resulted in 90% final survival and the second test resulted in 85% final survival. The 11-sample 90th percentile for January was not met due to results from May, November and December 2017. Accelerated testing and additional investigations continued during January 2018.

Wet Weather Discharge Summary

Drainage Area CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This Month	1	1	1
2017-18 Season	2	2	1
Long-Term Average Design Goal	4	10	1

If you have any questions concerning this report, please call: Superintendent, Andrew Clark, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Superintendent, Bayside Operations

Mark Farrell
Mayor

Ike Kwon
President

Vince Courtney
Vice President

Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Anson Moran
Commissioner

Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2017-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.02	1656.90	1604.61	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1619.86	1566.91	0.00	0	0.00	0.00	0	0.00
September	0.09	0.00	0.00	0	0.00	0.13	1608.98	1577.14	0.00	0	0.00	0.00	0	0.00
October	0.21	4.68	0.00	0	0.00	0.19	1699.37	1617.61	0.00	0	0.00	0.14	0	0.00
November	2.88	141.29	106.30	1	0.08	2.80	2060.38	1838.51	0.00	1	153.52	2.67	0	0.00
December	0.12	0.00	0.00	0	0.00	0.07	1648.10	1614.96	0.00	0	0.00	0.09	0	0.00
January	5.83	225.96	172.38	1	43.57	4.87	2350.64	2064.86	256.18	1	570.15	5.21	1	2.73
February														
March														
April														
May														
June														
TOTAL	9.13	371.92	278.68	2	43.65	8.08	12644.23	11884.61	256.18	2	723.66	8.11	1	2.73

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for January-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
1/1/2018	0.00	0.00	0.00			0.00	49.60	49.44	0.00			0.00		
1/2/2018	0.00	0.00	0.00			0.00	51.55	50.51	0.00			0.00		
1/3/2018	0.11	<0.01	0.00			0.16	64.24	66.15	0.00			0.17		
1/4/2018	0.07	0.00	0.00			0.02	63.53	66.74	0.00			0.03		
1/5/2018	0.37	4.84	0.00			0.28	83.04	81.82	0.00			0.29		
1/6/2018	0.00	<0.01	0.00			0.00	78.62	81.72	0.00			0.00		
1/7/2018	0.00	0.00	0.00			0.00	53.37	56.84	0.00			0.00		
1/8/2018	3.71	116.42	92.82	1.0	43.57	3.31	211.50	103.68	107.69	1	570.15	3.56	1	2.73
1/9/2018	0.35	63.04	55.44			0.35	208.79	109.75	100.05			0.38		
1/10/2018	0.03	0.00	0.00			0.05	77.13	76.08	0.00			0.05		
1/11/2018	0.00	0.00	0.00			0.00	65.59	65.97	0.00			0.00		
1/12/2018	0.00	0.12	0.00			0.00	59.47	56.56	0.00			0.00		
1/13/2018	0.00	0.00	0.00			0.01	58.11	55.76	0.00			0.00		
1/14/2018	0.00	0.00	0.00			0.00	55.51	54.81	0.00			0.00		
1/15/2018	0.00	0.00	0.00			0.00	60.38	58.63	0.00			0.00		
1/16/2018	0.02	0.00	0.00			0.00	55.47	57.02	0.00			0.00		
1/17/2018	0.00	0.00	0.00			0.00	55.90	54.52	0.00			0.00		
1/18/2018	0.21	7.72	1.72			0.18	93.25	78.41	10.90			0.17		
1/19/2018	0.00	2.57	2.61			0.03	83.91	77.95	6.78			0.05		
1/20/2018	0.00	0.00	0.00			0.00	59.09	58.18	0.00			0.00		
1/21/2018	0.01	0.00	0.00			0.01	60.01	60.07	0.00			0.00		
1/22/2018	0.40	5.50	0.00			0.25	109.00	91.64	13.18			0.27		
1/23/2018	0.00	0.00	0.00			0.00	67.42	64.98	0.00			0.00		
1/24/2018	0.37	22.36	16.41			0.22	90.54	79.03	9.68			0.24		
1/25/2018	0.05	3.38	3.38			0.00	85.29	76.00	7.89			0.00		
1/26/2018	0.13	0.00	0.00			0.00	62.58	59.92	0.00			0.00		
1/27/2018	0.00	0.00	0.00			0.00	58.56	55.37	0.00			0.00		
1/28/2018	0.00	0.00	0.00			0.00	61.79	56.76	0.00			0.00		
1/29/2018	0.00	0.00	0.00			0.00	53.37	51.01	0.00			0.00		
1/30/2018	0.00	0.00	0.00			0.00	56.66	54.87	0.00			0.00		
1/31/2018	0.00	0.00	0.00			0.00	57.36	54.67	0.00			0.00		
TOTAL MONTHLY	5.83	225.96	172.38	1.0	43.57	4.87	2350.64	2064.86	256.18	1	570.15	5.21	1	2.73
MONTHLY AVERAGE FLOW (MGD)	-	20.54	28.73	-	-	-	75.83	66.61	36.60	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	49.60	49.44	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	116.42	92.82	-	-	-	211.50	109.75	107.69	-	-	-	-	-

North Shore Basin CSD Summary
Jan-2018

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
1/1/2018	0.00																		
1/2/2018	0.00																		
1/3/2018	0.11																		
1/4/2018	0.07																		
1/5/2018	0.37																		
1/6/2018	0.00																		
1/7/2018	0.00																		
1/8/2018	3.71	7:16 AM	828	16.52	9:26 AM	739	15.50				12:27 PM	444	10.41	1:45 PM	96	0.30	1:44 PM	168	0.83
1/9/2018	0.35																		
1/10/2018	0.03																		
1/11/2018	0.00																		
1/12/2018	0.00																		
1/13/2018	0.00																		
1/14/2018	0.00																		
1/15/2018	0.00																		
1/16/2018	0.02																		
1/17/2018	0.00																		
1/18/2018	0.21																		
1/19/2018	0.00																		
1/20/2018	0.00																		
1/21/2018	0.01																		
1/22/2018	0.40																		
1/23/2018	0.00																		
1/24/2018	0.37																		
1/25/2018	0.05																		
1/26/2018	0.13																		
1/27/2018	0.00																		
1/28/2018	0.00																		
1/29/2018	0.00																		
1/30/2018	0.00																		
1/31/2018	0.00																		
TOTAL	**5.83**	**-**	**828**	**16.52**	**-**	**739**	**15.50**	**-**	**0**	**0.00**	**-**	**444**	**10.41**	**-**	**96**	**0.30**	**-**	**168**	**0.83**

Central Basin #1 CSD Summary
Jan-2018

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
1/1/2018	0.00																											
1/2/2018	0.00																											
1/3/2018	0.16																											
1/4/2018	0.02																											
1/5/2018	0.28																											
1/6/2018	0.00																											
1/7/2018	0.00																											
1/8/2018	3.31	7:21 AM	1401	95.14										7:45 AM	719	39.02	7:45 AM	819	88.36	1:56 PM	109	50.09						
1/9/2018	0.35																											
1/10/2018	0.05																											
1/11/2018	0.00																											
1/12/2018	0.00																											
1/13/2018	0.01																											
1/14/2018	0.00																											
1/15/2018	0.00																											
1/16/2018	0.00																											
1/17/2018	0.00																											
1/18/2018	0.18																											
1/19/2018	0.03																											
1/20/2018	0.00																											
1/21/2018	0.01																											
1/22/2018	0.25																											
1/23/2018	0.00																											
1/24/2018	0.22																											
1/25/2018	0.00																											
1/26/2018	0.00																											
1/27/2018	0.00																											
1/28/2018	0.00																											
1/29/2018	0.00																											
1/30/2018	0.00																											
1/31/2018	0.00																											
TOTAL	4.87	-	1401	95.14	-	0	0.00	-	0	0.00	-	0	0.00	-	719	39.02	-	819	88.36	-	109	50.09	-	0	0.00	-	0	0.00

Central Basin #2 CSD Summary
Jan-2018

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
1/1/2018	0.00																								
1/2/2018	0.00																								
1/3/2018	0.16																								
1/4/2018	0.02																								
1/5/2018	0.28																								
1/6/2018	0.00																								
1/7/2018	0.00																								
1/8/2018	3.31	9:29 PM	79	0.11	11:12 PM	40	0.33	11:15 PM	31	0.03				7:50 AM	1237	161.95	7:50 AM	1225	21.04	7:50 AM	1210	29.84	7:48 AM	1283	84.23
1/9/2018	0.35																								
1/10/2018	0.05																								
1/11/2018	0.00																								
1/12/2018	0.00																								
1/13/2018	0.01																								
1/14/2018	0.00																								
1/15/2018	0.00																								
1/16/2018	0.00																								
1/17/2018	0.00																								
1/18/2018	0.18																								
1/19/2018	0.03																								
1/20/2018	0.00																								
1/21/2018	0.01																								
1/22/2018	0.25																								
1/23/2018	0.00																								
1/24/2018	0.22																								
1/25/2018	0.00																								
1/26/2018	0.00																								
1/27/2018	0.00																								
1/28/2018	0.00																								
1/29/2018	0.00																								
1/30/2018	0.00																								
1/31/2018	0.00																								
TOTAL	4.87	-	79	0.11	-	40	0.33	-	31	0.03	-	0	0.00	-	1237	161.95	-	1225	21.04	-	1210	29.84	-	1283	84.23

Southeast Basin CSD Summary
Jan-2018

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
1/1/2018	0.00																		
1/2/2018	0.00																		
1/3/2018	0.17																		
1/4/2018	0.03																		
1/5/2018	0.29																		
1/6/2018	0.00																		
1/7/2018	0.00																		
1/8/2018	3.56							10:36 PM	70	1.25	10:37 PM	58	1.08	10:37 PM	58	0.26	11:41 PM	20	0.15
1/9/2018	0.38																		
1/10/2018	0.05																		
1/11/2018	0.00																		
1/12/2018	0.00																		
1/13/2018	0.00																		
1/14/2018	0.00																		
1/15/2018	0.00																		
1/16/2018	0.00																		
1/17/2018	0.00																		
1/18/2018	0.17																		
1/19/2018	0.05																		
1/20/2018	0.00																		
1/21/2018	0.00																		
1/22/2018	0.27																		
1/23/2018	0.00																		
1/24/2018	0.24																		
1/25/2018	0.00																		
1/26/2018	0.00																		
1/27/2018	0.00																		
1/28/2018	0.00																		
1/29/2018	0.00																		
1/30/2018	0.00																		
1/31/2018	0.00																		
TOTAL	5.21	-	0	0.00	-	0	0.00	-	70	1.25	-	58	1.08	-	58	0.26	-	20	0.15

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	March 5, 2018
Test Organism:	rainbow trout	Test ended:	March 9, 2018
Organism batch ID:	RT-1804	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	0	10	1	9	2	7	1	6	55
	replicate 2	10	0	10	0	10	4	6	1	5	

TUa **0.97**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.5	11.2	11.3	11.3	11.2	12.2	11.6	11.4	11.6	11.6
pH (units)	7.05	7.09	7.37	7.88	6.53	7.63	6.79	6.84	6.79	6.78
Dissolved oxygen (mg/L)	8.4	8.5	8.1	8.2	8.7	7.4	7.9	7.6	6.7	7.7
Residual chlorine (mg/L)	0.0	0.0	0.0	0.0	0.0	-0.5	-1.1	-1.2	-0.4	-1.1
Alkalinity (mg/L)	16				16	228	242	240	232	238
Hardness (mg/L)	36				24	180	224	250	176	228
Conductivity (µS/cm)	45				53	1700	2155	2429	1813	2354
Total ammonia (mg/L)	< 0.4				< 0.4	43.7	43.1	44.9	45.6	49.3

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration of effluent and control exposure solutions (~60-100 bubble/min) from 69-hours after test-initiation through test-termination.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
Operations Division
750 Phelps Street
San Francisco, CA 94124
T (415) 920-4944

March 20, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: 5-Day Report for discharge through Quint Street Outfall (EFF-002) reported on March 13, 2018 to Cal OES (Control #18-1640), Southeast Water Pollution Control Plant/ NPDES CA0037664.

Dear Ms. Watkins:

This is the 5-Day Report for an incident at the Southeast Treatment Plant (SEP) which the San Francisco Public Utilities Commission (SFPUC) reported to Cal OES on March 13, 2018 at approximately 8:30 am (#18-1640). SFPUC staff reported that approximately 2,000 gallons of primary treated, disinfected and dechlorinated primary effluent discharged through the Quint Street Outfall (EFF-002) into Islais Creek, during the plant's transition into full wet weather mode bringing the Primary Disinfection System (PDS) into service.

Upon investigation, staff has determined that the event occurred as result of a recently installed effluent gate not being opened during the plant's transition to full wet weather mode.

Incident description and cause:

On March 13, 2018, at approximately 6:00 am, the treatment plant was in Wet Weather Mode at 150 MGD. Since the forecast predicted at least a 50% chance of more rain, Operations staff made a decision to bring the Primary Disinfection System (PDS) on-line, which would increase plant effluent flow up to 250 MGD.

Gate (G33) (which releases primary treated flow from the PDS channel to Booster P/S which then transports it to the final effluent outfall under Pier 80) was replaced earlier this wet season as part of the Sewer System Improvement Program. G33 went from being electrically to hydraulically actuated, and, as the staged installation has not yet been fully completed, the new gate can be controlled only locally from a nearby station. In addition, the Controller's Office does not yet have DSC communication about the gate status (e.g., open or closed).

During the transition to bringing the PDS system on-line, there was miscommunication regarding readiness to receive flow. G33 still needed to be opened, but Operations staff in the Controller's Office, believing the plant to be ready, opened the PDS channel and brought flow in. Due to the closed gate, the flow in the PDS channel backed up and exited through an open hatch. See Figure 1.

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Figure 1. Hatch along the PDS channel through which flow exited during the event

This flow was fully treated primary, with disinfection and dechlorination. Approximately 2,000 gallons traveled overland to the effluent channel, mixing with secondary treated, disinfected and dechlorinated effluent. Some of this effluent likely discharged through the Quint Street Outfall (EFF-002) to Islais Creek (instead of discharging through the outfall at Pier 80).

Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters:

Staff estimated that between 1,500 to 2,000 gallons flowed into the outfall channel and mixed with secondary-treated effluent, some of which discharged into Islais Creek through EFF-002. This calculation was based on the duration of the flow briefly (estimated time of one minute) overtopping the kicker boards installed around the effluent channel.

Efforts implemented to minimize public exposure to the discharge:

Biologist staff posted the nearest public access site to EFF-002, the Islais Creek kayak launch, at approximately 10:20 am on March 13, 2018. The site was de-posted on March 15 when bacteria samples tested under State standards for water contact recreation.

Due to a miscommunication with staff biologists, information emailed to the public through beachwaterquality@sfwater.org on March 13, 2018 at approximately 1:10 pm incorrectly stated that the discharge was undisinfected. The discharge, however, was fully disinfected.

Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted.

Biologist staff conducted a visual observation of the site at approximately 10:20 am on March 13, 2018. No adverse effects or impacts were observed (e.g., no discoloration or evidences of a fish kill).

Biologist staff also took samples at this time, per procedure for unauthorized discharges. The results were as follows:

3/13/2018[1]

Total coliform: 3654 MPN/100mL
E. Coli: 52 MPN/100mL
Enterococcus: 213 MPN/100mL

3/14/2018

Total coliform: 1137 MPN/100mL
E. Coli: 20 MPN/100mL
Enterococcus: 10 MPN/100mL

Although the Enterococcus sample of March 13, 2018, exceeded the State standard for water contact recreation of 104 MPN/100 mL, staff biologist believe it is unlikely that the discharge from EFF-002 was the cause, as the discharge was fully disinfected and there are multiple potential sources of bacteria in Islais Creek. For instance, the staff member posting the location noted that there were up to 100 birds present at the site.

[1] Early results indicated that the samples were under all the State standards for water contact recreation, so staff de-posted the site on March 14, 2018 at approximately 9:37 a.m. When the laboratory final check revealed that the Enterococcus sample had exceeded 104 MPD/100mL, staff re-posted the site at approximately 2:36 p.m.

Corrective measures taken to minimize the impact of the discharge:

Immediately upon realizing that G33 was not open, Operations staff lowered plant flow to 80 MGD and opened G8 to divert flow away from the PDS channel (back to secondary). Staff also opened G33 locally as quickly as possible.

Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future:

Work orders have been put in to establish DCS communication for G33 status, so that Operations staff in the Controller's Office will be able to see whether or not it is open. This work is expected to be completed by the end of the summer. In addition, training to emphasize the Standing Order in place to address the limitations of the gate situation and address the miscommunication that occurred here will be implemented on March 23 at the SEP Operations Chief's meeting.

Summary of the Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges:

No modifications to the Spill Prevention Plan are needed at this time.

Estimated quantity and duration of the discharge, and the estimated amount recovered:

The estimated quantity was 1,500-2,000 gallons. The duration of the discharge was approximately one minute. Zero gallons were recovered.

Location of the threatened or involved waterway(s) or storm drains:

Southeast Wastewater Treatment Plant Discharge Point E-002 (Latitude 37° 75' 50" N) Discharge Point (Longitudes 122° 37' 25" W)

Level of treatment prior to discharge:

The Combined Wet Weather Discharge received full treated primary effluent, with disinfection and complete dechlorination.

Identity of the person reporting the unauthorized discharge:

Pedro Mendoza, Operations Duty Chief Stationary Engineer, Southeast Treatment Plant

Sincerely,

Mark Harris
Acting Operations Manager

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
Operations Division
750 Phelps Street
San Francisco, CA 94124
T (415) 920-4944

March 27, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Southeast WPCP
NPDES/CA0037664
Monitoring Report
February 2018

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) February 2018 Monthly Self-Monitoring Report.

Two flow-through bioassay tests were performed during February 2018. Test organism survival was 70% for the February 5 - 9 test and 45% for the February 12 - 16 test. Static bioassay testing was performed using composite samples collected during periods of significant toxicity in the flow-through. The results of the static acute testing during both flow-through tests indicate that un-ionized ammonia is likely playing a substantial role in the toxicity response. However, another as yet unidentified confounding constituent may also have a role.

With the assistance of expert consultants, the SFPUC has mapped out a strategy to better understand the role of un-ionized ammonia during flow-through bioassay testing during March 2018. Additionally, attempts will be made to identify other constituents that may be contributing to the acute toxicity.

A chronic toxicity test was also performed during February 13 -16, 2018. The effluent exposures had a TUc value of 40, demonstrating an effect at the 5% effluent concentration. The zeolite-treated effluent exposures had a TUc value of 5 demonstrating no observed effect in any of the effluent dilutions. This data along with the results of the ammonia-addback test indicate that un-ionized ammonia is likely the primary cause of the TUc value of 40 in the effluent dilutions.

Wet weather samples were collected at EFF-001B, EFF-002, and EFF-003 monitored for priority pollutants in January 2018 as required by the permit in section VI.C.5.b.ix.(a)(1).

On February 28, 2018 as result of rain at 11:57 p.m. the plant began discharging to EFF-002 and continued into the next day. The wet weather sample was collected for the event on March 1, 2018, although the discharge began 3 minutes before midnight.

Wet Weather Discharge Summary

Drainage Area CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This Month	0	0	0
2017-18 Season	2	2	1
Long-Term Average Design Goal	4	10	1

If you have any questions concerning this report, please call: Superintendent, Andrew Clark, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

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I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Superintendent, Bayside Operations

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2017-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.02	1656.90	1604.61	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1619.86	1566.91	0.00	0	0.00	0.00	0	0.00
September	0.09	0.00	0.00	0	0.00	0.13	1608.98	1577.14	0.00	0	0.00	0.00	0	0.00
October	0.21	4.68	0.00	0	0.00	0.19	1699.37	1617.61	0.00	0	0.00	0.14	0	0.00
November	2.88	141.29	106.30	1	0.08	2.80	2060.38	1838.51	0.00	1	153.52	2.67	0	0.00
December	0.12	0.00	0.00	0	0.00	0.07	1648.10	1614.96	0.00	0	0.00	0.09	0	0.00
January	5.83	225.96	172.38	1	43.57	4.87	2350.64	2064.86	256.18	1	570.15	5.21	1	2.73
February	0.43	5.32	0.00	0	0.00	0.43	1561.00	1510.55	0.17	0	0.00	0.41	0	0.00
March														
April														
May														
June														
TOTAL	9.56	377.24	278.68	2	43.65	8.51	14205.23	13395.17	256.36	2	723.66	8.52	1	2.73

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for February-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
2/1/2018	0.00	0.00	0.00			0.00	55.40	52.89	0.00			0.00		
2/2/2018	0.00	0.00	0.00			0.00	53.36	52.23	0.00			0.00		
2/3/2018	0.00	0.00	0.00			0.00	56.52	54.82	0.00			0.00		
2/4/2018	0.00	0.00	0.00			0.00	52.91	51.03	0.00			0.00		
2/5/2018	0.00	0.00	0.00			0.00	52.33	50.77	0.00			0.00		
2/6/2018	0.00	0.00	0.00			0.00	56.01	54.12	0.00			0.00		
2/7/2018	0.00	0.00	0.00			0.00	55.87	54.67	0.00			0.00		
2/8/2018	0.00	0.00	0.00			0.00	57.38	55.19	0.00			0.00		
2/9/2018	0.00	0.00	0.00			0.00	55.33	54.38	0.00			0.00		
2/10/2018	0.00	0.00	0.00			0.00	53.77	51.51	0.00			0.00		
2/11/2018	0.00	0.00	0.00			0.00	53.11	51.58	0.00			0.00		
2/12/2018	0.00	0.00	0.00			0.00	58.70	56.95	0.00			0.00		
2/13/2018	0.00	0.00	0.00			0.00	53.37	52.53	0.00			0.00		
2/14/2018	0.00	0.00	0.00			0.00	54.83	53.51	0.00			0.00		
2/15/2018	0.00	0.00	0.00			0.00	53.87	51.56	0.00			0.00		
2/16/2018	0.00	0.00	0.00			0.00	53.17	51.51	0.00			0.00		
2/17/2018	0.00	0.00	0.00			0.00	51.57	50.36	0.00			0.00		
2/18/2018	0.00	0.00	0.00			0.00	52.57	51.83	0.00			0.00		
2/19/2018	0.00	0.00	0.00			0.00	53.06	52.81	0.00			0.00		
2/20/2018	0.00	0.00	0.00			0.00	61.03	58.43	0.00			0.00		
2/21/2018	0.00	0.00	0.00			0.00	12.97	10.42	0.00			0.00		
2/22/2018	0.00	0.00	0.00			0.00	75.68	73.05	0.00			0.00		
2/23/2018	0.00	0.00	0.00			0.00	62.31	60.59	0.00			0.00		
2/24/2018	0.00	0.00	0.00			0.00	55.40	52.67	0.00			0.00		
2/25/2018	0.00	0.00	0.00			0.00	53.54	51.83	0.00			0.00		
2/26/2018	0.19	4.63	0.00			0.27	83.06	84.20	0.00			0.24		
2/27/2018	0.00	0.00	0.00			0.00	59.75	56.94	0.00			0.00		
2/28/2018	0.24	0.69	0.00			0.16	64.14	58.19	0.17			0.17		
TOTAL MONTHLY	0.43	5.32	0.00	0.00	0.00	0.43	1561.00	1510.55	0.17	0	0.00	0.41	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	2.66	#DIV/0!	-	-	-	55.75	53.95	0.17	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	12.97	10.42	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	4.63	0.00	-	-	-	83.06	84.20	0.17	-	-	-	-	-

North Shore Basin CSD Summary
Feb-2018

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
2/1/2018	0.00																		
2/2/2018	0.00																		
2/3/2018	0.00																		
2/4/2018	0.00																		
2/5/2018	0.00																		
2/6/2018	0.00																		
2/7/2018	0.00																		
2/8/2018	0.00																		
2/9/2018	0.00																		
2/10/2018	0.00																		
2/11/2018	0.00																		
2/12/2018	0.00																		
2/13/2018	0.00																		
2/14/2018	0.00																		
2/15/2018	0.00																		
2/16/2018	0.00																		
2/17/2018	0.00																		
2/18/2018	0.00																		
2/19/2018	0.00																		
2/20/2018	0.00																		
2/21/2018	0.00																		
2/22/2018	0.00																		
2/23/2018	0.00																		
2/24/2018	0.00																		
2/25/2018	0.00																		
2/26/2018	0.19																		
2/27/2018	0.00																		
2/28/2018	0.24																		
1/0/1900	0.00																		
1/0/1900	0.00																		
1/0/1900	0.00																		
TOTAL	0.43	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #1 CSD Summary
Feb-2018

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
2/1/2018	0.00																											
2/2/2018	0.00																											
2/3/2018	0.00																											
2/4/2018	0.00																											
2/5/2018	0.00																											
2/6/2018	0.00																											
2/7/2018	0.00																											
2/8/2018	0.00																											
2/9/2018	0.00																											
2/10/2018	0.00																											
2/11/2018	0.00																											
2/12/2018	0.00																											
2/13/2018	0.00																											
2/14/2018	0.00																											
2/15/2018	0.00																											
2/16/2018	0.00																											
2/17/2018	0.00																											
2/18/2018	0.00																											
2/19/2018	0.00																											
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2/22/2018	0.00																											
2/23/2018	0.00																											
2/24/2018	0.00																											
2/25/2018	0.00																											
2/26/2018	0.27																											
2/27/2018	0.00																											
2/28/2018	0.16																											
1/0/1900	0.00																											
1/0/1900	0.00																											
1/0/1900	0.00																											
TOTAL	0.43	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #2 CSD Summary
Feb-2018

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
2/1/2018	0.00																								
2/2/2018	0.00																								
2/3/2018	0.00																								
2/4/2018	0.00																								
2/5/2018	0.00																								
2/6/2018	0.00																								
2/7/2018	0.00																								
2/8/2018	0.00																								
2/9/2018	0.00																								
2/10/2018	0.00																								
2/11/2018	0.00																								
2/12/2018	0.00																								
2/13/2018	0.00																								
2/14/2018	0.00																								
2/15/2018	0.00																								
2/16/2018	0.00																								
2/17/2018	0.00																								
2/18/2018	0.00																								
2/19/2018	0.00																								
2/20/2018	0.00																								
2/21/2018	0.00																								
2/22/2018	0.00																								
2/23/2018	0.00																								
2/24/2018	0.00																								
2/25/2018	0.00																								
2/26/2018	0.27																								
2/27/2018	0.00																								
2/28/2018	0.16																								
1/0/1900	0.00																								
1/0/1900	0.00																								
1/0/1900	0.00																								
TOTAL	0.43	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Southeast Basin CSD Summary
Feb-2018

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
2/1/2018	0.00																		
2/2/2018	0.00																		
2/3/2018	0.00																		
2/4/2018	0.00																		
2/5/2018	0.00																		
2/6/2018	0.00																		
2/7/2018	0.00																		
2/8/2018	0.00																		
2/9/2018	0.00																		
2/10/2018	0.00																		
2/11/2018	0.00																		
2/12/2018	0.00																		
2/13/2018	0.00																		
2/14/2018	0.00																		
2/15/2018	0.00																		
2/16/2018	0.00																		
2/17/2018	0.00																		
2/18/2018	0.00																		
2/19/2018	0.00																		
2/20/2018	0.00																		
2/21/2018	0.00																		
2/22/2018	0.00																		
2/23/2018	0.00																		
2/24/2018	0.00																		
2/25/2018	0.00																		
2/26/2018	0.24																		
2/27/2018	0.00																		
2/28/2018	0.17																		
1/0/1900	0.00																		
1/0/1900	0.00																		
1/0/1900	0.00																		
TOTAL	0.41	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	March 30, 2018
Test Organism:	rainbow trout	Test ended:	April 3, 2018
Organism batch ID:	RT-1808	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	0	10	0	10	0	10	0	10	90
	replicate 2	10	1	9	0	9	1	8	0	8	

TUa **0.59**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.8	11.2	11.4	11.4	11.2	11.7	11.3	11.3	11.5	11.4
pH (units)	6.94	7.13	7.17	7.13	7.22	6.74	6.97	6.82	6.88	6.98
Dissolved oxygen (mg/L)	10.1	8.6	10.9	10.8	11.5	7.1	8.2	7.9	7.9	6.9
Residual chlorine (mg/L)	0.0	-0.1	0.0	0.0	-0.1	-1.1	-0.9	-0.6	-0.5	-0.4
Alkalinity (mg/L)	48				52	266	266	250	240	276
Hardness (mg/L)	64				68	240	218	264	240	281
Conductivity (µS/cm)	207				199	2443	2011	2661	2018	2087
Total ammonia (mg/L)	< 0.02				0.02	50.8	44.6	37.0	41.3	56.4

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration of effluent and control exposure solutions (~60-100 bubble/min) from test-initiation through test-termination.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
Operations Division
750 Phelps Street
San Francisco, CA 94124
T (415) 920-4944

April 27, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Southeast WPCP
NPDES/CA0037664
Monitoring Report
March 2018

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) March 2018 Monthly Self-Monitoring Report.

Two flow-through bioassay tests were performed during March 2018. Test organism survival was 55% for the March 5-9 test and 90% for the March 30-April 3 test. The 11-sample median and 90th percentile permit requirements for SEP were not met in March 2018 due to the acute flow-through test results from August, November and December 2017; and February and March 2018. Accelerated testing and additional investigations to identify the toxicants were performed March 2018 and will continue into April 2018. The initial results indicate the un-ionized ammonia plays a significant role influencing test organism survival during the flow-through testing. Equipment is being procured to mitigate the effects of un-ionized ammonia using real-time pH monitoring and automated in-line pH adjustment within the flow-through test.

On March 13, 2018, an incident was reported to Cal OES (Control #18-1640). The 5-day report for this event (submitted to the Regional Board on March 20, 2017) stated that during the plant's transition into wet weather mode, a miscommunication between central control and the station operator resulted in the PDS effluent gate remaining closed. This caused approximately 2,000 gallons of PDS flow to back up, exit the PDS channel through an open hatch, and flow into the secondary effluent channel. As a result, approximately 2,000 gallons of fully treated primary, disinfected and dechlorinated discharged into secondary treated, disinfected and dechlorinated effluent channel; some of this flow discharged through Quint Street Outfall (EFF-002).

On February 28, 2018 as result of rain at 11:57 p.m. the plant began discharging to EFF-002 and continued into the next day. The wet weather sample was collected for the event on March 1, 2018, although the discharge began 3 minutes before midnight.

Wet Weather Discharge Summary

Drainage Area CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This Month	0	0	0
2017-18 Season	2	2	1
Long-Term Average Design Goal	4	10	1

If you have any questions concerning this report, please call: Superintendent, Andrew Clark, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person

Mark Farrell
Mayor

Ike Kwon
President

Vince Courtney
Vice President

Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Anson Moran
Commissioner

Harlan L. Kelly, Jr.
General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Superintendent, Bayside Operations

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2017-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.02	1656.90	1604.61	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1619.86	1566.91	0.00	0	0.00	0.00	0	0.00
September	0.09	0.00	0.00	0	0.00	0.13	1608.98	1577.14	0.00	0	0.00	0.00	0	0.00
October	0.21	4.68	0.00	0	0.00	0.19	1699.37	1617.61	0.00	0	0.00	0.14	0	0.00
November	2.88	141.29	106.30	1	0.08	2.80	2060.38	1838.51	0.00	1	153.52	2.67	0	0.00
December	0.12	0.00	0.00	0	0.00	0.07	1648.10	1614.96	0.00	0	0.00	0.09	0	0.00
January	5.83	225.96	172.38	1	43.57	4.87	2350.64	2064.86	256.18	1	570.15	5.21	1	2.73
February	0.43	5.32	0.00	0	0.00	0.43	1561.00	1510.55	0.17	0	0.00	0.41	0	0.00
March	5.68	324.04	277.49	0	0.00	4.23	2662.08	2214.20	338.60	0	0.00	4.34	0	0.00
April														
May														
June														
TOTAL	15.24	701.28	556.17	2	43.65	12.74	16867.31	15609.36	594.95	2	723.66	12.86	1	2.73

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for March-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
3/1/2018	1.20	79.56	66.22			1.08	217.95	109.83	106.99			1.03		
3/2/2018	0.20	3.63	4.02			0.16	107.31	98.35	5.44			0.11		
3/3/2018	0.11	0.00	0.00			0.08	78.41	77.00	0.00			0.12		
3/4/2018	0.00	0.00	0.00			0.01	62.83	62.69	0.00			0.01		
3/5/2018	0.00	0.00	0.00			0.00	57.72	53.40	0.00			0.00		
3/6/2018	0.00	0.00	0.00			0.00	55.32	50.31	0.00			0.00		
3/7/2018	0.02	0.00	0.00			0.01	62.20	55.72	0.00			0.00		
3/8/2018	0.06	0.00	0.00			0.08	70.03	66.87	0.00			0.08		
3/9/2018	0.00	0.00	0.00			0.00	55.14	51.64	0.00			0.00		
3/10/2018	0.00	0.00	0.00			0.00	55.67	54.06	0.00			0.00		
3/11/2018	0.00	0.00	0.00			0.00	52.72	49.63	0.00			0.00		
3/12/2018	0.30	14.59	8.40			0.21	74.33	64.38	6.22			0.23		
3/13/2018	0.63	41.30	38.86			0.42	150.45	105.99	39.61			0.40		
3/14/2018	0.42	21.07	18.51			0.20	111.42	97.02	5.61			0.12		
3/15/2018	0.39	12.59	9.13			0.17	89.03	78.00	5.17			0.21		
3/16/2018	0.50	33.49	30.66			0.33	155.62	99.65	47.58			0.22		
3/17/2018	0.05	0.00	0.00			0.01	73.09	73.05	0.00			0.07		
3/18/2018	0.00	0.00	0.00			0.00	61.88	61.19	0.00			0.00		
3/19/2018	0.00	0.00	0.00			0.00	61.19	56.96	0.00			0.00		
3/20/2018	0.77	25.41	18.05			0.68	115.11	84.95	26.23			0.83		
3/21/2018	0.58	52.72	47.68			0.32	164.40	99.96	61.49			0.37		
3/22/2018	0.37	39.33	35.96			0.35	145.41	106.63	34.26			0.30		
3/23/2018	0.00	0.00	0.00			0.00	86.19	86.67	0.00			0.00		
3/24/2018	0.06	0.19	0.00			0.06	69.74	66.46	0.00			0.16		
3/25/2018	0.02	0.00	0.00			0.06	75.66	74.49	0.00			0.08		
3/26/2018	0.00	0.16	0.00			0.00	61.17	61.39	0.00			0.00		
3/27/2018	0.00	0.00	0.00			0.00	60.52	59.41	0.00			0.00		
3/28/2018	0.00	0.00	0.00			0.00	57.97	53.80	0.00			0.00		
3/29/2018	0.00	0.00	0.00			0.00	61.59	53.49	0.00			0.00		
3/30/2018	0.00	0.00	0.00			0.00	56.37	49.74	0.00			0.00		
3/31/2018	0.00	0.00	0.00			0.00	55.64	51.46	0.00			0.00		
TOTAL MONTHLY	5.68	324.04	277.49	0.00	0.00	4.23	2662.08	2214.20	338.60	0	0.00	4.34	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	27.0	27.75	-	-	-	85.87	71.43	33.86	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	52.72	49.63	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	79.56	66.22	-	-	-	217.95	109.83	106.99	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

North Shore Basin CSD Summary
Mar-2018

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2018	1.20																		
3/2/2018	0.20																		
3/3/2018	0.11																		
3/4/2018	0.00																		
3/5/2018	0.00																		
3/6/2018	0.00																		
3/7/2018	0.02																		
3/8/2018	0.06																		
3/9/2018	0.00																		
3/10/2018	0.00																		
3/11/2018	0.00																		
3/12/2018	0.30																		
3/13/2018	0.63																		
3/14/2018	0.42																		
3/15/2018	0.39																		
3/16/2018	0.50																		
3/17/2018	0.05																		
3/18/2018	0.00																		
3/19/2018	0.00																		
3/20/2018	0.77																		
3/21/2018	0.58																		
3/22/2018	0.37																		
3/23/2018	0.00																		
3/24/2018	0.06																		
3/25/2018	0.02																		
3/26/2018	0.00																		
3/27/2018	0.00																		
3/28/2018	0.00																		
3/29/2018	0.00																		
3/30/2018	0.00																		
3/31/2018	0.00																		
TOTAL	5.68	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #1 CSD Summary
Mar-2018

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2018	1.08																											
3/2/2018	0.16																											
3/3/2018	0.08																											
3/4/2018	0.01																											
3/5/2018	0.00																											
3/6/2018	0.00																											
3/7/2018	0.01																											
3/8/2018	0.08																											
3/9/2018	0.00																											
3/10/2018	0.00																											
3/11/2018	0.00																											
3/12/2018	0.21																											
3/13/2018	0.42																											
3/14/2018	0.20																											
3/15/2018	0.17																											
3/16/2018	0.33																											
3/17/2018	0.01																											
3/18/2018	0.00																											
3/19/2018	0.00																											
3/20/2018	0.68																											
3/21/2018	0.32																											
3/22/2018	0.35																											
3/23/2018	0.00																											
3/24/2018	0.06																											
3/25/2018	0.06																											
3/26/2018	0.00																											
3/27/2018	0.00																											
3/28/2018	0.00																											
3/29/2018	0.00																											
3/30/2018	0.00																											
3/31/2018	0.00																											
TOTAL	4.23	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #2 CSD Summary
Mar-2018

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2018	1.08																								
3/2/2018	0.16																								
3/3/2018	0.08																								
3/4/2018	0.01																								
3/5/2018	0.00																								
3/6/2018	0.00																								
3/7/2018	0.01																								
3/8/2018	0.08																								
3/9/2018	0.00																								
3/10/2018	0.00																								
3/11/2018	0.00																								
3/12/2018	0.21																								
3/13/2018	0.42																								
3/14/2018	0.20																								
3/15/2018	0.17																								
3/16/2018	0.33																								
3/17/2018	0.01																								
3/18/2018	0.00																								
3/19/2018	0.00																								
3/20/2018	0.68																								
3/21/2018	0.32																								
3/22/2018	0.35																								
3/23/2018	0.00																								
3/24/2018	0.06																								
3/25/2018	0.06																								
3/26/2018	0.00																								
3/27/2018	0.00																								
3/28/2018	0.00																								
3/29/2018	0.00																								
3/30/2018	0.00																								
3/31/2018	0.00																								
TOTAL	4.23	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Southeast Basin CSD Summary
Mar-2018

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2018	1.03																		
3/2/2018	0.11																		
3/3/2018	0.12																		
3/4/2018	0.01																		
3/5/2018	0.00																		
3/6/2018	0.00																		
3/7/2018	0.00																		
3/8/2018	0.08																		
3/9/2018	0.00																		
3/10/2018	0.00																		
3/11/2018	0.00																		
3/12/2018	0.23																		
3/13/2018	0.40																		
3/14/2018	0.12																		
3/15/2018	0.21																		
3/16/2018	0.22																		
3/17/2018	0.07																		
3/18/2018	0.00																		
3/19/2018	0.00																		
3/20/2018	0.83																		
3/21/2018	0.37																		
3/22/2018	0.30																		
3/23/2018	0.00																		
3/24/2018	0.16																		
3/25/2018	0.08																		
3/26/2018	0.00																		
3/27/2018	0.00																		
3/28/2018	0.00																		
3/29/2018	0.00																		
3/30/2018	0.00																		
3/31/2018	0.00																		
TOTAL	4.34	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	May 7, 2018
Test Organism:	rainbow trout	Test ended:	May 11, 2018
Organism batch ID:	RT-1811	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	5	5	0	5	0	5	0	5	55
	replicate 2	10	4	6	0	6	0	6	0	6	

TUa **0.97**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.2	11.2	11.9	11.6	12.1	11.3	10.8	11.3	11.4	11.4
pH (units)	7.35	7.13	7.36	8.40	7.17	6.82	6.93	7.01	6.70	7.03
Dissolved oxygen (mg/L)	8.2	8.5	8.6	8.4	8.7	7.3	7.8	8.5	8.3	8.0
Residual chlorine (mg/L)	0.0	0.0	-0.1	0.0	0.0	-1.4	-1.0	-0.6	-0.3	-1.6
Alkalinity (mg/L)	26				26	258	270	272	286	280
Hardness (mg/L)	48				52	204	216	226	188	212
Conductivity (µS/cm)	106				105	1876	2145	2194	2028	2257
Total ammonia (mg/L)	< 0.02				< 0.02	36.1	45.7	44.1	34.6	48.7

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration of effluent and control exposure solutions (~60-100 bubble/min) from test-initiation through test-termination.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
Operations Division
750 Phelps Street
San Francisco, CA 94124
T (415) 920-4944

May 29, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Southeast WPCP
NPDES/CA0037664
Monitoring Report
April 2018

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) April 2018 Monthly Self-Monitoring Report.

Two flow-through bioassay tests were performed during April 2018. Test organism survival was 100% for both the April 9-13 test and the April 23-27 test. The 11-sample median and 90th percentile permit requirements for SEP were not met in April 2018 due to the acute flow-through test results from November and December 2017; and February and March 2018. Accelerated testing and additional investigations to identify the toxicants were performed April 2018 and will continue into May 2018.

During the April 6th combined sewer discharge event, no sample was collected at Monitoring Point CSD-031A (Islais Creek North Outfall). The sampler was properly set up but malfunctioned and did not initiate. Field staff were unable to determine the cause. As a precaution, field monitoring staff have replaced the faulty sampler equipment and field-tested the new sampler on site.

Flooded roads created a safety issue on April 7th, causing a delay in collecting a shoreline sample at Jack Rabbit Cove.

Wet Weather Discharge Summary

Drainage Area CSDs	North Shore Basin	Central Basin	Southeast Basin
This Month	1	1	2
2017-18 Season	3	3	3
Long-Term Average Design Goal	4	10	1

Mark Farrell Mayor
Ike Kwon President
Vince Courtney Vice President
Ann Moller Caen Commissioner
Francesca Vietor Commissioner
Anson Moran Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

If you have any questions concerning this report, please call: Superintendent, Andrew Clark, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Superintendent, Bayside Operations

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2017-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.02	1656.90	1604.61	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1619.86	1566.91	0.00	0	0.00	0.00	0	0.00
September	0.09	0.00	0.00	0	0.00	0.13	1608.98	1577.14	0.00	0	0.00	0.00	0	0.00
October	0.21	4.68	0.00	0	0.00	0.19	1699.37	1617.61	0.00	0	0.00	0.14	0	0.00
November	2.88	141.29	106.30	1	0.08	2.80	2060.38	1838.51	0.00	1	153.52	2.67	0	0.00
December	0.12	0.00	0.00	0	0.00	0.07	1648.10	1614.96	0.00	0	0.00	0.09	0	0.00
January	5.83	225.96	172.38	1	43.57	4.87	2350.64	2064.86	256.18	1	570.15	5.21	1	2.73
February	0.43	5.32	0.00	0	0.00	0.43	1561.00	1510.55	0.17	0	0.00	0.41	0	0.00
March	5.68	324.04	277.49	0	0.00	4.23	2662.08	2214.20	338.60	0	0.00	4.34	0	0.00
April	4.52	199.25	163.64	1	42.52	3.62	2187.04	1915.16	198.76	1	558.65	4.36	2	3.30
May														
June														
TOTAL	19.76	900.53	719.81	3	86.17	16.36	19054.35	17524.53	793.71	3	1282.31	17.22	3	6.04

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for April-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
4/1/2018	0.00	0.00	0.00			0.00	54.26	50.23	0.00			0.00		
4/2/2018	0.00	0.00	0.00			0.00	55.97	52.85	0.00			0.00		
4/3/2018	0.00	0.00	0.00			0.00	55.35	52.15	0.00			0.00		
4/4/2018	0.00	0.00	0.00			0.00	55.08	50.40	0.00			0.00		
4/5/2018	0.21	2.09	0.00			0.12	67.72	64.18	0.00			0.15		
4/6/2018	2.75	112.25	91.46	1	42.52	2.02	226.17	109.38	113.91	1	558.65	2.66	1	1.50
4/7/2018	1.20	81.36	72.18			1.02	196.67	109.71	84.85			1.34	1	1.80
4/8/2018	0.00	0.00	0.00			0.00	107.16	101.60	0.00			0.00		
4/9/2018	0.00	0.00	0.00			0.00	77.81	77.92	0.00			0.00		
4/10/2018	0.00	0.11	0.00			0.00	59.98	61.35	0.00			0.00		
4/11/2018	0.10	<0.01	0.00			0.12	78.18	74.33	0.00			0.07		
4/12/2018	0.00	0.00	0.00			0.00	78.70	75.93	0.00			0.00		
4/13/2018	0.00	0.00	0.00			0.00	64.00	59.76	0.00			0.00		
4/14/2018	0.00	0.00	0.00			0.00	59.59	55.59	0.00			0.00		
4/15/2018	0.13	3.30	0.00			0.07	70.35	64.61	0.00			0.06		
4/16/2018	0.12	0.00	0.00			0.27	88.17	84.70	0.00			0.08		
4/17/2018	0.00	0.14	0.00			0.00	59.79	58.61	0.00			0.00		
4/18/2018	0.00	0.00	0.00			0.00	59.25	56.76	0.00			0.00		
4/19/2018	0.00	0.00	0.00			0.00	58.66	57.23	0.00			0.00		
4/20/2018	0.00	0.00	0.00			0.00	57.41	56.28	0.00			0.00		
4/21/2018	0.00	0.00	0.00			0.00	53.62	52.02	0.00			0.00		
4/22/2018	0.00	0.00	0.00			0.00	56.97	55.24	0.00			0.00		
4/23/2018	0.00	0.00	0.00			0.00	56.27	54.10	0.00			0.00		
4/24/2018	0.00	0.00	0.00			0.00	55.05	54.46	0.00			0.00		
4/25/2018	0.00	0.00	0.00			0.00	56.45	54.62	0.00			0.00		
4/26/2018	0.00	0.00	0.00			0.00	56.90	55.40	0.00			0.00		
4/27/2018	0.00	0.00	0.00			0.00	55.53	52.75	0.00			0.00		
4/28/2018	0.00	0.00	0.00			0.00	54.81	53.46	0.00			0.00		
4/29/2018	0.01	0.00	0.00			0.00	53.94	53.59	0.00			0.00		
4/30/2018	0.00	0.00	0.00			0.00	57.21	55.95	0.00			0.00		
TOTAL MONTHLY	4.52	199.25	163.64	1.0	42.52	3.62	2187.04	1915.16	198.76	1	558.65	4.36	2	3.30
MONTHLY AVERAGE FLOW (MGD)	-	28.46	81.82	-	-	-	72.90	63.84	99.38	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	53.62	50.23	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	112.25	91.46	-	-	-	226.17	109.71	113.91	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

1. NPF Effluent is set to zero for April 12 as per Ops (Andy Clarke)
2. EFF-002 is set to zero for April 5 as per Ops (Andy Clarke)

North Shore Basin CSD Summary
Apr-2018

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2018	0.00																		
4/2/2018	0.00																		
4/3/2018	0.00																		
4/4/2018	0.00																		
4/5/2018	0.21																		
4/6/2018	2.75	6:07 PM	391	9.17	6:11 PM	335	8.57				6:21 PM	142	4.62	6:45 PM	385	19.13	6:41 PM	68	1.03
4/7/2018	1.20																		
4/8/2018	0.00																		
4/9/2018	0.00																		
4/10/2018	0.00																		
4/11/2018	0.10																		
4/12/2018	0.00																		
4/13/2018	0.00																		
4/14/2018	0.00																		
4/15/2018	0.13																		
4/16/2018	0.12																		
4/17/2018	0.00																		
4/18/2018	0.00																		
4/19/2018	0.00																		
4/20/2018	0.00																		
4/21/2018	0.00																		
4/22/2018	0.00																		
4/23/2018	0.00																		
4/24/2018	0.00																		
4/25/2018	0.00																		
4/26/2018	0.00																		
4/27/2018	0.00																		
4/28/2018	0.00																		
4/29/2018	0.01																		
4/30/2018	0.00																		
	0.00																		
TOTAL	**4.52**	**-**	**391**	**9.17**	**-**	**335**	**8.57**	**-**	**0**	**0.00**	**-**	**142**	**4.62**	**-**	**385**	**19.13**	**-**	**68**	**1.03**

Central Basin #1 CSD Summary
Apr-2018

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2018	0.00																											
4/2/2018	0.00																											
4/3/2018	0.00																											
4/4/2018	0.00																											
4/5/2018	0.12																											
4/6/2018	2.02	12:11 PM	1223	84.15										12:16 PM	703	54.49	12:16 PM	706	107.0	6:14 PM	145	69.66						
4/7/2018	1.02																											
4/8/2018	0.00																											
4/9/2018	0.00																											
4/10/2018	0.00																											
4/11/2018	0.12																											
4/12/2018	0.00																											
4/13/2018	0.00																											
4/14/2018	0.00																											
4/15/2018	0.07																											
4/16/2018	0.27																											
4/17/2018	0.00																											
4/18/2018	0.00																											
4/19/2018	0.00																											
4/20/2018	0.00																											
4/21/2018	0.00																											
4/22/2018	0.00																											
4/23/2018	0.00																											
4/24/2018	0.00																											
4/25/2018	0.00																											
4/26/2018	0.00																											
4/27/2018	0.00																											
4/28/2018	0.00																											
4/29/2018	0.00																											
4/30/2018	0.00																											
	0.00																											
TOTAL	3.62	-	1223	84.15	-	0	0.00	-	0	0.00	-	0	0.00	-	703	54.49	-	706	107.0	-	145	69.66	-	0	0.00	-	0	0.00

Central Basin #2 CSD Summary
Apr-2018

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2018	0.00																								
4/2/2018	0.00																								
4/3/2018	0.00																								
4/4/2018	0.00																								
4/5/2018	0.12																								
4/6/2018	2.02	7:46 PM	15	0.02										5:41 PM	882	132.54	5:40 PM	876	17.64	5:40 PM	862	25.60	5:34 PM	912	67.55
4/7/2018	1.02																								
4/8/2018	0.00																								
4/9/2018	0.00																								
4/10/2018	0.00																								
4/11/2018	0.12																								
4/12/2018	0.00																								
4/13/2018	0.00																								
4/14/2018	0.00																								
4/15/2018	0.07																								
4/16/2018	0.27																								
4/17/2018	0.00																								
4/18/2018	0.00																								
4/19/2018	0.00																								
4/20/2018	0.00																								
4/21/2018	0.00																								
4/22/2018	0.00																								
4/23/2018	0.00																								
4/24/2018	0.00																								
4/25/2018	0.00																								
4/26/2018	0.00																								
4/27/2018	0.00																								
4/28/2018	0.00																								
4/29/2018	0.00																								
4/30/2018	0.00																								
	0.00																								
TOTAL	3.62	-	15	0.02	-	0	0.00	-	0	0.00	-	0	0.00	-	882	132.54	-	876	17.64	-	862	25.60	-	912	67.55

Southeast Basin CSD Summary
Apr-2018

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2018	0.00																		
4/2/2018	0.00																		
4/3/2018	0.00																		
4/4/2018	0.00																		
4/5/2018	0.15																		
4/6/2018	2.66							7:08 PM	81	1.01	7:10 PM	60	0.40	7:10 PM	60	0.09			
4/7/2018	1.34																4:20 AM	85	1.80
4/8/2018	0.00																		
4/9/2018	0.00																		
4/10/2018	0.00																		
4/11/2018	0.07																		
4/12/2018	0.00																		
4/13/2018	0.00																		
4/14/2018	0.00																		
4/15/2018	0.06																		
4/16/2018	0.08																		
4/17/2018	0.00																		
4/18/2018	0.00																		
4/19/2018	0.00																		
4/20/2018	0.00																		
4/21/2018	0.00																		
4/22/2018	0.00																		
4/23/2018	0.00																		
4/24/2018	0.00																		
4/25/2018	0.00																		
4/26/2018	0.00																		
4/27/2018	0.00																		
4/28/2018	0.00																		
4/29/2018	0.00																		
4/30/2018	0.00																		
	0.00																		
TOTAL	4.36	-	0	0.00	-	0	0.00	-	81	1.01	-	60	0.40	-	60	0.09	-	85	1.80

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2019064

	20 Deg. C)						
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Monthly Average (Mean)	=	318	mg/L	05/31/2018	None
INF-001	Cyanide, Total (as CN)	Daily Maximum	DNQ	4.88	ug/L	05/01/2018	None
INF-001	Flow	Monthly Discharge	=	1697.82	MGM	05/02/2018	None
INF-001	Flow	Daily Minimum	=	13.1	MGD	05/02/2018	None
INF-001	Flow	Daily Maximum	=	73.2	MGD	05/03/2018	None
INF-001	Flow	Monthly Average (Mean)	=	54.8	MGD	05/31/2018	None
INF-001	Total Suspended Solids (TSS)	Daily Maximum	=	702	mg/L	05/08/2018	None
INF-001	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	333	mg/L	05/31/2018	None

Total Calculated Data Points: 62

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1048822	05/07/2018	Acute Toxicity	Acute Toxicity 11-Sample Median limit is 90 % survival and reported value was 85	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP E001A Toxicity 201805a.pdf	E001A	15 KB
SEP E001A Toxicity 201805b.pdf	E001A	15 KB
SEP Shoreline 201805.pdf	Shoreline Report	12 KB

Total Attachments: 3

Cover Letter

File Name
SEP-05-2018_SMR_Final.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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Cal/EPA | ARB | DPR | DTSC | OEHHA | SWRCB

2018_....pdf

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	June 18, 2018
Test Organism:	rainbow trout	Test ended:	June 22, 2018
Organism batch ID:	RT-1814	Prepared by:	L. Targgart
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	0	10	0	10	0	10	0	8	80
	replicate 2	10	0	10	0	10	0	10	0	8	

TUa **0.77**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	12.2	11.3	11.3	12.1	12.1	12.1	11.6	11.8	11.9	11.8
pH (units)	7.35	7.31	7.14	7.27	7.43	6.63	6.81	6.85	6.73	6.93
Dissolved oxygen (mg/L)	7.7	8.3	8.6	8.4	9.2	7.5	7.3	7.3	6.6	7.8
Residual chlorine (mg/L)	0.0	0.0	0.0	0.0	0.0	-1.1	-0.9	-1.6	-1.9	0.0
Alkalinity (mg/L)	24				12	218	266	266	264	258
Hardness (mg/L)	24				16	224	292	376	350	276
Conductivity (µS/cm)	53				57	2279	3210	4330	3960	3040
Total ammonia (mg/L)	< 0.4				< 0.4	21.4	38.4	38.0	34.2	36.1

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration of effluent and control exposure solutions (~60-100 bubble/min) from 69-hours after test-initiation through test-termination.

Note: No mortalities were observed during this test; however, four test organisms were missing from effluent expsoures during the final 24hrs of testing. Those test organisms lost during testing were considered 'dead' for statistical purposes.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
Operations Division
750 Phelps Street
San Francisco, CA 94124
T (415) 920-4944

June 27, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Southeast WPCP
NPDES/CA0037664
Monitoring Report
May 2018

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) May 2018 Monthly Self-Monitoring Report.

Two flow-through bioassay tests were performed during May 2018. Test organism survival was 55% for the May 7th-11th test, which did not meet the 11-sample median and 90th percentile acute toxicity limitations due to the acute flow-through test results from December 2017, and February & March 2018. Test organism survival was 100% for the second acute flow-through bioassay test performed May 21st -25th. Accelerated testing and additional investigations to identify the toxicants were performed during May 2018 and continued into June 2018.

This monthly Shoreline Bacteriological Report contains data for April 30, 2018, which was inadvertently omitted from the April 2018 SMR.

Wet Weather Discharge Summary

Drainage Area CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This Month	0	0	0
2017-18 Season	3	3	4
Long-Term Average Design Goal	4	10	1

If you have any questions concerning this report, please call: Superintendent, Andrew Clark, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Superintendent, Bayside Operations

Mark Farrell Mayor
Ike Kwon President
Vince Courtney Vice President
Ann Moller Caen Commissioner
Francesca Vietor Commissioner
Anson Moran Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2017-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.02	1656.90	1604.61	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1619.86	1566.91	0.00	0	0.00	0.00	0	0.00
September	0.09	0.00	0.00	0	0.00	0.13	1608.98	1577.14	0.00	0	0.00	0.00	0	0.00
October	0.21	4.68	0.00	0	0.00	0.19	1699.37	1617.61	0.00	0	0.00	0.14	0	0.00
November	2.88	141.29	106.30	1	0.08	2.80	2060.38	1838.51	0.00	1	153.52	2.67	0	0.00
December	0.12	0.00	0.00	0.00	0.00	0.07	1648.10	1614.96	0.00	0	0.00	0.09	0	0.00
January	5.83	225.96	172.38	1	43.57	4.87	2350.64	2064.86	256.18	1	570.15	5.21	1	1.50
February	0.43	5.32	0.00	0	0.00	0.43	1561.00	1510.55	0.17	0	0.00	0.41	1	1.80
March	5.68	324.04	277.49	0	0.00	4.23	2662.08	2214.20	338.60	0	0.00	4.34	0	0.00
April	4.52	199.25	163.64	1	42.52	3.62	2187.04	1915.16	198.76	1	558.65	4.36	2	3.30
May	0.02	0.00	0.00	0	0.00	0.03	1697.83	1653.08	0.00	0	0.00	0.00	0	0.00
June														
TOTAL	19.78	900.53	719.81	3	86.17	16.39	20752.18	19177.61	793.71	3	1282.31	17.22	4	6.60

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for May-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	\\WWESEPPIO1\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPIO1\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
5/1/2018	0.00	0.00	0.00			0.00	58.60	56.88	0.00			0.00		
5/2/2018	0.00	0.00	0.00			0.00	13.10	11.77	0.00			0.00		
5/3/2018	0.00	0.00	0.00			0.00	73.18	70.62	0.00			0.00		
5/4/2018	0.00	0.00	0.00			0.00	72.08	70.40	0.00			0.00		
5/5/2018	0.00	0.00	0.00			0.00	56.32	52.66	0.00			0.00		
5/6/2018	0.00	0.00	0.00			0.00	53.62	50.92	0.00			0.00		
5/7/2018	0.00	0.00	0.00			0.00	55.69	53.95	0.00			0.00		
5/8/2018	0.00	0.00	0.00			0.00	55.59	52.62	0.00			0.00		
5/9/2018	0.00	0.00	0.00			0.00	55.75	54.04	0.00			0.00		
5/10/2018	0.00	0.00	0.00			0.00	54.47	51.60	0.00			0.00		
5/11/2018	0.00	0.00	0.00			0.00	52.99	51.50	0.00			0.00		
5/12/2018	0.00	0.00	0.00			0.00	53.86	52.69	0.00			0.00		
5/13/2018	0.00	0.00	0.00			0.00	53.09	52.22	0.00			0.00		
5/14/2018	0.00	0.00	0.00			0.00	54.31	52.36	0.00			0.00		
5/15/2018	0.00	0.00	0.00			0.00	55.10	53.34	0.00			0.00		
5/16/2018	0.00	0.00	0.00			0.00	54.54	53.22	0.00			0.00		
5/17/2018	0.00	0.00	0.00			0.00	56.14	55.06	0.00			0.00		
5/18/2018	0.00	0.00	0.00			0.00	57.28	53.33	0.00			0.00		
5/19/2018	0.00	0.00	0.00			0.00	57.88	51.54	0.00			0.00		
5/20/2018	0.00	0.00	0.00			0.00	56.00	49.83	0.00			0.00		
5/21/2018	0.00	0.00	0.00			0.00	56.86	53.00	0.00			0.00		
5/22/2018	0.00	0.00	0.00			0.00	55.06	53.49	0.00			0.00		
5/23/2018	0.02	0.00	0.00			0.03	52.92	51.91	0.00			0.00		
5/24/2018	0.00	0.00	0.00			0.00	58.04	58.63	0.00			0.00		
5/25/2018	0.00	0.00	0.00			0.00	58.43	59.73	0.00			0.00		
5/26/2018	0.00	0.00	0.00			0.00	52.37	54.52	0.00			0.00		
5/27/2018	0.00	0.00	0.00			0.00	50.77	51.91	0.00			0.00		
5/28/2018	0.00	0.00	0.00			0.00	51.69	53.30	0.00			0.00		
5/29/2018	0.00	0.00	0.00			0.00	52.56	53.51	0.00			0.00		
5/30/2018	0.00	0.00	0.00			0.00	53.76	54.86	0.00			0.00		
5/31/2018	0.00	0.00	0.00			0.00	55.77	57.65	0.00			0.00		
TOTAL MONTHLY	0.02	0.00	0.00	0	0.00	0.03	1697.83	1653.08	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	54.77	53.33	0.00	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	13.10	11.77	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	73.18	70.62	0.00	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

1) Plant Shutdown on May 2nd

North Shore Basin CSD Summary
May-2018

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2018	0.00																		
5/2/2018	0.00																		
5/3/2018	0.00																		
5/4/2018	0.00																		
5/5/2018	0.00																		
5/6/2018	0.00																		
5/7/2018	0.00																		
5/8/2018	0.00																		
5/9/2018	0.00																		
5/10/2018	0.00																		
5/11/2018	0.00																		
5/12/2018	0.00																		
5/13/2018	0.00																		
5/14/2018	0.00																		
5/15/2018	0.00																		
5/16/2018	0.00																		
5/17/2018	0.00																		
5/18/2018	0.00																		
5/19/2018	0.00																		
5/20/2018	0.00																		
5/21/2018	0.00																		
5/22/2018	0.00																		
5/23/2018	0.02																		
5/24/2018	0.00																		
5/25/2018	0.00																		
5/26/2018	0.00																		
5/27/2018	0.00																		
5/28/2018	0.00																		
5/29/2018	0.00																		
5/30/2018	0.00																		
5/31/2018	0.00																		
Total	**0.02**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**

Central Basin #1 CSD Summary
May-2018

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2018	0.00																											
5/2/2018	0.00																											
5/3/2018	0.00																											
5/4/2018	0.00																											
5/5/2018	0.00																											
5/6/2018	0.00																											
5/7/2018	0.00																											
5/8/2018	0.00																											
5/9/2018	0.00																											
5/10/2018	0.00																											
5/11/2018	0.00																											
5/12/2018	0.00																											
5/13/2018	0.00																											
5/14/2018	0.00																											
5/15/2018	0.00																											
5/16/2018	0.00																											
5/17/2018	0.00																											
5/18/2018	0.00																											
5/19/2018	0.00																											
5/20/2018	0.00																											
5/21/2018	0.00																											
5/22/2018	0.00																											
5/23/2018	0.03																											
5/24/2018	0.00																											
5/25/2018	0.00																											
5/26/2018	0.00																											
5/27/2018	0.00																											
5/28/2018	0.00																											
5/29/2018	0.00																											
5/30/2018	0.00																											
5/31/2018	0.00																											
Total	0.03	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #2 CSD Summary
May-2018

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2018	0.00																								
5/2/2018	0.00																								
5/3/2018	0.00																								
5/4/2018	0.00																								
5/5/2018	0.00																								
5/6/2018	0.00																								
5/7/2018	0.00																								
5/8/2018	0.00																								
5/9/2018	0.00																								
5/10/2018	0.00																								
5/11/2018	0.00																								
5/12/2018	0.00																								
5/13/2018	0.00																								
5/14/2018	0.00																								
5/15/2018	0.00																								
5/16/2018	0.00																								
5/17/2018	0.00																								
5/18/2018	0.00																								
5/19/2018	0.00																								
5/20/2018	0.00																								
5/21/2018	0.00																								
5/22/2018	0.00																								
5/23/2018	0.03																								
5/24/2018	0.00																								
5/25/2018	0.00																								
5/26/2018	0.00																								
5/27/2018	0.00																								
5/28/2018	0.00																								
5/29/2018	0.00																								
5/30/2018	0.00																								
5/31/2018	0.00																								
Total	**0.03**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**

Southeast Basin CSD Summary
May-2018

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2018	0.00																		
5/2/2018	0.00																		
5/3/2018	0.00																		
5/4/2018	0.00																		
5/5/2018	0.00																		
5/6/2018	0.00																		
5/7/2018	0.00																		
5/8/2018	0.00																		
5/9/2018	0.00																		
5/10/2018	0.00																		
5/11/2018	0.00																		
5/12/2018	0.00																		
5/13/2018	0.00																		
5/14/2018	0.00																		
5/15/2018	0.00																		
5/16/2018	0.00																		
5/17/2018	0.00																		
5/18/2018	0.00																		
5/19/2018	0.00																		
5/20/2018	0.00																		
5/21/2018	0.00																		
5/22/2018	0.00																		
5/23/2018	0.00																		
5/24/2018	0.00																		
5/25/2018	0.00																		
5/26/2018	0.00																		
5/27/2018	0.00																		
5/28/2018	0.00																		
5/29/2018	0.00																		
5/30/2018	0.00																		
5/31/2018	0.00																		
Total	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**	-	**0**	**0.00**

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2019065

	20 Deg. C)						
INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Daily Maximum	=	405	mg/L	06/30/2018	None
INF-001	Cyanide, Total (as CN)	Daily Maximum	<	4	ug/L	06/04/2018	None
INF-001	Flow	Monthly Discharge	=	1617.38	MGM	06/27/2018	None
INF-001	Flow	Daily Minimum	=	17.34	MGD	06/27/2018	None
INF-001	Flow	Daily Maximum	=	74.8	MGD	06/28/2018	None
INF-001	Flow	Monthly Average (Mean)	=	53.9	MGD	06/30/2018	None
INF-001	Total Suspended Solids (TSS)	Daily Maximum	=	491	mg/L	06/12/2018	None
INF-001	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	322	mg/L	06/30/2018	None

Total Calculated Data Points: 63

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1048824	05/07/2018	Acute Toxicity	Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported val	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP E001A Toxicity 201806a.pdf	E001A	47 KB
SEP E001A Toxicity 201806b.pdf	E001A	15 KB
SEP Shoreline 201806.pdf	Shoreline Report	37 KB

Total Attachments: 3

Cover Letter

File Name
SEP_cover_June_SMR_Final.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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Cal/EPA | ARB | DPR | DTSC | OEHHA | SWRCB

2018_....pdf

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
Southeast Plant
Operations Division
750 Phelps Street
San Francisco, CA 94124
T (415) 920-4944

July 23, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Southeast WPCP
NPDES/CA0037664
Monitoring Report
June 2018

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) June 2018 Monthly Self-Monitoring Report.

Two flow-through bioassay tests were conducted in June. Organism survival during the first test (June 4th -8th) was 100%. This test did not meet the 11-sample 90th percentile acute toxicity limitation due to the acute flow-through test results from February, March and May 2018. Organism survival during the second test (June 18th-22nd) was 80%, due to unusual circumstances explained in the footnote below.[1] This test did not meet the 11-sample median or the 11-sample 90th percentile acute toxicity limitation due to the acute flow-through test results from February, March and May 2018. Though accelerated testing continued during June, no additional attempts to identify the toxicants were employed since test results did not indicate a toxic component within the final effluent. Accelerated testing will continue into July 2018.

A data error has been identified in the May 2018 SMR. The individual and monthly CSD data were reported correctly; however, due to a spreadsheet error, the May 2018 annual wet weather summary erroneously included a CSD in February and an incorrect CSD volume for January. This SMR contains the correct annual wet weather summary data.

Wet Weather Discharge Summary

Drainage Area CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This Month	0	0	0
2017-18 Season	3	3	3
Long-Term Average Design Goal	4	10	1

If you have any questions concerning this report, please call: Superintendent, Andrew Clark, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

[1] It should be noted that test organism survival was 100% at the 72 hour assessment. The final test result of 80% survival was due to the absence of four test organisms from the effluent exposure tanks at the 96 hour endpoint. No dead fish were observed by laboratory staff during the entire test, and it is likely that the four fish escaped through unscreened flow outlets in the effluent exposure tank during the last 24 hours of the test. Dead test organisms typically sink to the bottom of the exposure tanks, and it is unlikely they would drift to the surface outflow and out of the tank. The unscreened flow outlet situation has been corrected.

London Breed Mayor
Ike Kwon President
Vince Courtney Vice President
Ann Moller Caen Commissioner
Francesca Vietor Commissioner
Anson Moran Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Superintendent, Bayside Operations

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2017-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.02	1656.90	1604.61	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1619.86	1566.91	0.00	0	0.00	0.00	0	0.00
September	0.09	0.00	0.00	0	0.00	0.13	1608.98	1577.14	0.00	0	0.00	0.00	0	0.00
October	0.21	4.68	0.00	0	0.00	0.19	1699.37	1617.61	0.00	0	0.00	0.14	0	0.00
November	2.88	141.29	106.30	1	0.08	2.80	2060.38	1838.51	0.00	1	153.52	2.67	0	0.00
December	0.12	0.00	0.00	0	0.00	0.07	1648.10	1614.96	0.00	0	0.00	0.09	0	0.00
January	5.83	225.96	172.38	1	43.57	4.87	2350.64	2064.86	256.18	1	570.15	5.21	1	2.73
February	0.43	5.32	0.00	0	0.00	0.43	1561.00	1510.55	0.17	0	0.00	0.41	0	0.00
March	5.68	324.04	277.49	0	0.00	4.23	2662.08	2214.20	338.60	0	0.00	4.34	0	0.00
April	4.52	199.25	163.64	1	42.52	3.62	2187.04	1915.16	198.76	1	558.65	4.36	2	3.30
May	0.02	0.00	0.00	0	0.00	0.03	1697.83	1653.08	0.00	0	0.00	0.00	0	0.00
June	0.00	0.00	0.00	0	0.00	0.01	1617.40	1598.08	0.00	0	0.00	0.00	0	0.00
TOTAL	19.78	900.53	719.81	3	86.17	16.40	22369.58	20775.68	793.71	3	1282.31	17.22	3	6.04

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for June-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.RO01	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
6/1/2018	0.00	0.00	0.00			0.00	54.23	55.96	0.00			0.00		
6/2/2018	0.00	0.00	0.00			0.00	53.14	54.95	0.00			0.00		
6/3/2018	0.00	0.00	0.00			0.00	53.03	56.20	0.00			0.00		
6/4/2018	0.00	0.00	0.00			0.00	53.95	54.67	0.00			0.00		
6/5/2018	0.00	0.00	0.00			0.00	53.85	56.59	0.00			0.00		
6/6/2018	0.00	0.00	0.00			0.00	53.51	55.58	0.00			0.00		
6/7/2018	0.00	0.00	0.00			0.00	55.87	56.67	0.00			0.00		
6/8/2018	0.00	0.00	0.00			0.00	52.82	53.91	0.00			0.00		
6/9/2018	0.00	0.00	0.00			0.01	52.97	52.08	0.00			0.00		
6/10/2018	0.00	0.00	0.00			0.00	52.86	51.32	0.00			0.00		
6/11/2018	0.00	0.00	0.00			0.00	55.41	53.77	0.00			0.00		
6/12/2018	0.00	0.00	0.00			0.00	55.22	53.15	0.00			0.00		
6/13/2018	0.00	0.00	0.00			0.00	53.16	51.49	0.00			0.00		
6/14/2018	0.00	0.00	0.00			0.00	58.38	55.69	0.00			0.00		
6/15/2018	0.00	0.00	0.00			0.00	58.75	54.98	0.00			0.00		
6/16/2018	0.00	0.00	0.00			0.00	53.18	51.68	0.00			0.00		
6/17/2018	0.00	0.00	0.00			0.00	53.33	50.15	0.00			0.00		
6/18/2018	0.00	0.00	0.00			0.00	51.57	50.56	0.00			0.00		
6/19/2018	0.00	0.00	0.00			0.00	55.99	55.42	0.00			0.00		
6/20/2018	0.00	0.00	0.00			0.00	54.53	52.71	0.00			0.00		
6/21/2018	0.00	0.00	0.00			0.00	55.71	54.24	0.00			0.00		
6/22/2018	0.00	0.00	0.00			0.00	54.22	52.87	0.00			0.00		
6/23/2018	0.00	0.00	0.00			0.00	51.92	51.51	0.00			0.00		
6/24/2018	0.00	0.00	0.00			0.00	53.21	52.48	0.00			0.00		
6/25/2018	0.00	0.00	0.00			0.00	54.92	53.32	0.00			0.00		
6/26/2018	0.00	0.00	0.00			0.00	56.43	55.36	0.00			0.00		
6/27/2018	0.00	0.00	0.00			0.00	17.34	17.07	0.00			0.00		
6/28/2018	0.00	0.00	0.00			0.00	74.76	71.85	0.00			0.00		
6/29/2018	0.00	0.00	0.00			0.00	61.20	60.45	0.00			0.00		
6/30/2018	0.00	0.00	0.00			0.00	51.92	51.39	0.00			0.00		
TOTAL MONTHLY	0.00	0.00	0.00	0	0.00	0.01	1617.40	1598.08	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	53.91	53.27	0.00	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	17.34	17.07	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	74.76	71.85	0.00	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

Plant Shutdown on June 27

North Shore Basin CSD Summary
Jun-2018

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
6/1/2018	0.00																		
6/2/2018	0.00																		
6/3/2018	0.00																		
6/4/2018	0.00																		
6/5/2018	0.00																		
6/6/2018	0.00																		
6/7/2018	0.00																		
6/8/2018	0.00																		
6/9/2018	0.00																		
6/10/2018	0.00																		
6/11/2018	0.00																		
6/12/2018	0.00																		
6/13/2018	0.00																		
6/14/2018	0.00																		
6/15/2018	0.00																		
6/16/2018	0.00																		
6/17/2018	0.00																		
6/18/2018	0.00																		
6/19/2018	0.00																		
6/20/2018	0.00																		
6/21/2018	0.00																		
6/22/2018	0.00																		
6/23/2018	0.00																		
6/24/2018	0.00																		
6/25/2018	0.00																		
6/26/2018	0.00																		
6/27/2018	0.00																		
6/28/2018	0.00																		
6/29/2018	0.00																		
6/30/2018	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #1 CSD Summary
Jun-2018

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
6/1/2018	0.00																											
6/2/2018	0.00																											
6/3/2018	0.00																											
6/4/2018	0.00																											
6/5/2018	0.00																											
6/6/2018	0.00																											
6/7/2018	0.00																											
6/8/2018	0.00																											
6/9/2018	0.01																											
6/10/2018	0.00																											
6/11/2018	0.00																											
6/12/2018	0.00																											
6/13/2018	0.00																											
6/14/2018	0.00																											
6/15/2018	0.00																											
6/16/2018	0.00																											
6/17/2018	0.00																											
6/18/2018	0.00																											
6/19/2018	0.00																											
6/20/2018	0.00																											
6/21/2018	0.00																											
6/22/2018	0.00																											
6/23/2018	0.00																											
6/24/2018	0.00																											
6/25/2018	0.00																											
6/26/2018	0.00																											
6/27/2018	0.00																											
6/28/2018	0.00																											
6/29/2018	0.00																											
6/30/2018	0.00																											
TOTAL	0.01	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #2 CSD Summary
Jun-2018

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
6/1/2018	0.00																								
6/2/2018	0.00																								
6/3/2018	0.00																								
6/4/2018	0.00																								
6/5/2018	0.00																								
6/6/2018	0.00																								
6/7/2018	0.00																								
6/8/2018	0.00																								
6/9/2018	0.01																								
6/10/2018	0.00																								
6/11/2018	0.00																								
6/12/2018	0.00																								
6/13/2018	0.00																								
6/14/2018	0.00																								
6/15/2018	0.00																								
6/16/2018	0.00																								
6/17/2018	0.00																								
6/18/2018	0.00																								
6/19/2018	0.00																								
6/20/2018	0.00																								
6/21/2018	0.00																								
6/22/2018	0.00																								
6/23/2018	0.00																								
6/24/2018	0.00																								
6/25/2018	0.00																								
6/26/2018	0.00																								
6/27/2018	0.00																								
6/28/2018	0.00																								
6/29/2018	0.00																								
6/30/2018	0.00																								
TOTAL	0.01	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Southeast Basin CSD Summary
Jun-2018

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
6/1/2018	0.00																		
6/2/2018	0.00																		
6/3/2018	0.00																		
6/4/2018	0.00																		
6/5/2018	0.00																		
6/6/2018	0.00																		
6/7/2018	0.00																		
6/8/2018	0.00																		
6/9/2018	0.00																		
6/10/2018	0.00																		
6/11/2018	0.00																		
6/12/2018	0.00																		
6/13/2018	0.00																		
6/14/2018	0.00																		
6/15/2018	0.00																		
6/16/2018	0.00																		
6/17/2018	0.00																		
6/18/2018	0.00																		
6/19/2018	0.00																		
6/20/2018	0.00																		
6/21/2018	0.00																		
6/22/2018	0.00																		
6/23/2018	0.00																		
6/24/2018	0.00																		
6/25/2018	0.00																		
6/26/2018	0.00																		
6/27/2018	0.00																		
6/28/2018	0.00																		
6/29/2018	0.00																		
6/30/2018	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
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August 27, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Southeast WPCP
NPDES/CA0037664
Monitoring Report
July 2018

Attention: NPDES Division

Transmitted herewith is the Southeast Water Pollution Control Plant (SEP) July 2018 Monthly Self-Monitoring Report.

Two flow-through bioassays were conducted in July. The results were 100% survival on both tests.

Due to plant shutdown on July 25, 2018 data for pH was not available for this date.

The plant effluent was in compliance with all permit numerical requirements.

Wet Weather Discharge Summary

Drainage Area CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This Month	0	0	0
2017-18 Season	0	0	0
Long-Term Average Design Goal	4	10	1

If you have any questions concerning this report, please call: Superintendent, Andrew Clark, at 415-920-4944, Supervising Chemist, Dolson Kwan, at 415-920-4957, or Laboratory Manager, Kenneth Lee, at 415-920-4965.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Superintendent, Bayside Operations

London Breed Mayor
Ike Kwon President
Vince Courtney Vice President
Ann Moller Caen Commissioner
Francesca Vietor Commissioner
Anson Moran Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2018-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00
August														
September														
October														
November														
December														
January														
February														
March														
April														
May														
June														
TOTAL	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for July-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.RO01	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
7/1/2018	0.00	0.00	0.00			0.00	52.43	51.15	0.00			0.00		
7/2/2018	0.00	0.00	0.00			0.00	53.02	52.02	0.00			0.00		
7/3/2018	0.00	0.00	0.00			0.00	53.29	51.75	0.00			0.00		
7/4/2018	0.00	0.00	0.00			0.00	51.96	51.39	0.00			0.00		
7/5/2018	0.00	0.00	0.00			0.00	53.31	52.75	0.00			0.00		
7/6/2018	0.00	0.00	0.00			0.00	52.53	51.52	0.00			0.00		
7/7/2018	0.00	0.00	0.00			0.00	53.55	52.88	0.00			0.00		
7/8/2018	0.00	0.00	0.00			0.00	52.21	51.42	0.00			0.00		
7/9/2018	0.00	0.00	0.00			0.00	55.10	53.50	0.00			0.00		
7/10/2018	0.00	0.00	0.00			0.00	57.29	54.89	0.00			0.00		
7/11/2018	0.00	0.00	0.00			0.00	55.27	52.96	0.00			0.00		
7/12/2018	0.00	0.00	0.00			0.00	54.72	52.75	0.00			0.00		
7/13/2018	0.00	0.00	0.00			0.00	55.80	53.51	0.00			0.00		
7/14/2018	0.00	0.00	0.00			0.00	53.66	52.30	0.00			0.00		
7/15/2018	0.00	0.00	0.00			0.00	54.54	52.64	0.00			0.00		
7/16/2018	0.00	0.00	0.00			0.00	55.67	53.16	0.00			0.00		
7/17/2018	0.00	0.00	0.00			0.00	56.69	54.40	0.00			0.00		
7/18/2018	0.00	0.00	0.00			0.00	56.70	55.07	0.00			0.00		
7/19/2018	0.00	0.00	0.00			0.00	55.80	53.47	0.00			0.00		
7/20/2018	0.00	0.00	0.00			0.00	59.51	56.32	0.00			0.00		
7/21/2018	0.00	0.00	0.00			0.00	55.51	53.64	0.00			0.00		
7/22/2018	0.00	0.00	0.00			0.00	53.37	51.30	0.00			0.00		
7/23/2018	0.00	0.00	0.00			0.00	55.58	53.23	0.00			0.00		
7/24/2018	0.00	0.00	0.00			0.00	56.74	54.82	0.00			0.00		
7/25/2018	0.00	0.00	0.00			0.00	15.08	13.96	0.00			0.00		
7/26/2018	0.00	0.00	0.00			0.00	73.94	70.47	0.00			0.00		
7/27/2018	0.00	0.00	0.00			0.00	62.67	60.19	0.00			0.00		
7/28/2018	0.00	0.00	0.00			0.00	56.69	55.77	0.00			0.00		
7/29/2018	0.00	0.00	0.00			0.00	54.61	53.49	0.00			0.00		
7/30/2018	0.00	0.00	0.00			0.00	55.27	53.46	0.00			0.00		
7/31/2018	0.00	0.00	0.00			0.00	56.23	53.23	0.00			0.00		
TOTAL MONTHLY	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	54.47	52.69	0.00	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	15.08	13.96	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	73.94	70.47	0.00	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

Instrumentation anomalies occurring on 7/25, 7/26, 7/27, and 7/30 were zeroed out per confirmation by SFPUC Operations

SEP shutdown on 7/25

North Shore Basin CSD Summary
Jul-2018

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
7/1/2018	0.00																		
7/2/2018	0.00																		
7/3/2018	0.00																		
7/4/2018	0.00																		
7/5/2018	0.00																		
7/6/2018	0.00																		
7/7/2018	0.00																		
7/8/2018	0.00																		
7/9/2018	0.00																		
7/10/2018	0.00																		
7/11/2018	0.00																		
7/12/2018	0.00																		
7/13/2018	0.00																		
7/14/2018	0.00																		
7/15/2018	0.00																		
7/16/2018	0.00																		
7/17/2018	0.00																		
7/18/2018	0.00																		
7/19/2018	0.00																		
7/20/2018	0.00																		
7/21/2018	0.00																		
7/22/2018	0.00																		
7/23/2018	0.00																		
7/24/2018	0.00																		
7/25/2018	0.00																		
7/26/2018	0.00																		
7/27/2018	0.00																		
7/28/2018	0.00																		
7/29/2018	0.00																		
7/30/2018	0.00																		
7/31/2018	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #1 CSD Summary
Jul-2018

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
7/1/2018	0.00																											
7/2/2018	0.00																											
7/3/2018	0.00																											
7/4/2018	0.00																											
7/5/2018	0.00																											
7/6/2018	0.00																											
7/7/2018	0.00																											
7/8/2018	0.00																											
7/9/2018	0.00																											
7/10/2018	0.00																											
7/11/2018	0.00																											
7/12/2018	0.00																											
7/13/2018	0.00																											
7/14/2018	0.00																											
7/15/2018	0.00																											
7/16/2018	0.00																											
7/17/2018	0.00																											
7/18/2018	0.00																											
7/19/2018	0.00																											
7/20/2018	0.00																											
7/21/2018	0.00																											
7/22/2018	0.00																											
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7/25/2018	0.00																											
7/26/2018	0.00																											
7/27/2018	0.00																											
7/28/2018	0.00																											
7/29/2018	0.00																											
7/30/2018	0.00																											
7/31/2018	0.00																											
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #2 CSD Summary
Jul-2018

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
7/1/2018	0.00																								
7/2/2018	0.00																								
7/3/2018	0.00																								
7/4/2018	0.00																								
7/5/2018	0.00																								
7/6/2018	0.00																								
7/7/2018	0.00																								
7/8/2018	0.00																								
7/9/2018	0.00																								
7/10/2018	0.00																								
7/11/2018	0.00																								
7/12/2018	0.00																								
7/13/2018	0.00																								
7/14/2018	0.00																								
7/15/2018	0.00																								
7/16/2018	0.00																								
7/17/2018	0.00																								
7/18/2018	0.00																								
7/19/2018	0.00																								
7/20/2018	0.00																								
7/21/2018	0.00																								
7/22/2018	0.00																								
7/23/2018	0.00																								
7/24/2018	0.00																								
7/25/2018	0.00																								
7/26/2018	0.00																								
7/27/2018	0.00																								
7/28/2018	0.00																								
7/29/2018	0.00																								
7/30/2018	0.00																								
7/31/2018	0.00																								
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Southeast Basin CSD Summary
Jul-2018

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
7/1/2018	0.00																		
7/2/2018	0.00																		
7/3/2018	0.00																		
7/4/2018	0.00																		
7/5/2018	0.00																		
7/6/2018	0.00																		
7/7/2018	0.00																		
7/8/2018	0.00																		
7/9/2018	0.00																		
7/10/2018	0.00																		
7/11/2018	0.00																		
7/12/2018	0.00																		
7/13/2018	0.00																		
7/14/2018	0.00																		
7/15/2018	0.00																		
7/16/2018	0.00																		
7/17/2018	0.00																		
7/18/2018	0.00																		
7/19/2018	0.00																		
7/20/2018	0.00																		
7/21/2018	0.00																		
7/22/2018	0.00																		
7/23/2018	0.00																		
7/24/2018	0.00																		
7/25/2018	0.00																		
7/26/2018	0.00																		
7/27/2018	0.00																		
7/28/2018	0.00																		
7/29/2018	0.00																		
7/30/2018	0.00																		
7/31/2018	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
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October 25, 2018

Ms. Jessica Watkins
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Unauthorized Discharge Report for the Discharge of Treated Effluent from the Southeast Water Pollution Control Plant (NPDES CA0037664)

Dear Ms. Watkins,

Attached please find currently available information regarding a suspected discharge of treated effluent from the Southeast Water Pollution Control Plant (SEP) to Islais Channel, as required by National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037664, Attachment G, Section V.E.2.b.

At approximately 12:30pm on October 18th, 2018, San Francisco Public Utilities Commission (SFPUC) staff observed an upwelling at the surface of Islais Channel near the location of the SEP final effluent force main. SFPUC currently assumes that the upwelling is due to a leak in the underwater force main that conveys treated effluent from SEP to the Pier 80 Outfall (Discharge Point 001). Despite the immediate deployment of resources to initiate assessment of potential damage and develop a repair strategy, SFPUC expects this issue may take several months to resolve. The SFPUC plans to provide weekly status updates in the interim. Additional information as required by Attachment G of the SEP NPDES Permit is provided in the attachment.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Mark A. Harris, Operations Manager
Wastewater Enterprise

London N. Breed
Mayor

Vince Courtney
President

Ann Moller Caen
Vice President

Francesca Vietor
Commissioner

Anson Moran
Commissioner

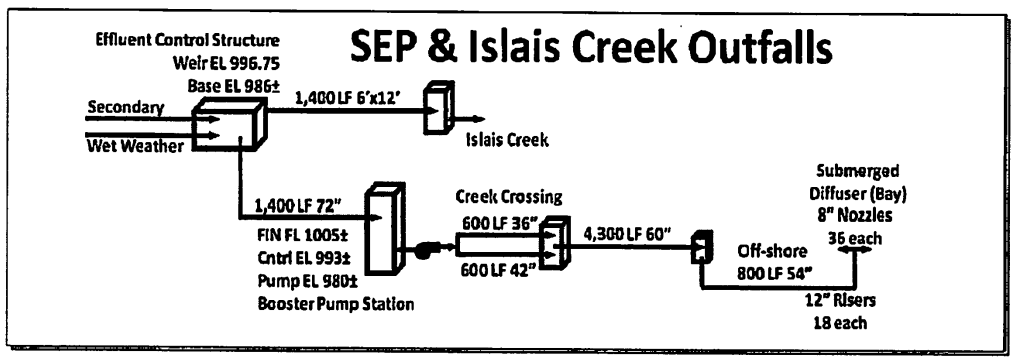
Ike Kwon
Commissioner

Harlan L. Kelly, Jr.
General Manager

ATTACHMENT: Discharge Incident Report

1. Discharge incident description and cause

The SFPUC suspects that the SEP final effluent force main is damaged and is discharging a portion of SEP secondary treated, chlorinated and dechlorinated effluent to Islais Channel. The force main traverses Islais Channel, in approximately 30 feet of water, running parallel and just west of the Third Street Bridge. It consists of two ductile iron pipes: one 36 inches in diameter, and one 42 inches in diameter. The force main connects the Booster Pump Station (BPS) to a 60-inch reinforced concrete cylinder pipe that eventually discharges through the Pier 80 Outfall via gravity. A schematic of this infrastructure is shown below. It is believed that one of the pipes is leaking based on visual observations of an upwelling in Islais Channel. The cause of the damage is currently unknown.



2. Location of involved waterway

Islais Channel, San Francisco Bay.

3. Date and time discharge started

The upwelling was observed at approximately 12:30pm on October 18th, 2018. The exact start time is unknown.

4. Estimated quantity and duration of the discharge, including amounts recovered

The discharge is ongoing. The quantity of the discharge cannot be estimated at this time. The quantity is likely a portion of the total flow being pumped by BPS, with the remainder being discharged through Discharge Point 001. Recovery of any portion of the discharge is not possible.

5. Level of treatment prior to discharge

The discharge consists of secondary treated, chlorinated and dechlorinated effluent.

ATTACHMENT: Discharge Incident Report

6. Identity of persons reporting the discharge

SFPUC Operations staff reported the suspected discharge to the California Office of Emergency Services (CalOES) (Report #18-7076) on October 18th, 2018 at approximately 1:30pm. Regulatory staff reported the suspected discharge to San Francisco Bay Regional Water Board staff the same day at 5:30pm.

7. Methods used to delineate the geographical extent of the discharge in receiving waters

Visual observations of an upwelling in the Channel, as shown in the photograph on Attachment Page 3.

8. Efforts implemented to minimize public exposure to the discharge

Even though the discharge is disinfected, daily receiving water samples have been collected at the Islais Channel landing [Station 320] starting on October 18th, 2018. The samples were analyzed for total coliform, E. coli, and enterococcus. As of October 24th, 2018, all results have been low. The SFPUC plans to continue sampling daily through Sunday, October 28th, 2018. If all results remain low, only routine weekly sampling will be performed. Sample results are shown in the table below.

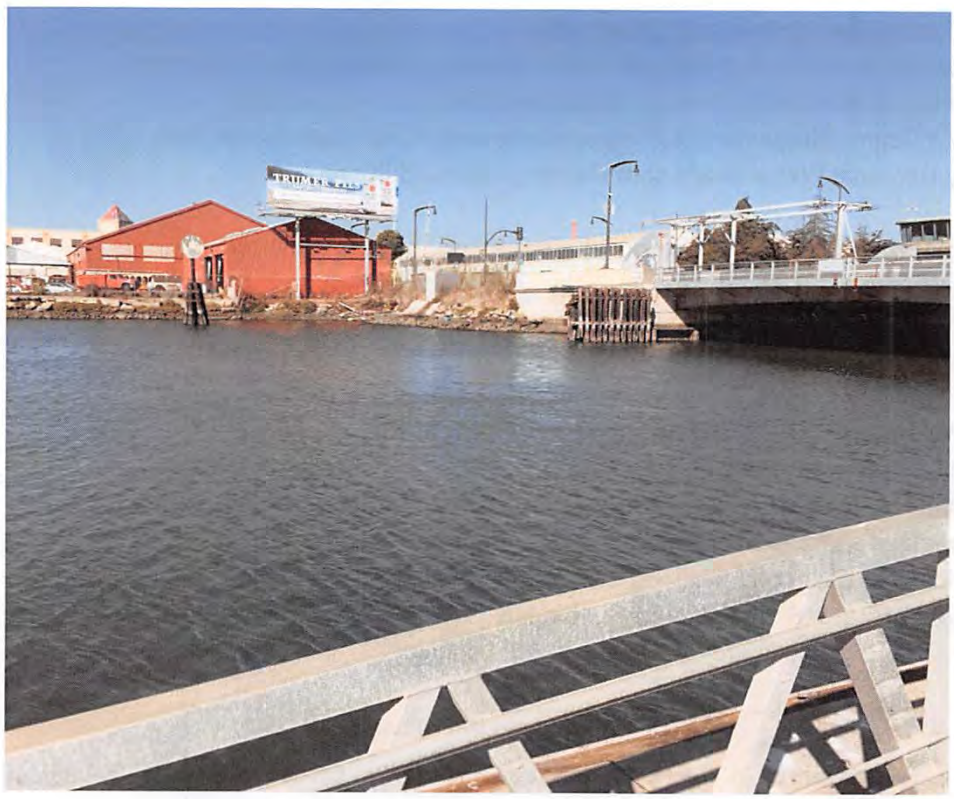
		Analytes (MPN/100mL)		
Sample Date	Station name	Total Coliform	*Escherichia coli*	Enterococcus
18-Oct-18	Islais Landing (320)	20	<10	<10
19-Oct-18	Islais Landing (320)	414	20	<10
20-Oct-18	Islais Landing (320)	199	31	<10
21-Oct-18	Islais Landing (320)	135	10	<10
22-Oct-18	Islais Landing (320)	31	<10	<10
23-Oct-18	Islais Landing (320)	228	63	10

Additionally, signs were posted at the Islais Channel landing, the SFPUC's Recreational Beach Water Quality Hotline was updated and an email notification was circulated. All public notifications were completed at approximately 3:00pm on October 18th, 2018.

9. Visual observations of the impacts noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted

A visual inspection was conducted by a SFPUC Water Quality Division Biologist at approximately 3:11pm on October 18th, 2018. No adverse effects on or impacts to receiving waters or wildlife were observed. See Attachment Page 3 for a photograph taken by the biologist.

ATTACHMENT: Discharge Incident Report



10. Corrective measures taken to minimize the impact of the discharge

The only corrective measure available is to minimize the discharge by repairing or replacing the pipe. The SFPUC contacted a professional diving firm available under contract with the City to discuss inspection and bypass options the same day as becoming aware of the issue. SFPUC General Manager Harlan Kelly has declared an emergency in accordance with the City and County's Admirative Code to ensure expeditious access to the expert resources needed evaluate and address this issue.

11. Measures to be taken to minimize the chances of a similar discharge occurring in the future

The SFPUC approved a project to replace the force main in 2016. This project is currently in preliminary (35%) design. Encroachment and environmental permits from the San Francisco Port have been obtained and geotechnical surveys are underway. Environmental review and permitting has not been completed. The current project schedule estimates completion in 2024.

12. Summary of Spill Prevention Plan or Operation & Maintenance Manual modifications to be made, if necessary, to minimize the chances of future discharges

No changes are needed.

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2019069

INF-001	Cyanide, Total (as CN)	Daily Maximum	<	4	ug/L	10/01/2018	None
INF-001	Flow	Daily Maximum	=	74.9	MGD	10/02/2018	None
INF-001	Flow	Monthly Discharge	=	1731.81	MGM	10/17/2018	None
INF-001	Flow	Daily Minimum	=	5.06	MGD	10/17/2018	None
INF-001	Flow	Monthly Average (Mean)	=	55.9	MGD	10/31/2018	None
INF-001	Total Suspended Solids (TSS)	Daily Maximum	=	636	mg/L	10/21/2018	None
INF-001	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	321	mg/L	10/31/2018	None

Total Calculated Data Points: 62

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1054349	10/18/2018	Order Conditions	Secondary-treated, chlorinated, and dechlorinated wastewater discharged to Islai	A temporary bypass is expected to be completed by February 2019. A rehabilitation and replacement project for both of the force mains is expected to be completed in the long-term. The SMR cover letter states that the project completion date is 2024.	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP E001A Toxicity 201810.pdf	E001A Acute	44 KB
SEP Shoreline 201810.pdf	Shoreline Report	88 KB

Total Attachments: 2

Cover Letter

File Name
2018-10 SEP SMR Final.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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2018_....pdf

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	November 5, 2018
Test Organism:	rainbow trout	Test ended:	November 9, 2018
Organism batch ID:	RT-1822	Prepared by:	M. Concepcion
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	6	4	0	4	0	4	0	4	45
	replicate 2	10	5	5	0	5	0	5	0	5	

TUa **1.02**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	12.0	12.5	11.5	11.8	11.4	12.3	12.0	11.4	11.3	11.3
pH (units)	8.00	7.87	7.74	7.26	7.50	6.84	6.82	7.08	6.95	7.02
Dissolved oxygen (mg/L)	11.3	10.0	10.5	10.7	9.9	7.1	6.5	9.2	6.7	6.6
Residual chlorine (mg/L)	0.0	0.0	0.0	0.0	0.0	-1.6	-0.9	-1.0	-0.3	-1.6
Alkalinity (mg/L)	44				48	230	260	270	284	270
Hardness (mg/L)	60				54	312	380	400	226	286
Conductivity (µS/cm)	187				216	3250	3930	3970	2314	2901
Total ammonia (mg/L)	< 0.4				< 0.4	39.7	47.5	39.5	47.3	43.1

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration of effluent and control exposure solutions (~60-100 bubble/min) from test-initiation through termination

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Static-Renewal Bioassay Test -- REPORT

Southeast Plant Wet Weather Discharge

PDS (EFF-001B)

Exposure volume:	4L	Test Started:	November 23, 2018
Test Organism:	Rainbow trout	Test Ended:	November 27, 2018
Organism batch ID:	RT-1823	Prepared by:	M. Concepcion
Sample Date:	November 21, 2018	Approved by:	R. Duggan
Sample Lab-ID:	18-EFF-112		

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	
Effluent	rep 1	10	0	10	1	9	0	10	0	9	90
	rep 2	10	0	10	0	10	1	9	0	9	

TUa **0.59**

Water Quality Data

Control	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.3	12.2	12.3	11.9	12.0	11.7
pH (units)	7.91	7.82	7.75	7.91	7.75	7.78
Dissolved oxygen (mg/L)	10.5	11.1	11.2	11.2	10.0	10.6
Hardness (mg/L)	120			120		96
Alkalinity (mg/L)	72			72		76
Conductivity (µS/cm)	351			350		541

Effluent	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.0	12.3	12.2	12.8	12.0	12.0
pH (units)	7.20	7.68	7.34	7.29	7.21	7.46
Dissolved oxygen (mg/L)	11.1	11.7	14.2	11.0	8.9	11.3
Hardness (mg/L)	104			108		70
Alkalinity (mg/L)	62			64		62
Conductivity (µS/cm)	570			562		591
Residual chlorine (mg/L)	-3.4					
Total ammonia (mg/L)	9.0					

Comments: In order to maintain dissolved oxygen levels of at least 60% saturation, control and effluent exposures were aerated from 4hrs after test initiation through test termination

Effluent and control exposures were also oxygenated intermittently from 4hrs after test initiation through test termination in order to maintain dissolved oxygen levels within protocol requirements.

Reference:

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

November 30, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: October 2018 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report for the month of October 2018 for the Southeast Water Pollution Control Plant.

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Compliance monitoring was completed as required by the NPDES permit.

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as summarized in the table below and described in the attached Wet Weather Summary.

Count of Drainage Areas CSDs	North Shore Basin	Central Basin	Southeast Basin
This reporting period	0	0	0
Total for Count 2018-2019 Wet Weather Season	0	0	0

Discharge Incident
On October 18, 2018, SFPUC staff observed an upwelling at the surface of Islais Channel near the location of the SEP final effluent force main. The SFPUC suspected that the SEP final effluent force main pipe (to Discharge Point No. 001) may have been damaged, resulting in the discharge of a portion of the SEP secondary treated, chlorinated and dechlorinated effluent to Islais Channel. SFPUC staff subsequently notified Jessica Watkins (Regional Water Board staff) of this

London N. Breed, Mayor
Vince Courtney, President
Ann Moller Caen, Vice President
Francesca Vietor, Commissioner
Anson Moran, Commissioner
Ike Kwon, Commissioner
Harlan L. Kelly, Jr., General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

incident on October 18, 2018, consistent with the 24-hour notification requirements in the permit, and submitted a 5-day report on October 25, 2018.

Professional divers (SFPUC contractors) performed underwater inspections of the two force main pipes on November 3. The inspection found that a leak is occurring in the 36" force main pipe, and that there is no leak in the 42" pipe. An emergency bypass of the 36" force main pipe is being designed, and completion of the bypass is currently projected to be February 2019, depending on the availability of the pipe and weather.

In addition, since the initial observation, SFPUC staff have been performing weekly fecal indicator bacteria sampling of Islais Channel, and an aluminum sign has been posted to advise the public of the issue and provide contact information for additional information. The SFPUC has been and will continue providing regular updates to Jessica Watkins until the issues is resolved.

If you have any questions concerning this report, please contact Superintendent, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; Laboratory Manager, Kenneth Lee at (415) 920-4965 or KLee@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Superintendent, Bayside Operations

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2018-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1702.93	1633.27	0.00	0	0.00	0.00	0	0.00
September	0.00	0.00	0.00	0	0.00	0.00	1622.74	1572.86	0.00	0	0.00	0.00	0	0.00
October	0.00	4.79	0.00	0	0.00	0.05	1731.82	1643.10	0.00	0	0.00	0.00	0	0.00
November														
December														
January														
February														
March														
April														
May														
June														
TOTAL	0.00	4.79	0.00	0	0.00	0.05	6746.22	6482.65	0.00	0	0.00	0.00	0	0.00

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for October-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
10/1/2018	0.00	0.00	0.00			0.00	56.67	55.15	0.00			0.00		
10/2/2018	0.00	3.83	0.00			0.05	74.90	67.65	0.00			0.00		
10/3/2018	0.00	0.45	0.00			0.00	58.71	56.32	0.00			0.00		
10/4/2018	0.00	0.51	0.00			0.00	59.06	55.34	0.00			0.00		
10/5/2018	0.00	0.00	0.00			0.00	62.50	58.17	0.00			0.00		
10/6/2018	0.00	0.00	0.00			0.00	54.21	50.25	0.00			0.00		
10/7/2018	0.00	0.00	0.00			0.00	53.12	50.54	0.00			0.00		
10/8/2018	0.00	0.00	0.00			0.00	55.47	51.41	0.00			0.00		
10/9/2018	0.00	0.00	0.00			0.00	56.76	53.98	0.00			0.00		
10/10/2018	0.00	0.00	0.00			0.00	57.45	53.73	0.00			0.00		
10/11/2018	0.00	0.00	0.00			0.00	53.42	49.51	0.00			0.00		
10/12/2018	0.00	0.00	0.00			0.00	56.87	53.31	0.00			0.00		
10/13/2018	0.00	0.00	0.00			0.00	53.60	49.76	0.00			0.00		
10/14/2018	0.00	0.00	0.00			0.00	55.14	52.33	0.00			0.00		
10/15/2018	0.00	0.00	0.00			0.00	60.55	57.79	0.00			0.00		
10/16/2018	0.00	0.00	0.00			0.00	57.67	54.94	0.00			0.00		
10/17/2018	0.00	0.00	0.00			0.00	5.06	6.75	0.00			0.00		
10/18/2018	0.00	0.00	0.00			0.00	48.05	46.83	0.00			0.00		
10/19/2018	0.00	0.00	0.00			0.00	74.49	75.33	0.00			0.00		
10/20/2018	0.00	0.00	0.00			0.00	65.75	67.04	0.00			0.00		
10/21/2018	0.00	0.00	0.00			0.00	54.04	53.60	0.00			0.00		
10/22/2018	0.00	0.00	0.00			0.00	56.28	54.88	0.00			0.00		
10/23/2018	0.00	0.00	0.00			0.00	57.41	53.59	0.00			0.00		
10/24/2018	0.00	0.00	0.00			0.00	55.28	53.16	0.00			0.00		
10/25/2018	0.00	0.00	0.00			0.00	55.22	51.81	0.00			0.00		
10/26/2018	0.00	0.00	0.00			0.00	56.69	52.78	0.00			0.00		
10/27/2018	0.00	0.00	0.00			0.00	55.62	51.88	0.00			0.00		
10/28/2018	0.00	0.00	0.00			0.00	51.87	48.05	0.00			0.00		
10/29/2018	0.00	0.00	0.00			0.00	58.18	53.86	0.00			0.00		
10/30/2018	0.00	0.00	0.00			0.00	56.78	52.61	0.00			0.00		
10/31/2018	0.00	0.00	0.00			0.00	54.99	50.75	0.00			0.00		
TOTAL MONTHLY	0.00	4.79	0.00	0	0.00	0.05	1731.82	1643.10	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	1.60	0.00	-	-	-	55.87	53.0	0.00	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	5.06	6.75	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	3.83	0.00	-	-	-	74.90	75.33	0.00	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

SEP Plant Shutdown from 10/17 2:00 to 10/18 3:45

Instrumentation anomalies occurring on 10/1 and 10/2 were zeroed out per confirmation by SFPUC Operations

On 10/3 and 10/4, NPF Influent flows were used to flush tanks. There was no NPF effluent flows

North Shore Basin CSD Summary
Oct-2018

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
10/1/2018	0.00																		
10/2/2018	0.00																		
10/3/2018	0.00																		
10/4/2018	0.00																		
10/5/2018	0.00																		
10/6/2018	0.00																		
10/7/2018	0.00																		
10/8/2018	0.00																		
10/9/2018	0.00																		
10/10/2018	0.00																		
10/11/2018	0.00																		
10/12/2018	0.00																		
10/13/2018	0.00																		
10/14/2018	0.00																		
10/15/2018	0.00																		
10/16/2018	0.00																		
10/17/2018	0.00																		
10/18/2018	0.00																		
10/19/2018	0.00																		
10/20/2018	0.00																		
10/21/2018	0.00																		
10/22/2018	0.00																		
10/23/2018	0.00																		
10/24/2018	0.00																		
10/25/2018	0.00																		
10/26/2018	0.00																		
10/27/2018	0.00																		
10/28/2018	0.00																		
10/29/2018	0.00																		
10/30/2018	0.00																		
10/31/2018	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #1 CSD Summary
Oct-2018

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
10/1/2018	0.00																											
10/2/2018	0.05																											
10/3/2018	0.00																											
10/4/2018	0.00																											
10/5/2018	0.00																											
10/6/2018	0.00																											
10/7/2018	0.00																											
10/8/2018	0.00																											
10/9/2018	0.00																											
10/10/2018	0.00																											
10/11/2018	0.00																											
10/12/2018	0.00																											
10/13/2018	0.00																											
10/14/2018	0.00																											
10/15/2018	0.00																											
10/16/2018	0.00																											
10/17/2018	0.00																											
10/18/2018	0.00																											
10/19/2018	0.00																											
10/20/2018	0.00																											
10/21/2018	0.00																											
10/22/2018	0.00																											
10/23/2018	0.00																											
10/24/2018	0.00																											
10/25/2018	0.00																											
10/26/2018	0.00																											
10/27/2018	0.00																											
10/28/2018	0.00																											
10/29/2018	0.00																											
10/30/2018	0.00																											
10/31/2018	0.00																											
TOTAL	0.05	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #2 CSD Summary
Oct-2018

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
10/1/2018	0.00																								
10/2/2018	0.05																								
10/3/2018	0.00																								
10/4/2018	0.00																								
10/5/2018	0.00																								
10/6/2018	0.00																								
10/7/2018	0.00																								
10/8/2018	0.00																								
10/9/2018	0.00																								
10/10/2018	0.00																								
10/11/2018	0.00																								
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10/17/2018	0.00																								
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10/25/2018	0.00																								
10/26/2018	0.00																								
10/27/2018	0.00																								
10/28/2018	0.00																								
10/29/2018	0.00																								
10/30/2018	0.00																								
10/31/2018	0.00																								
TOTAL	0.05	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Southeast Basin CSD Summary
Oct-2018

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
10/1/2018	0.00																		
10/2/2018	0.00																		
10/3/2018	0.00																		
10/4/2018	0.00																		
10/5/2018	0.00																		
10/6/2018	0.00																		
10/7/2018	0.00																		
10/8/2018	0.00																		
10/9/2018	0.00																		
10/10/2018	0.00																		
10/11/2018	0.00																		
10/12/2018	0.00																		
10/13/2018	0.00																		
10/14/2018	0.00																		
10/15/2018	0.00																		
10/16/2018	0.00																		
10/17/2018	0.00																		
10/18/2018	0.00																		
10/19/2018	0.00																		
10/20/2018	0.00																		
10/21/2018	0.00																		
10/22/2018	0.00																		
10/23/2018	0.00																		
10/24/2018	0.00																		
10/25/2018	0.00																		
10/26/2018	0.00																		
10/27/2018	0.00																		
10/28/2018	0.00																		
10/29/2018	0.00																		
10/30/2018	0.00																		
10/31/2018	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2019070

INF-001	Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C)	Monthly Average (Mean)	=	346	mg/L	11/30/2018	None
INF-001	Cyanide, Total (as CN)	Daily Maximum	<	4	ug/L	11/05/2018	None
INF-001	Flow	Daily Minimum	=	26.64	MGD	11/14/2018	None
INF-001	Flow	Monthly Discharge	=	2308	MGM	11/14/2018	None
INF-001	Flow	Daily Maximum	=	242	MGD	11/23/2018	None
INF-001	Flow	Monthly Average (Mean)	=	76.9	MGD	11/30/2018	None
INF-001	Total Suspended Solids (TSS)	Daily Maximum	=	760	mg/L	11/20/2018	None
INF-001	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	342	mg/L	11/30/2018	None

Total Calculated Data Points: 114

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1066833	11/05/2018	Acute Toxicity	Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported val	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP E001A Toxicity 201811.pdf	E001A	15 KB
SEP E001B Toxicity 201811.pdf	E001B	15 KB
SEP E003 Toxicity 201811.pdf	E003	15 KB
SEP shoreline 201811.pdf	Shoreline Report	89 KB

Total Attachments: 4

Cover Letter

File Name
2018-11 SEP SMR FINAL.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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2018_....pdf

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	December 10, 2018
Test Organism:	rainbow trout	Test ended:	December 14, 2018
Organism batch ID:	RT-1825	Prepared by:	M. Concepcion
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	4	6	0	6	0	6	0	6	55
	replicate 2	10	4	6	0	6	1	5	0	5	

TUa **0.97**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.9	12.0	12.3	11.9	12.2	11.5	12.1	12.1	12.1	12.6
pH (units)	7.52	6.84	7.83	7.13	7.73	6.76	6.81	6.87	6.82	6.52
Dissolved oxygen (mg/L)	8.6	8.6	8.9	8.3	8.1	7.4	7.7	8.0	6.8	4.7
Residual chlorine (mg/L)	-0.1	0.0	0.0	0.0	0.0	-1.4	-1.1	-0.9	-0.5	-0.2
Alkalinity (mg/L)	12				24	246	260	260	260	236
Hardness (mg/L)	NT				NT	NT	NT	NT	NT	NT
Conductivity (µS/cm)	56				61	3370	2659	2750	3720	2736
Total ammonia (mg/L)	< 0.02				0.1	47.6	57.2	40.6	49.5	41.3

NT = not taken

Note: Effluent dissolved oxygen levels at 96hrs were below the protocol-prescribed 6.0 ppm; however, test organism survival was unaffected by this water quality excursion.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

December 28, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: November 2018 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664], Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of November 2018 for the Southeast Water Pollution Control Plant (SEP).

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period with the exception of acute toxicity as described below.

Acute Toxicity**.** Monthly dry weather acute toxicity testing was performed for the period of November 5-9, 2018. The test result of 45% survival did not meet the 11-sample 90th percentile limitation of 70% survival, due to test results from May 2018 (55% survival) as shown in the following table.

Sample Event No.	Flow-through Bioassay Test Dates	Results (% Survival)
1	April 23-27, 2018	100%
2	May 7-11, 2018	55%
3	May 21-25, 2018	100%
4	June 4-8, 2018	100%
5	June 18-22, 2018	80%
6	July 9-13, 2018	100%
7	July 16-20, 2018	100%
8	August 6-10, 2018	100%
9	September 17-21, 2018	90%
10	October 9-13, 2018	100%
11	November 5-9, 2018	45%
11-Sample Median		**100%**
11-Sample 90th percentile		**55%**

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General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Follow-up accelerated monitoring could not be initiated until the second week of December because of shutdowns for necessary maintenance, and wet weather. A plant shutdown on November 14 prevented testing the week of November 12-16. Wet weather prevented testing the weeks of November 19-23 and November 26-30. A test initiated on December 3 was interrupted by wet weather on December 5. A test was successfully completed the week of December 10-14; results will be reported in the December self-monitoring report.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit. During the week of November 18-24, three pH results are available at EFF-001A (for November 18, 19, and 20). The remaining days of that week were wet weather days.

Discharge Incidents. On October 18, 2018, SFPUC staff observed an upwelling at the surface of Islais Channel near the location of the SEP final effluent force main. Professional contract divers performed underwater inspections of the two force main pipes on November 3 and confirmed a leak in the 36" force main pipe. A five-day written report was submitted on October 25, and status updates were provided on November 8, November 16, November 29, and December 7. Future updates will be provided in SMR cover letters until construction of the bypass is complete. During December, inspections needed to complete design of the bypass continued, including another internal inspection on December 7.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. Multiple combined sewer discharge (CSD) events occurred during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Count of Drainage Areas CSDs	North Shore Basin	Central Basin	Southeast Basin
This reporting period	2	3	1
Total for 2018-2019 Wet Weather Season	2	3	1

System Operations of Wet Weather Facilities

During the November 28 storm event, Griffith Pump Station (GFS) did not reach its design capacity until 11:08 pm, 16 minutes after a CSD occurred in the Southeast Basin. Operations staff were unable to initiate remote operation of one of the GFS wet weather pumps. Prior to the CSD occurring, staff were deployed to the pump station to manually operate that pump, and the issue was resolved the following day.

This event did not cause a CSD or otherwise increase the CSD volume discharged on the Bayside during this storm event. If GFS had reached its design capacity prior to the first CSD start time of 10:52 pm, GFS would have pumped an additional estimated 0.16 million gallons (MG) to the Islais Transport/Storage Structure. The volume of CSDs in the Southeast Basin was 0.39 MG, meaning that CSDs would have occurred at these locations even if there had been no issue with GFS. Additionally, because the Islais Transport/Storage Structure was full and CSDs were occurring at Islais Creek, the 0.16 MG that discharged to the Southeast Basin would have been discharged as a CSD to the Central Basin.

All other wet weather facilities during the storm event operated consistent with the requirements in NPDES permit Provision VI.C.5.c.i. - VI.C.5.c.iv.

SEP Wet Weather Monitoring. The Bayside system experienced wet weather days on November 21, 22, 23, 24, 27, 28, and 29. Wet weather sampling was conducted during the reporting month. On November 28 a wet weather enterococcus sample was collected at EFF-002 but not EFF-001B because SEP was discharging only secondary treated effluent, so the sample was representative of the effluent being discharged at both Discharge Points Nos. 001 and 002.

CSD Monitoring. CSD samples were collected at each permit-designated location during each CSD event, except for those that occurred on November 22. No samples were collected on November 22 because field staff were not available to deploy during the Thanksgiving Day holiday.

During the November 21 CSD event, a manual grab sample rather than a composite was collected at CSD-025. The sampler was properly set up but the pump did not initiate. Field staff collected a grab sample, and subsequently replaced the appropriate sampler parts and field-tested the sampler.

Shoreline Monitoring and Posting. There was only one issue with shoreline monitoring and posting during November. After the November 28 CSD event, shoreline sampling at S-202.5 (Crissy Field West) was conducted on November 28 and 29. No sample was collected on November 30, however, because the decision not to sample was made based on preliminary enterococcus results that showed the November 29 sample had enterococcus concentrations less than 104 MPN/100 mL. The final enterococcus concentration, which was unavailable until the afternoon of November 30, was 107 MPN/mL. As a precautionary measure, a sample was collected the following day, December 1, and will be reported with next month's SMR.

If you have any questions concerning this report, please contact Superintendent, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; Laboratory Manager, Kenneth Lee at (415) 920-4965 or KLee@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Superintendent, Bayside Operations

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2018-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1702.93	1633.27	0.00	0	0.00	0.00	0	0.00
September	0.00	0.00	0.00	0	0.00	0.00	1622.74	1572.86	0.00	0	0.00	0.00	0	0.00
October	0.00	4.79	0.00	0	0.00	0.05	1731.82	1643.10	0.00	0	0.00	0.00	0	0.00
November	4.31	215.48	169.96	2	6.39	4.54	2307.89	1834.01	363.39	3	277.27	3.26	1	0.40
December														
January														
February														
March														
April														
May														
June														
TOTAL	4.31	220.27	169.96	2	6.39	4.59	9054.11	8316.66	363.39	3	277.27	3.26	1	0.40

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for November-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	\\WWESEPPI01\TELOG:RG35_NSS.Intensity	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	\\WWESEPPI01\TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
11/1/2018	0.00	0.00	0.00			0.00	54.42	51.07	0.00			0.00		
11/2/2018	0.00	0.00	0.00			0.00	55.75	51.56	0.00			0.00		
11/3/2018	0.00	0.00	0.00			0.00	47.18	42.33	0.00			0.00		
11/4/2018	0.00	0.00	0.00			0.00	62.57	57.99	0.00			0.00		
11/5/2018	0.00	0.00	0.00			0.00	54.60	50.20	0.00			0.00		
11/6/2018	0.00	0.00	0.00			0.00	54.71	49.26	0.00			0.00		
11/7/2018	0.00	0.00	0.00			0.00	58.26	52.70	0.00			0.00		
11/8/2018	0.00	0.00	0.00			0.00	56.74	53.05	0.00			0.00		
11/9/2018	0.00	0.00	0.00			0.00	57.42	53.42	0.00			0.00		
11/10/2018	0.00	0.00	0.00			0.00	54.62	51.50	0.00			0.00		
11/11/2018	0.00	0.00	0.00			0.00	52.71	48.83	0.00			0.00		
11/12/2018	0.00	0.00	0.00			0.00	54.24	50.50	0.00			0.00		
11/13/2018	0.00	0.00	0.00			0.00	56.00	52.92	0.00			0.00		
11/14/2018	0.00	0.00	0.00			0.00	26.64	25.26	0.00			0.00		
11/15/2018	0.00	0.00	0.00			0.00	71.68	68.42	0.00			0.00		
11/16/2018	0.00	0.00	0.00			0.00	57.12	53.62	0.00			0.00		
11/17/2018	0.00	0.00	0.00			0.00	54.93	51.46	0.00			0.00		
11/18/2018	0.00	0.00	0.00			0.00	53.06	50.21	0.00			0.00		
11/19/2018	0.00	0.00	0.00			0.00	53.76	50.48	0.00			0.00		
11/20/2018	0.00	0.00	0.00			0.00	53.63	50.67	0.00			0.00		
11/21/2018	1.23	53.27	39.09	1	6.16	1.39	170.95	88.67	76.60	1	96.54	1.07		
11/22/2018	0.84	25.83	18.37			0.66	113.58	84.21	27.76	1	75.25	0.55		
11/23/2018	0.75	71.20	61.74			0.79	242.00	110.00	127.40			0.42		
11/24/2018	0.01	0.00	0.00			0.03	86.04	84.39	1.03			0.02		
11/25/2018	0.00	0.00	0.00			0.00	58.04	57.10	0.00			0.00		
11/26/2018	0.00	0.00	0.00			0.00	62.55	60.61	0.00			0.00		
11/27/2018	0.30	3.87	0.00			0.26	88.04	73.67	9.51			0.19		
11/28/2018	0.84	7.93	4.0	1	0.22	1.04	110.18	89.44	13.05	1	105.49	0.81	1	0.40
11/29/2018	0.34	53.40	46.76			0.37	218.13	104.56	108.05			0.20		
11/30/2018	0.00	0.00	0.00			0.00	68.36	65.90	0.00			0.00		
TOTAL MONTHLY	4.31	215.48	169.96	2	6.39	4.54	2307.89	1834.01	363.39	3	277.27	3.26	1	0.40
MONTHLY AVERAGE FLOW (MGD)	-	35.91	33.99	-	-	-	76.93	61.13	51.91	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	26.64	25.26	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	71.20	61.74	-	-	-	242.00	110.00	127.40	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

SEP Plant Shutdown on 11/14 from 03:50 through 16:00

North Shore Basin CSD Summary
Nov-2018

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2018	0.00																		
11/2/2018	0.00																		
11/3/2018	0.00																		
11/4/2018	0.00																		
11/5/2018	0.00																		
11/6/2018	0.00																		
11/7/2018	0.00																		
11/8/2018	0.00																		
11/9/2018	0.00																		
11/10/2018	0.00																		
11/11/2018	0.00																		
11/12/2018	0.00																		
11/13/2018	0.00																		
11/14/2018	0.00																		
11/15/2018	0.00																		
11/16/2018	0.00																		
11/17/2018	0.00																		
11/18/2018	0.00																		
11/19/2018	0.00																		
11/20/2018	0.00																		
11/21/2018	1.23	12:12 PM	114	2.05	12:14 PM	102	1.55				12:42 PM	58	2.32	12:51 PM	36	0.12	12:51 PM	37	0.13
11/22/2018	0.84																		
11/23/2018	0.75																		
11/24/2018	0.01																		
11/25/2018	0.00																		
11/26/2018	0.00																		
11/27/2018	0.30																		
11/28/2018	0.84	11:34 PM	42	0.18	11:36 PM	17	0.04												
11/29/2018	0.34																		
11/30/2018	0.00																		
	0.00																		
TOTAL	4.31	-	156	2.23	-	119	1.59	-	0	0.00	-	58	2.32	-	36	0.12	-	37	0.13

Central Basin #1 CSD Summary
Nov-2018

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2018	0.00																											
11/2/2018	0.00																											
11/3/2018	0.00																											
11/4/2018	0.00																											
11/5/2018	0.00																											
11/6/2018	0.00																											
11/7/2018	0.00																											
11/8/2018	0.00																											
11/9/2018	0.00																											
11/10/2018	0.00																											
11/11/2018	0.00																											
11/12/2018	0.00																											
11/13/2018	0.00																											
11/14/2018	0.00																											
11/15/2018	0.00																											
11/16/2018	0.00																											
11/17/2018	0.00																											
11/18/2018	0.00																											
11/19/2018	0.00																											
11/20/2018	0.00																											
11/21/2018	1.39	12:04 PM	266	18.21										12:02 PM	149	13.31	12:02 PM	149	25.03	12:52 PM	25	12.17						
11/22/2018	0.66	9:23 PM	305	19.79										9:23 PM	220	15.85	9:23 PM	220	31.0									
11/23/2018	0.79																											
11/24/2018	0.03																											
11/25/2018	0.00																											
11/26/2018	0.00																											
11/27/2018	0.26																											
11/28/2018	1.04	10:39 PM	259	17.88										10:31 PM	179	14.75	10:31 PM	180	28.68	10:33 PM	20	8.13						
11/29/2018	0.37																											
11/30/2018	0.00																											
	0.00																											
TOTAL	4.54	-	830	55.89	-	0	0.00	-	0	0.00	-	0	0.00	-	548	43.91	-	549	84.71	-	45	20.31	-	0	0.00	-	0	0.00

Central Basin #2 CSD Summary
Nov-2018

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2018	0.00																								
11/2/2018	0.00																								
11/3/2018	0.00																								
11/4/2018	0.00																								
11/5/2018	0.00																								
11/6/2018	0.00																								
11/7/2018	0.00																								
11/8/2018	0.00																								
11/9/2018	0.00																								
11/10/2018	0.00																								
11/11/2018	0.00																								
11/12/2018	0.00																								
11/13/2018	0.00																								
11/14/2018	0.00																								
11/15/2018	0.00																								
11/16/2018	0.00																								
11/17/2018	0.00																								
11/18/2018	0.00																								
11/19/2018	0.00																								
11/20/2018	0.00																								
11/21/2018	1.39	1:12 PM	21	0.05										1:03 PM	150	13.66	1:01 PM	115	1.87	1:01 PM	115	2.65	1:00 PM	170	9.58
11/22/2018	0.66													10:48 PM	47	3.78	10:47 PM	37	0.49	10:47 PM	37	0.69	10:44 PM	77	3.64
11/23/2018	0.79																								
11/24/2018	0.03																								
11/25/2018	0.00																								
11/26/2018	0.00																								
11/27/2018	0.26																								
11/28/2018	1.04	10:21 PM	43	0.31										10:45 PM	165	16.23	10:44 PM	146	2.04	10:45 PM	144	2.82	10:45 PM	222	14.63
11/29/2018	0.37																								
11/30/2018	0.00																								
	0.00																								
TOTAL	4.54	-	64	0.37	-	0	0.00	-	0	0.00	-	0	0.00	-	362	33.67	-	298	4.40	-	296	6.17	-	469	27.85

Southeast Basin CSD Summary
Nov-2018

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2018	0.00																		
11/2/2018	0.00																		
11/3/2018	0.00																		
11/4/2018	0.00																		
11/5/2018	0.00																		
11/6/2018	0.00																		
11/7/2018	0.00																		
11/8/2018	0.00																		
11/9/2018	0.00																		
11/10/2018	0.00																		
11/11/2018	0.00																		
11/12/2018	0.00																		
11/13/2018	0.00																		
11/14/2018	0.00																		
11/15/2018	0.00																		
11/16/2018	0.00																		
11/17/2018	0.00																		
11/18/2018	0.00																		
11/19/2018	0.00																		
11/20/2018	0.00																		
11/21/2018	1.07																		
11/22/2018	0.55																		
11/23/2018	0.42																		
11/24/2018	0.02																		
11/25/2018	0.00																		
11/26/2018	0.00																		
11/27/2018	0.19																		
11/28/2018	0.81							10:52 PM	15	0.24	10:54 PM	11	0.12	10:54 PM	11	0.03			
11/29/2018	0.20																		
11/30/2018	0.00																		
	0.00																		
TOTAL	**3.26**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**15**	**0.24**	**-**	**11**	**0.12**	**-**	**11**	**0.03**	**-**	**0**	**0.00**

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2019071

INF-001	Cyanide, Total (as CN)	Daily Maximum	=	14.9	ug/L	12/04/2018	None
INF-001	Flow	Daily Maximum	=	143.2	MGD	12/17/2018	None
INF-001	Flow	Monthly Discharge	=	2159	MGM	12/30/2018	None
INF-001	Flow	Daily Minimum	=	50.54	MGD	12/30/2018	None
INF-001	Flow	Monthly Average (Mean)	=	69.6	MGD	12/31/2018	None
INF-001	Total Suspended Solids (TSS)	Daily Maximum	=	637	mg/L	12/04/2018	None
INF-001	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	333	mg/L	12/31/2018	None

Total Calculated Data Points: 114

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1066834	12/10/2018	Acute Toxicity	Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported val	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP E001A Toxicity 201812a.pdf	E001A	15 KB
SEP E001A Toxicity 201812b.pdf	E001A	24 KB
SEP E001B Toxicity 201812.pdf	E001B	26 KB
SEP E003 Toxicity 201812.pdf	E003	27 KB
SEP Shoreline 201812.pdf	Shoreline Report	43 KB

Total Attachments: 5

Cover Letter

File Name
2018-12 SEP SMR FINAL.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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2018_....pdf

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
December 2018

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sat/01	Sun/02	Mon/03	Tue/04	Mon/10	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
202.4			20		41	359		52		< 10	43
202.5	**17329**	122	10		63	85		109		63	134
210.1			74		20	259		*		*	
211			318	75	10	262		134		135	102
220	**> 24196**	862	1160		395	**> 24196**	364	201		201	1165
300.1			677	504	86	4106	556	120		63	338
301.1			743		404	**14136**	411	3255	332	63	738
301.2			**14136**	906	< 10	2359	317	282		31	363
320	9804	7270	2187		1012	2613		471		75	1466

Sampling/Posting issues

Hyde St pier (210.1) not accessible due to partial govt. shutdown

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Sat/01	Sun/02	Mon/03	Tue/04	Mon/10	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
202.4			< 10		< 10	85		10		< 10	15
202.5	**512**	< 10	< 10		10	20		< 10		10	19
210.1			< 10		< 10	98		*		*	
211			216	10	< 10	10		41		31	25
220	**691**	52	74		20	**> 24196**	10	10		75	100
300.1			355	173	20	**554**	85	10		10	67
301.1			145		20	**4106**	132	134	63	31	122
301.2			**583**	86	< 10	110	31	41		< 10	49
320	**414**	223	75		31	20		< 10		< 10	46

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Sat/01	Sun/02	Mon/03	Tue/04	Mon/10	Mon/17	Tue/18	Mon/24	Tue/25	Mon/31	30-day Geometric Mean[2]
202.4			< 10		< 10	63		< 10		< 10	14
202.5	**383**	< 10	< 10		< 10	41		< 10		< 10	21
210.1			< 10		< 10	31		*		*	
211			**243**	85	< 10	20		< 10		10	27
220	**161**	20	20		< 10	**6131**	10	10		10	38
300.1			**776**	73	10	**448**	41	74		10	69
301.1			20		20	**2489**	41	**173**	85	10	67
301.2			**884**	31	10	**134**	30	41		< 10	46
320	98	75	30		20	75		31		< 10	37

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	12/01	0.31	12/16	0.83
Aquatic Park	210.1, 211	12/04	0.04	12/21	0.06
Mission Creek	220	12/05	0.30	12/24	0.68
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	12/14	0.03		
Islais Creek	320				

STATION POSTED due to elevated bacteria count

STATION POSTED due to Combined Sewer Discharge

* Station not accessible due to partial government shutdown

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

SEP0203

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

January 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: December 2018 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664], Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of December 2018 for the Southeast Water Pollution Control Plant (SEP).

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period with the exception of acute toxicity.

Acute Toxicity**.** Monthly dry weather acute toxicity testing was performed for the periods of December 10-14, 2018 and December 18-22, 2018. The December 10-14 test result of 55% did not meet the 11-sample 90th percentile limitation of 70% survival, as shown in the following table. The December 18-22 test result of 70% met acute toxicity effluent limitations.

Flow-through Bioassay Test Date	Results (% Survival)	11-Sample Median	11-Sample 90th percentile
May 7-11, 2018	55%		
May 21-25, 2018	100%		
June 4-8, 2018	100%		
June 18-22, 2018	80%		
July 9-13, 2018	100%		
July 16-20, 2018	100%		
August 6-10, 2018	100%		
September 17-21, 2018	90%		
October 9-13, 2018	100%		
November 5-9, 2018	45%		
December 10-14, 2018	55%	**100%**	**55%**
December 18-22, 2018	70%	**100%**	**--**

London N. Breed Mayor
Vince Courtney President
Ann Moller Caen Vice President
Francesca Vietor Commissioner
Anson Moran Commissioner
Ike Kwon Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Discharge Incidents. On October 18, 2018, SFPUC staff observed an upwelling at the surface of Islais Channel near the location of the SEP final effluent force mains. On November 3, professional divers confirmed that the 36-inch force main had failed in approximately the same area as it had failed in 2015 and 2017. Temporary bypass of the pipe, rather than additional repairs, is being pursued. The likelihood of success of additional repairs was determined to be low due to the condition of the pipe and the failure of previous repairs. Additionally, repairs would necessitate having divers repeatedly enter the pipe itself, which raises significant safety concerns due to the pipe condition. An emergency declaration was approved to expedite contracting and financing. Design of the temporary bypass, including various testing and inspections necessary to inform the design, has been steadily proceeding throughout November and December. As of the date of this submittal, 95% design drawings are being reviewed and the construction contractor is expected to receive notice to proceed in February. Due to the complexity and high-risk scope of the project, the timeframe for completion is uncertain, but is currently projected to be in the fall of 2019.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. One combined sewer discharge (CSD) event occurred during this monitoring period as summarized in the table below and described in the Wet Weather Summary. The Wet Weather Summary includes a potential 1-minute CSD in the Central Basin (Islais Creek) at Discharge Point 035 (Third Street South). However, SFPUC is unable confirm this occurrence due to uncertainty in the level measurements, which include water levels exceeding the weir crest elevation for approximately 1 minute by 0.01-0.05 feet, which is within the aggregate margin of error associated with the movement of water (e.g., ripples) and the surveyed weir elevation measurements.

Count of Drainage Areas CSDs	North Shore Basin	Central Basin	Southeast Basin
This reporting period	0	1	1
Total for 2018-2019 Wet Weather Season	2	4	2

System Operations of Wet Weather Facilities

During the December 16th storm event, Griffith Pump Station (GFS) reached peak wet weather capacity (120 MGD) prior to a CSD from the Yosemite T/S structure,but did not maintain that peak flow rate. As a result, very brief and small volume discharges occurred in the Southeast Basin. The duration of the discharge was 11 minutes for the Griffith CSD outfall and 6 minutes for the Yosemite and Fitch CSD outfalls. The total volume discharged was 0.13 million gallons, less than 0.5% of the total Bayside CSD volume (27.53 MG).

Typically, the operation of GFS is controlled automatically by the Distributed Control System (the SFPUC's SCADA system), with the four individual GFS pumps brought online and taken offline automatically as the Yosemite Transport Storage (T/S) structure levels rise and drop to different set points. This operating logic was established after a 2013 optimization study that identified this staggered approach as a way to better utilize the available storage capacity in the Yosemite T/S structure. Due to ongoing control system upgrades at GFS, the pump station operations are currently controlled by a Human Machine Interface (HMI) system separate from the DCS and controlled from a separate screen within the SEP control room. This HMI was programmed by a contractor with the pre-2013 logic of initiating all four pumps at a single Yosemite T/S box level rather than the staggered approach.

During the December 16th storm event at 8:38 pm, the HMI-controlled GFS was pumping 120 million gallons per day (MGD) to the Islais Creek Transport/Storage Box and SEP. Five minutes later (at 8:43 pm), Operations staff decreased the flow to 40 MGD to better utilize the storage in the Yosemite T/S box and replicate the post-2013 DCS programmed controls. Shortly thereafter, rainfall intensity dramatically increased (about 0.23 inches in 8:43 pm to 9:05 pm), causing the Yosemite T/S structure levels to rise rapidly. Within ten minutes of the Yosemite T/S structure levels rapidly rising, Operations staff used the HMI to increase pumping to 80 MGD at 9:05 pm, which stopped the Yosemite and Fitch CSDs at 9:11 pm and the Griffith CSD by 9:14 pm. If the post-2013 DCS programmed controls had been in place, the staggered increase in pumping would have occurred automatically. The HMI program that controls GFS will be re-programmed to recreate the staggered increase and decrease in pumping based on Yosemite T/S structure levels; the estimated timing for completion is summer 2019. For the remaining wet weather season, Operations staff will pay careful attention to manually operate GFS pumping with the operating logic established in the 2013 optimization study.

Wet Weather Monitoring. The Bayside system experienced wet weather days on December 5, 16, 17, 24, and 25. Wet weather sampling was conducted during the reporting month with the following notes related to fecal indicator bacteria monitoring (see footnote [4] of NPDES permit Table E-4) being provided for clarity:

- On December 5, wet weather enterococcus and fecal coliform samples were collected at EFF-002 but not EFF-001B because SEP was discharging only secondary treated effluent, so the EFF-002 sample was representative of the effluent being discharged at both Discharge Points Nos. 001 and 002.
- On December 16, wet weather enterococcus and fecal coliform samples were not collected because sampling is only required when discharges are occurring between 4 am and 2 pm per footnote [4]. This time frame is paramount to ensure that wet weather bacteria samples are collected on time for laboratory analyses (i.e., for analyses to occur during business hours). SEP did not begin to receive influent flows that indicated significant wet weather until after 2 pm.
- On December 25, wet weather enterococcus and fecal coliform samples were not collected because this sampling is required within 4 hours of the start of the discharges and wet weather discharges (i.e., secondary bypass, discharge through Discharge Point No. 002, and discharge through Discharge Point No. 001 exceeding 85.4MGD) ceased between 4-7am.

CSD Monitoring. CSD samples were collected at each permit-designated location during each CSD event.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit, except for from December 24-31 at E-210.1 (Aquatic Park - Hyde Street Pier). This shoreline monitoring location was not accessible (i.e., locked gate) during this time due to partial federal government shutdown.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Division Manager, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2018-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1702.93	1633.27	0.00	0	0.00	0.00	0	0.00
September	0.00	0.00	0.00	0	0.00	0.00	1622.74	1572.86	0.00	0	0.00	0.00	0	0.00
October	0.00	4.79	0.00	0	0.00	0.05	1731.82	1643.10	0.00	0	0.00	0.00	0	0.00
November	4.31	215.48	169.96	2	6.39	4.54	2307.89	1834.01	363.39	3	277.27	3.26	1	0.40
December	2.28	87.68	72.89	0	0.00	2.28	2158.90	1974.06	163.93	1	27.40	1.93	1	0.13
January														
February														
March														
April														
May														
June														
TOTAL	6.59	307.95	242.85	2	6.39	6.87	11213.01	10290.71	527.33	4	304.67	5.19	2	0.52

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for December-2018

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	\\WWESEPPI01\TELOG:RG35_NSS.Intensity	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	\\WWESEPPI01\TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
12/1/2018	0.20	2.57	0.00			0.31	89.80	85.99	0.00			0.21		
12/2/2018	0.00	0.00	0.00			0.00	65.76	66.67	0.00			0.00		
12/3/2018	0.00	0.00	0.00			0.00	60.82	60.07	0.00			0.00		
12/4/2018	0.05	0.00	0.00			0.04	64.16	64.18	0.00			0.04		
12/5/2018	0.32	0.20	0.00			0.30	130.52	103.69	20.21			0.29		
12/6/2018	0.00	0.00	<0.01			0.00	59.84	63.09	0.00			0.00		
12/7/2018	0.00	0.00	0.00			0.00	50.83	50.47	0.00			0.00		
12/8/2018	0.00	0.00	0.00			0.00	71.37	68.15	0.00			0.00		
12/9/2018	0.00	0.00	0.00			0.00	56.12	54.01	0.00			0.00		
12/10/2018	0.00	0.00	0.00			0.01	59.72	56.68	0.00			0.00		
12/11/2018	0.00	0.00	0.00			0.00	55.95	55.05	0.00			0.00		
12/12/2018	0.00	0.00	0.00			0.00	56.63	54.94	0.00			0.00		
12/13/2018	0.00	0.00	0.00			0.00	56.88	56.32	0.00			0.00		
12/14/2018	0.03	0.00	0.00			0.03	62.74	62.18	0.00			0.03		
12/15/2018	0.00	<0.01	<0.01			0.00	60.57	60.19	0.00			0.00		
12/16/2018	0.94	32.35	26.35			0.83	100.34	75.18	22.81	1	27.40	0.83	1	0.13
12/17/2018	0.01	14.38	14.38			0.01	143.23	88.83	51.58			0.01		
12/18/2018	0.00	0.00	0.00			0.00	65.02	65.85	0.00			0.00		
12/19/2018	0.00	0.00	0.00			0.00	58.06	60.56	0.00			0.00		
12/20/2018	0.00	0.00	0.00			0.00	56.72	58.14	0.00			0.00		
12/21/2018	0.17	0.00	0.00			0.06	72.04	71.46	0.00			0.05		
12/22/2018	0.00	0.00	0.00			0.00	54.81	54.64	0.00			0.00		
12/23/2018	0.01	0.00	0.00			0.01	54.17	55.13	0.00			0.01		
12/24/2018	0.55	31.33	25.33			0.68	135.98	83.75	47.02			0.46		
12/25/2018	0.00	6.83	6.83			0.00	97.13	76.80	22.31			0.00		
12/26/2018	0.00	0.00	0.00			0.00	54.51	56.49	0.00			0.00		
12/27/2018	0.00	0.00	0.00			0.00	53.98	54.96	0.00			0.00		
12/28/2018	0.00	0.00	0.00			0.00	52.86	53.88	0.00			0.00		
12/29/2018	0.00	0.00	0.00			0.00	53.84	53.59	0.00			0.00		
12/30/2018	0.00	0.00	0.00			0.00	50.54	51.10	0.00			0.00		
12/31/2018	0.00	0.00	0.00			0.00	53.96	52.02	0.00			0.00		
TOTAL MONTHLY	2.28	87.68	72.89	0	0.00	2.28	2158.90	1974.06	163.93	1	27.40	1.93	1	0.13
MONTHLY AVERAGE FLOW (MGD)	-	12.53	12.15	-	-	-	69.64	63.68	32.79	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	50.54	50.47	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	32.35	26.35	-	-	-	143.23	103.69	51.58	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

NPF effluent instrumentation anomalies occurred from 12/14 through 12/31. NPF effluent volume for the 12/16-12/17 and 12/24-12/25 events are assumed to be equal to be 6 MG less than the NPF influent volume for each event. The first 6 MG of each event is assumed to be the stored volume of the Northpoint Facility that is drained back to the combined sewer system post-storm event and is not discharged to the bay.

North Shore Basin CSD Summary
Dec-2018

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
12/1/2018	0.20																		
12/2/2018	0.00																		
12/3/2018	0.00																		
12/4/2018	0.05																		
12/5/2018	0.32																		
12/6/2018	0.00																		
12/7/2018	0.00																		
12/8/2018	0.00																		
12/9/2018	0.00																		
12/10/2018	0.00																		
12/11/2018	0.00																		
12/12/2018	0.00																		
12/13/2018	0.00																		
12/14/2018	0.03																		
12/15/2018	0.00																		
12/16/2018	0.94																		
12/17/2018	0.01																		
12/18/2018	0.00																		
12/19/2018	0.00																		
12/20/2018	0.00																		
12/21/2018	0.17																		
12/22/2018	0.00																		
12/23/2018	0.01																		
12/24/2018	0.55																		
12/25/2018	0.00																		
12/26/2018	0.00																		
12/27/2018	0.00																		
12/28/2018	0.00																		
12/29/2018	0.00																		
12/30/2018	0.00																		
12/31/2018	0.00																		
TOTAL	2.28	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #1 CSD Summary
Dec-2018

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
12/1/2018	0.31																											
12/2/2018	0.00																											
12/3/2018	0.00																											
12/4/2018	0.04																											
12/5/2018	0.30																											
12/6/2018	0.00																											
12/7/2018	0.00																											
12/8/2018	0.00																											
12/9/2018	0.00																											
12/10/2018	0.01																											
12/11/2018	0.00																											
12/12/2018	0.00																											
12/13/2018	0.00																											
12/14/2018	0.03																											
12/15/2018	0.00																											
12/16/2018	0.83	9:00 PM	160	10.90										8:56 PM	72	5.59	8:56 PM	73	10.91									
12/17/2018	0.01																											
12/18/2018	0.00																											
12/19/2018	0.00																											
12/20/2018	0.00																											
12/21/2018	0.06																											
12/22/2018	0.00																											
12/23/2018	0.01																											
12/24/2018	0.68																											
12/25/2018	0.00																											
12/26/2018	0.00																											
12/27/2018	0.00																											
12/28/2018	0.00																											
12/29/2018	0.00																											
12/30/2018	0.00																											
12/31/2018	0.00																											
TOTAL	2.28	-	160	10.90	-	0	0.00	-	0	0.00	-	0	0.00	-	72	5.59	-	73	10.91	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #2 CSD Summary
Dec-2018

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
12/1/2018	0.31																								
12/2/2018	0.00																								
12/3/2018	0.00																								
12/4/2018	0.04																								
12/5/2018	0.30																								
12/6/2018	0.00																								
12/7/2018	0.00																								
12/8/2018	0.00																								
12/9/2018	0.00																								
12/10/2018	0.01																								
12/11/2018	0.00																								
12/12/2018	0.00																								
12/13/2018	0.00																								
12/14/2018	0.03																								
12/15/2018	0.00																								
12/16/2018	0.83																						10:02 PM	1	<0.01
12/17/2018	0.01																								
12/18/2018	0.00																								
12/19/2018	0.00																								
12/20/2018	0.00																								
12/21/2018	0.06																								
12/22/2018	0.00																								
12/23/2018	0.01																								
12/24/2018	0.68																								
12/25/2018	0.00																								
12/26/2018	0.00																								
12/27/2018	0.00																								
12/28/2018	0.00																								
12/29/2018	0.00																								
12/30/2018	0.00																								
12/31/2018	0.00																								
TOTAL	2.28	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	1	<0.01

Southeast Basin CSD Summary
Dec-2018

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
12/1/2018	0.21																		
12/2/2018	0.00																		
12/3/2018	0.00																		
12/4/2018	0.04																		
12/5/2018	0.29																		
12/6/2018	0.00																		
12/7/2018	0.00																		
12/8/2018	0.00																		
12/9/2018	0.00																		
12/10/2018	0.00																		
12/11/2018	0.00																		
12/12/2018	0.00																		
12/13/2018	0.00																		
12/14/2018	0.03																		
12/15/2018	0.00																		
12/16/2018	0.83							9:03 PM	11	0.11	9:05 PM	6	0.01	9:05 PM	6	<0.01			
12/17/2018	0.01																		
12/18/2018	0.00																		
12/19/2018	0.00																		
12/20/2018	0.00																		
12/21/2018	0.05																		
12/22/2018	0.00																		
12/23/2018	0.01																		
12/24/2018	0.46																		
12/25/2018	0.00																		
12/26/2018	0.00																		
12/27/2018	0.00																		
12/28/2018	0.00																		
12/29/2018	0.00																		
12/30/2018	0.00																		
12/31/2018	0.00																		
TOTAL	**1.93**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**11**	**0.11**	**-**	**6**	**0.01**	**-**	**6**	**<0.01**	**-**	**0**	**0.00**

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
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January 31, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: Annual Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664], Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the annual self-monitoring report (SMR) for the calendar year of 2018 for the Southeast Water Pollution Control Plant (SEP).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Division Manager, Wastewater Enterprise

Attachments

London N. Breed Mayor
Vince Courtney President
Ann Moller Caen Vice President
Francesca Vietor Commissioner
Anson Moran Commissioner
Ike Kwon Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

2018 Annual Self-Monitoring Report

San Francisco Public Utilities Commission
Southeast Water Pollution Control Plant

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Attachment A: Mercury Sampling Results
Attachment B: List of Analyses for which the SFPUC Is Certified
Attachment C: Plant Site Plan
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1 Treatment Plant Performance

1.1 Volume Treated

The Southeast Water Pollution Control Plant (SEP) is permitted to discharge an average dry weather flow of 85.4 million gallons per day (MGD). The average dry weather flow for SEP was 52.6 MGD, calculated using flows from three consecutive dry weather months (July, August, and September). SEP treated an estimated 22.6 billion gallons of combined wastewater and stormwater in 2018. The North Point Wet Weather Facility (NPF) treated an estimated 0.9 billion gallons of combined wastewater and stormwater in 2018.

1.2 Permit Compliance and Actions Taken or Planned

1.2.1 Effluent Limit Exceedances and Unauthorized Discharges

Acute Toxicity

The effluent limitations for acute toxicity were exceeded multiple times during 2018, as summarized in the table below. Static bioassay testing was performed using composite samples collected during periods of significant toxicity in the flow-through in February. The results of the static testing indicate that un-ionized ammonia is likely playing a substantial role in the toxicity response.

In March 2018, the SFPUC worked with outside experts to map out a strategy to better understand the role of un-ionized ammonia in test organism survival. Equipment is being procured and systems are being developed to mitigate the effects of un-ionized ammonia using real-time pH monitoring and automated in-line pH adjustment within the flow-through test.

Flow-through Bioassay Test Date	Results (% Survival)	11-Sample Median (for <90%)*	11-Sample 90th percentile (for <70%)*
January 2-6	90%	N/A	N/A
January 29 - February 2	85%	90%	N/A
February 5-9	70%	90%	N/A
February 12-16	45%	**85%**	**45%**
March 5-9	55%	**85%**	**45%**
March 30 - April 3	90%	N/A	N/A
April 9-13	100%	N/A	N/A
April 23-27	100%	N/A	N/A
May 7-11	55%	**85%**	**45%**
May 21-25	100%	N/A	N/A
June 4-8	100%	N/A	N/A
June 18-22	80%	**85%**	N/A
July 9-13	100%	N/A	N/A
July 16-20	100%	N/A	N/A
August 6-10	100%	N/A	N/A
September 17-21	90%	N/A	N/A
October 9-13	100%	N/A	N/A
November 5-9	45%	100%	**55%**
December 10-14	55%	100%	**55%**

Flow-through Bioassay Test Date	Results (% Survival)	11-Sample Median (for <90%)*	11-Sample 90th percentile (for <70%)*
December 18-22	70%	100%	N/A

*Per the effluent limitation in the NPDES permit, the 11-sample median is calculated for compliance only when the result is less than 90% survival and the 11-sample 90th percentile is calculated for compliance only when the result is less than 70% survival.

Unauthorized Discharges

The SFPUC reported two unauthorized discharges during 2018, which are summarized below. Each of these incidents were described in five-day and self-monitoring reports.

On March 13, 2018 primary treated, disinfected and dechlorinated effluent discharged through EFF-002 (Quint Street Outfall) during wet weather over a period of approximately one minute. The discharge was caused by several factors. First, the primary disinfection system (PDS) channel gate that allows primary treated effluent to flow to the Booster Pump Station for discharge through EFF-001 had to be controlled locally from a nearby station, rather than from the control room through the Distributed Control System (DCS), because of recently completed upgrades. This necessitated communications between an individual in the control room and an individual at the station. As the result of a miscommunication between these two individuals, flow into the PDS channel was started before the gate was opened. This resulted in primary treated combined wastewater and stormwater overflowing the PDS channel and eventually discharging to EFF-002. Control of this gate is still local and will be until other construction activities can be completed in 2019. Further training on interim operations was implemented on March 23, 2018.

On October 18, 2018, SFPUC staff observed an upwelling at the surface of Islais Channel near the location of the SEP final effluent force mains. On November 3, professional divers confirmed that the 36-inch force main had failed in approximately the same area as it had failed in 2015 and 2017. Temporary bypass of the pipe, rather than additional repairs, is being pursued. The likelihood of success of additional repairs was determined to be low due to the condition of the pipe and the failure of previous repairs. Additionally, repairs would necessitate having divers repeatedly enter the pipe itself, which raises significant safety concerns due to the pipe condition. An emergency declaration was approved to expedite contracting and financing. Design of the temporary bypass, including various testing and inspections necessary to inform the design, has been steadily proceeding throughout November and December. As of the date of this submittal, 95% design drawings are being reviewed and the construction contractor is expected to receive notice to proceed in February. Due to the complexity and high-risk scope of the project, the timeframe for completion is uncertain, but is currently projected to be in the fall of 2019.

1.2.2 Monitoring Issues

The only dry weather monitoring issue was due to a plant shutdown on July 25, 2018, which prevented collection of pH data five times during that particular week.

In 2018, a few issues with implementation of combined sewer discharge (CSD) triggered monitoring were identified. In terms of field sampling of combined sewer discharges, there were no samples collected on April 6 at Monitoring Point CSD-031A (Islais Creek North Outfall) because the field sampler malfunctioned for unknown reasons. Samples were also not collected on November 22 because field staff were unavailable on Thanksgiving Day.

There were three instances of identified issues with shoreline sampling and posting. First, on April 7, sampling was delayed at Jack Rabbit Cove because of a safety issue (i.e., flooded roads). Second, after the November 28 CSD event, shoreline sampling at S-202.5 (Crissy Field West) was conducted on November 28 and 29 but not on November 30. The decision not to sample was made based on preliminary enterococcus results that showed the November 29 sample had enterococcus concentrations less than 104 MPN/100 mL. The final enterococcus concentration, which was unavailable until the afternoon of

November 30, was 107 MPN/mL. As a precautionary measure, a sample was collected the following day, December 1. Finally, From December 21 through 31, shoreline sampling and posting did not occur at E-210.1 (Aquatic Park - Hyde Street Pier). This shoreline monitoring location was not accessible because of a gate that remained locked due to the partial federal government shutdown.

1.3 Effluent Characterization Study

For this evaluation, all constituents listed in Attachment G, Table B, except for those pollutants with effluent limitations, that were detected above the method Minimum Levels (ML) were evaluated. Estimated concentrations of constituents detected below the MLs were excluded from this evaluation because the uncertainty in the result when a constituent is detected below the ML prevents useful comparison.

Nine of the tested constituents were detected above the method MLs: Antimony, Chloroethane, Chloroform, Chloromethane, Chromium III, Lead, Nickel, Toluene, and Zinc. The 2018 maximum detected level of each of the nine constituents was compared to the Maximum Effluent Concentration (MEC) as presented in Table F-9 of the SEP Permit (Reasonable Potential Analysis). The MECs were used as the general indicators of past performance of the detected constituents.

All nine detected constituents showed decreases or no statistically significant changes compared to past performance (the corresponding MECs are used as indicators of past performance).

The detected constituents and evaluations are summarized in the table below.

Trends for Selected Constituents

Constituent	Method Minimum Level (ML, µg/L)	2018 Maximum Detected Level (µg/L)[1]	Past Performance[2] (µg/L)	Criterion or Objective (µg/L)	Statistically Significant Increase
Antimony	0.5	0.68	0.71	4300	No
Chloroethane	0.5	0.74	1.1	No Criteria	No
Chloroform	0.5	3.7	11	No Criteria	No
Chloromethane	0.5	0.61	1.1	No Criteria	No
Chromium III	0.5	0.81	3.7	No Criteria	No
Lead	0.5	0.77	1.6	8.5	No
Nickel	1	3.9	5.1	13	No
Toluene	0.5	0.63	1.5	200,000	No
Zinc	1	34	55	86	No

Note:

1. Results have been rounded to two significant figures.
2. The Maximum Effluent Concentration (MEC) or the minimum detection level, as listed in Table F-9, Reasonable Potential Analysis in the SEP Permit, NPDES NO. CA0037664, Order No. R2-2013-0029, is used as an indicator for past performance.

1.4 Biosolids

In 2018, the SEP beneficially re-used a total of 13,500 dry metric tons of biosolids at the following locations:

Location	Dry Metric Tons[1]
Land Application	
Solano County Land Application	4,400
Sacramento County Land Application	1,100
Landfill Beneficial Use (except TIP)	
Vasco	3,100
Potrero	3,000
Lystek – Liquid Biofertilizer	1,900
TOTAL	**13,500**

Note:

1. Tonnage has been rounded to two significant figures.

1.5 Mercury & PCBs

Consistent with the Waste Discharge Requirements for Mercury and PCBs from Municipal and Industrial Wastewater Discharges to San Francisco Bay (Order No. R2-2017-0041, NPDES No. CA0038849), **Attachment A** summarizes the mercury concentrations of each final effluent sample collected in 2018, the corresponding flow on the date the sample was collected, and the annual estimated mercury load. The SEP reported USEPA Method 1668C PCB congener data with the Self-Monitoring Reports for February 2018, May 2018, August 2018, and October 2018.

2 Approved Laboratory Analyses

List of approved analyses include the following:

1. List of analyses for which SFPUC is certified: See **Attachment B**.
2. List of analyses performed for SFPUC by a separate certified laboratory (copies of reports signed by the laboratory director of the separate certified laboratories are not included with the annual report but are retained onsite and available upon request):
    a. Dioxin, method EPA 1613, is performed by Frontier Analytical; and
    b. Semi-volatile Organic Compounds, method EPA 625, is performed by Caltest Analytical.
3. List of waived analyses: None.

3 Facility Information

3.1 Plan View Drawing or Map of Facility

A Plant Site Plan is included in **Attachment C**, and a Plant Process Schematic is included in **Attachment D**.

3.2 Results of Annual Facility Report Reviews

3.2.1 Contingency Plan and Spill Prevention Plan

The SEP's Contingency Plan was reviewed and updated throughout 2018. The updated Contingency Plan was made available for staff electronically on SFPUC's SharePoint in December 2018. Updates to the plan include:

- Changes in staffing and roles and responsibilities;
- Spill Prevention Plan addendum;
- Process management updates; and
- Updates to the listed emergency contacts.

3.2.2 Operations and Maintenance Manual

Review of SEP related manuals, training, and other guidance materials was completed, resulting in updates to and development of the materials described in the table below.

Document	Sections
Manual Updates	• SEP Primary Treatment Process Unit Operations Manual • Northpoint Facility Operations Manual • Bayside Wet Weather Operations Manual • Biosolids Management System Manual
Standard Operating Procedures Developed	• Polymer Super Sac Changeout • Cogenerations Plant Emergency Shutdown
Other Guidance & Training Materials Developed	• 2018 Biosolids Spill Packet • SEP Competency Based Training Operations Personal Qualification Card (Level 1 Basic Operator) • Personal Protective Equipment and Atmospheric Hazards Monitoring and Safety Awareness Posters • Atmospheric Hazards Monitoring and Safety Awareness Video • Wet Weather Permit Compliance & Reporting Trigger Awareness Quick Guide Posters for Plant and Pump Station Control Rooms • SEP Log Sheet Pictorial Equipment Guide • New Headworks Scale Model Flow Test Video • SEP Disinfection Process Unit Training Video • Confined Space Entry & Rescue Awareness Classroom Presentation • DCS Guidance Pages for Overflow and Discharge Response and Reporting
Associated Training Conducted	• Annual Wet Weather Training • Semi-annual Wet Weather Training Refresher

3.2.3 Wastewater Facilities Status

The table below summarizes key construction activities related to the Bayside facilities. The projects listed below do not comprise a comprehensive list of all upgrades completed or underway. Planning, design and construction of numerous other mechanical, electrical, structural, and communications improvements are ongoing.

Facility/Process	Project Description	Construction Update
SEP Headworks	Replace existing dry and all-weather headworks with a single 250 MGD all-weather headworks. Due to the complexity of this project, the scope is proceeding in multiple phases.	Construction on the first phase started in 2018, and construction of the second phase is expected to start in 2019.
SEP Primary	Make various mechanical and electrical upgrades to the wet weather primary system, including new pumps and supporting structural work.	Construction expected to start in 2019.
	Coat concrete of several clarifiers and make mechanical upgrades.	Construction completed in 2018.
SEP Secondary	Coat concrete of several clarifiers and make mechanical upgrades.	Construction completed in 2018.
SEP Disinfection	Demolish existing oxygen generation plant and liquid oxygen storage (LOX) tanks; install new LOX storage and vaporization systems.	Construction expected to be complete in 2019.
	Upgrade controls and chemical sampling station, including coating of chlorine contact channels.	Construction expected to be complete in 2019.
SEP Solids Handling	Replace the existing facilities with new digestion and solids handling processes capable of producing Class A biosolids.	Construction (site preparation) expected to begin in 2019.
	Replace gas sensors, upgrade process equipment/piping/valves and perform various structural repairs.	Construction expected to be complete in 2019.
	Repair damaged solids conveyance and storage systems.	Construction expected to be complete in 2019.
Bruce Flynn Pump Station	Furnish and install new adjustable frequency drive hardware, software, and internal electrical components, upgrade DCS communication systems.	Construction expected to be complete in 2019.
Griffith Pump Station	Overhaul the existing dry weather and wet weather pump stations, including repair or replacement of the dry and weather pumps.	Construction expected to start in 2019.
Mariposa Pump Station	Rebuild the existing dry weather pump station and force main and increase the capacity to accommodate flows from the redevelopment of Mission Bay.	Construction expected to start in 2019.
Northshore Pump station	Modify the pump station, including replacing and upsizing the existing dry weather pumps, to allow dry weather pumps to provide redundancy during wet weather.	Construction expected to start in 2019.
North Point Facility Outfall	Rehabilitate the existing NPF outfall system.	Construction completed in 2018.
SEP (Pier 80) Outfall	Construct an emergency bypass of one (36”) of the two force mains under Islais Creek.	Construction expected to start in 2019.

4 Participation in Regional Efforts

In 2018, the SFPUC continued its financial support of and participation in the San Francisco Estuary Institute's Regional Monitoring Program in order to fulfill the receiving water monitoring requirements of the SEP NPDES permit. See SEP Permit at E-12.

As a principal member of the Bay Area Clean Water Agencies, the SFPUC also continued to support nutrient receiving water monitoring and science plan development and implementation; participate in the development of Total Maximum Daily Loads and site-specific objectives; support implementation of the Mercury and PCBs Permit; and support implementation of the regional copper action plans.

ATTACHMENT A

Mercury Sampling Results

Discharger: City and County of San Francisco, Southeast WW Treatment Plant

Calendar Year Reporting: 2018 Monitoring Station: EFF-001A

Month	Sample Date	Effluent Flow to Surface Waters (mgd)	Total Mercury Concentration (µg/L)	Average Monthly Mass Load (kg/mo)
January	1/17/18	54.52	0.0028	0.0177
February	2/6/18	54.12	< 0.0004	< 0.0025
March	3/6/18	50.31	0.0030	0.0171
April	4/3/18	52.15	0.0023	0.0137
May	5/8/18	52.62	0.0027	0.0165
June	6/5/18	56.59	0.0025	0.0163
July	7/10/18	54.89	0.0031	0.0199
August	8/8/18	53.26	0.0174	0.1070
September	9/11/18	54.29	0.0053	0.0330
October	10/30/18	52.61	0.0014	0.0083
November	11/6/18	49.26	0.0033	0.0189
December	12/12/18	54.94	0.0031	0.0199
Total Mass (sum)				< 0.2908
Weighted Annual Mass Emission				< 0.2908
Average			< 0.0043	< 0.0242

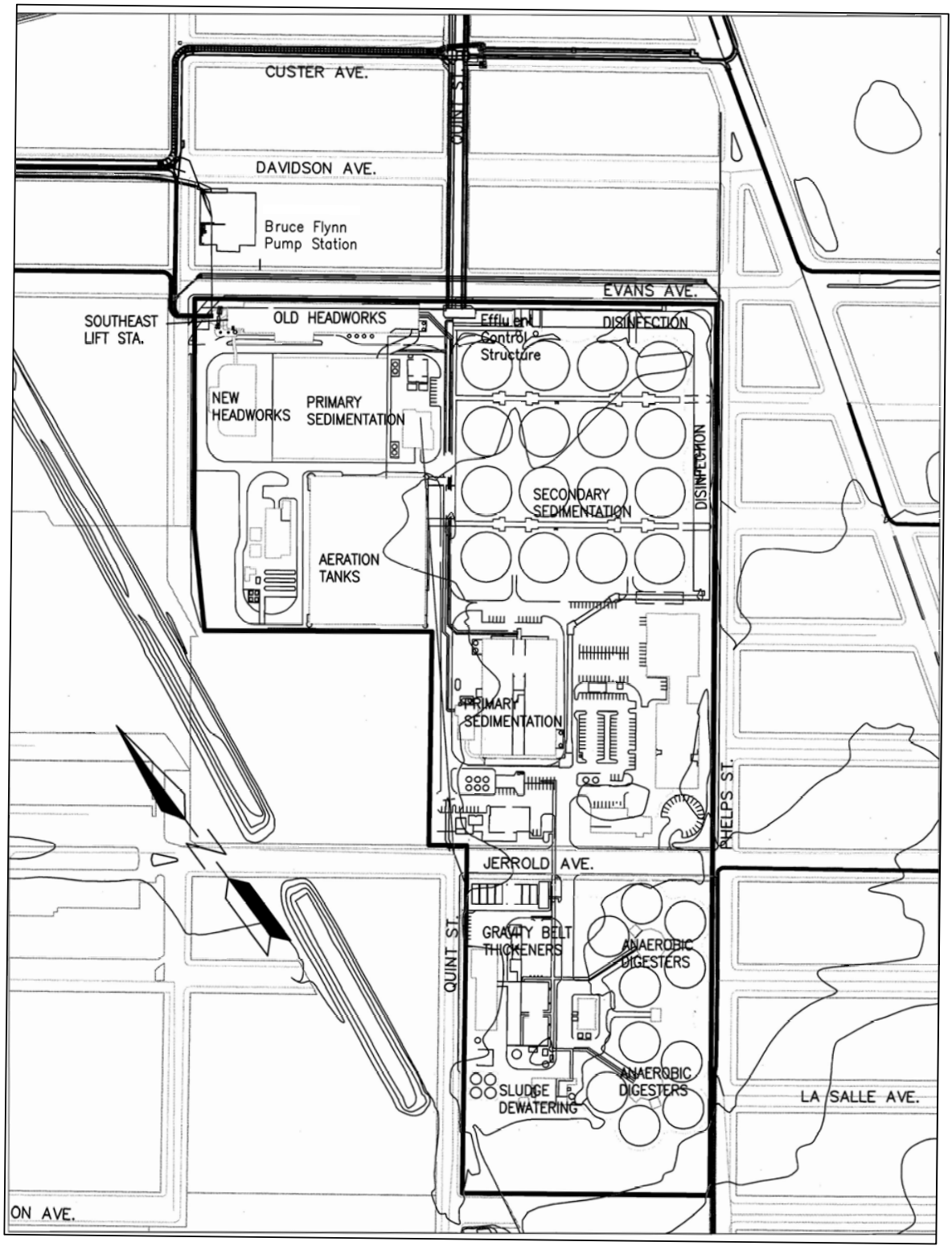
Note: February 2018 Hg result was ND. Detection limit was used for the Total Mass Loading calculation.

ATTACHMENT B

List of Analyses for which the SFPUC is Certified

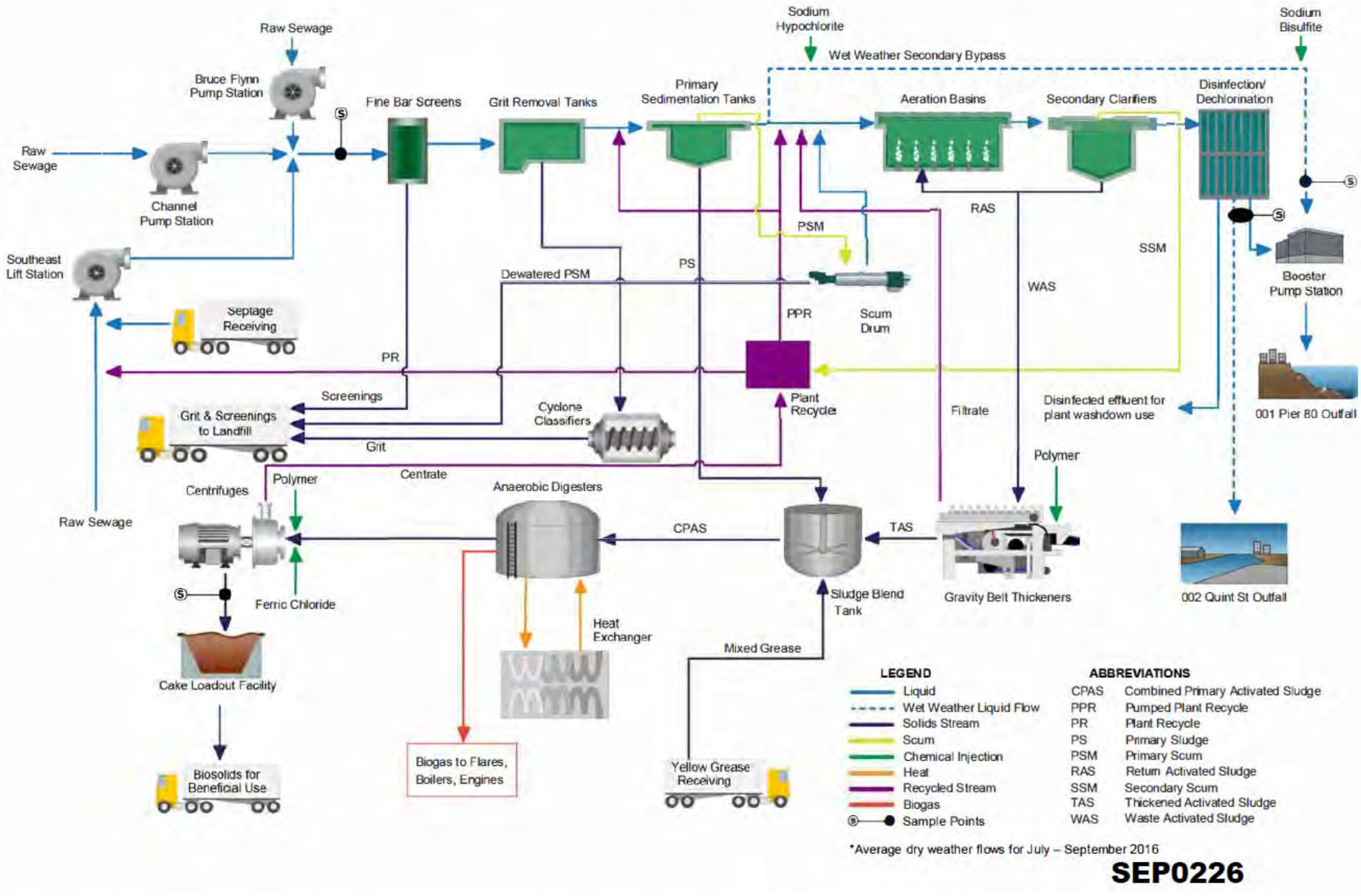
Type of Test	Reference	Method Number
Ammonia	Standard Methods	4500-NH3 B,C
Bioassay	EPA	2019 (EPA-821-R-02-012) 600/R-95/136 Development Test
Biochemical Oxygen Demand	Standard Methods	5210 B
Carbonaceous BOD	Standard Methods	5210 B
Chemical Oxygen Demand	Standard Methods	5220 D/HACH8000
Chlorine Residual	Standard Methods	4500-Cl C
Coliform	Standard Methods	9221 B
Conductivity	Standard Methods	2510 B
Cyanide	Standard Methods	4500-CN^- C & 4500-CN^- E
Enterococci, IDEXX	EPA	Enterolert
Kjeldahl Nitrogen	Standard Methods	4500 Norg B & 4500-NH3 C
Mercury	EPA	1631E/245.1
Metals	EPA	200.7/200.8
Nitrate-nitrite	Standard Methods	4500-$NO3^-$ E
Nitrite	Standard Methods	4500-$NO2^-$ B
Oil & Grease	EPA	1664A
PAH	EPA	625
Pesticide/PCBs	EPA	608
pH	EPA/Standard Methods	150.2/4500-H^+ B
Phosphate, Ortho	Standard Methods	SM4500-P E
Phosphorus, Total	EPA	200.7/HACH8190
Semi -Volatile Organic Compounds	EPA	625
Settleable Solids	Standard Methods	2540 F
Temperature	Standard Methods	2550 B
Total Solids	Standard Methods	2540 B
Total Suspended Solids	Standard Methods	2540 D
Turbidity	Standard Methods	2130 B
Volatile Organic Compounds	EPA	624

ATTACHMENT C Plant Site PlanSoutheast Water Pollution Control Plant



ATTACHMENT D

Plant Process Schematic
Southeast Water Pollution Control Plant



*Average dry weather flows for July – September 2016

SEP0226

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
January 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Sun/06	Mon/07	Tue/08	Wed/09	Thu/10	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Wed/16	Thu/17
202.4		183							31			
202.5		231							63			
210.1		*							*			
211		638							122			
220	**> 24196**	**24196**	1515						216		**> 24196**	**> 24196**
300.1		2247	1607	2382	6867	1058	683	576	279			
301.1		1354	5172	1624	663				1376	3873	3654	2489
301.2		670							146			295
320	**> 24196**	**> 24196**	**> 24196**	**> 24196**	**> 24196**	839			350			**> 24196**

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Sun/06	Mon/07	Tue/08	Wed/09	Thu/10	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Wed/16	Thu/17
202.4		51							10			
202.5		52							< 10			
210.1		*							*			
211		110							63			
220	**> 24196**	**6488**	169						10		**12033**	**> 24196**
300.1		285	233	**450**	**613**	369	187	216	31			
301.1		160	**565**	279	145				189	**1259**	**1043**	246
301.2		63							< 10			31
320	**> 24196**	**> 24196**	**> 24196**	**10462**	**2014**	86			52			**> 24196**

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Sun/06	Mon/07	Tue/08	Wed/09	Thu/10	Fri/11	Sat/12	Sun/13	Mon/14	Tue/15	Wed/16	Thu/17
202.4		10							10			
202.5		20							< 10			
210.1		*							*			
211		52							31			
220	**> 24196**	**1112**	10						< 10		**3654**	**> 24196**
300.1		**350**	**457**	**813**	**820**	**201**	**118**	96	52			
301.1		**285**	**1725**	**161**	75				**171**	**266**	**728**	**203**
301.2		75							10			10
320	**8164**	**> 24196**	**10462**	**272**	20	10			10			**> 24196**

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	01/05	0.19	01/14	0.01
Aquatic Park	210.1, 211	01/06	1.46	01/15	0.96
Mission Creek	220	01/09	0.19	01/16	1.19
Candlestick Point	300.1, 301.1, 301.2	01/10	0.01	01/17	1.22
State Recreation Area		01/11	0.29		
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to partial federal government shutdown

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
January 2019

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Fri/18	Sat/19	Sun/20	Mon/21	Tue/22	Mon/28	Tue/29	Thu/31	30-day Geometric Mean[2]
202.4					31	30			
202.5					98	10			
210.1						**	20		
211					63	1565	86		231
220	**17329**	2481			751	63		**> 24196**	4101
300.1					20	30			577
301.1	**12997**	404			717	63			1450
301.2					10	63			113
320	**> 24196**	**> 24196**	**17329**	3076	3076	75			6769

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Fri/18	Sat/19	Sun/20	Mon/21	Tue/22	Mon/28	Tue/29	Thu/31	30-day Geometric Mean[2]
202.4					10	10			
202.5					< 10	10			
210.1						**	< 10		
211					31	**616**	31		84
220	**2755**	156			52	20		**2187**	791
300.1					< 10	< 10			124
301.1	63	< 10			146	10			156
301.2					< 10	20			21
320	**> 24196**	**2481**	**886**	122	86	10			1449

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Fri/18	Sat/19	Sun/20	Mon/21	Tue/22	Mon/28	Tue/29	Thu/31	30-day Geometric Mean[2]
202.4					20	10			
202.5					< 10	< 10			
210.1						**	< 10		
211					< 10	**359**	< 10		36
220	**457**	75			31	20		**144**	277
300.1					< 10	10			129
301.1	**246**	10			63	< 10			141
301.2					< 10	10			15
320	**15531**	**156**	**171**	75	30	< 10			338

Sampling/Posting issues
Hyde St Pier (210.1) not accessible due to partial govt. shutdown; sampled next day on 1/29 due to gate still locked

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	01/20 0.20
Aquatic Park	210.1, 211	01/30 0.10
Mission Creek	220	01/31 0.57
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
** Station sampled the next day due to locked gate

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)
[2]Geometric means calculated for 5 or more samples per 30-day period.

Reviewed by: R Duggan

SEP0228

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Office of Wastewater Enterprise
525 Golden Gate Ave, 13th Floor
San Francisco, CA 94102
T 415.554.3172
F 415.554.3161
TTY 415.554.3488

March 29, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: February 2019 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of February 2019 for the Southeast Water Pollution Control Plant (SEP).

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Discharge Incident. Design for a temporary bypass of the SEP final effluent 36-inch force main pipe continues. The results of the bathymetric survey performed in February identified a depression along the bypass alignment. Completion of design is still pending while the designer evaluates two possible solutions: changing the alignment and filling the depression. Further analysis of sediment bed conditions also identified the need to construct full cofferdams at both connections points, rather than the original plans to use Portadam cofferdams, which have a freestanding nature and require no ground penetration. Use of cofferdams will require excavation of Bay mud; soil testing for disposal is being planned.

Interagency coordination is ongoing. The project necessitates raising and lowering of the Islais Creek and Illinois Street bridges on at least three occasions. The SFPUC has been coordinating on the operation of these bridges with San Francisco Public Works, the San Francisco Municipal Transportation Agency, and the Port of San Francisco. Currently it is unclear whether the Islais Creek drawbridge is functional, so other options to deliver materials to the site are being evaluated.

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Ike Kwon Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Environmental permitting is also ongoing. All required permit applications have been submitted. Revisions to the submittals may be necessaryif the developments described above necessitate further changes to the design and planning.

Cyanide Action Plan
The February 20 influent result for cyanide was 47.8 µg/L, which is greater than the threshold in the NPDES permit of 21 µg/L for a "significant cyanide discharge". Consistent with the requirements in NPDES permit Provision VI.C.6.b., SFPUC implemented its emergency monitoring and response plan in March 2019 by first conducting follow-up sampling at an increased frequency. The results will be reported in the March 2019 monthly SMR.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were multiple combined sewer discharges during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Drainage Areas CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This reporting period	1	2	1
Total for Count 2018-2019 Wet Weather Season	4	11	4

System Operations of Wet Weather Facilities.
The operation of wet weather facilities during the storm events were conducted consistent with the requirements in NPDES permit Provision VI.C.5.c.i. - VI.C.5.c.iv.

Wet Weather Monitoring. The Bayside system experienced wet weather days on February 1-5, 8-10, 12-18, and 25-27. Wet weather sampling was conducted during the reporting month. The following notes related to fecal indicator bacteria monitoring (see footnote [4] of NPDES permit Table E-4) being provided for clarity:

- On February 2 and 26, wet weather enterococcus and fecal coliform samples were collected at EFF-002 but not EFF-001B because SEP was discharging only secondary treated effluent, so the EFF-002 sample was representative of the effluent being discharged at both Discharge Points Nos. 001 and 002.

- On February 10, wet weather enterococcus and fecal coliform samples were collected at EFF-002 but not EFF-001B because SEP was discharging only secondary treated effluent until after 10pm, so the EFF-

002 sample was representative of the effluent being discharged at both Discharge Points Nos. 001 and 002 during the time frame (4am-2pm) for which wet weather bacteria samples can be collected on time for laboratory analyses.

CSD Monitoring. CSD samples were collected at each permit-designated location during each CSD event. During the February 13 CSD event, a single manual grab sample rather than a composite was collected at Monitoring Location CSD-010. The sampler was properly set up, but the liquid level actuators (LLAs), which were previously repositioned and field-tested, did not activate sample collection. Field staff collected a grab sample while the CSD was occurring; they subsequently replaced the appropriate sampler and LLA and field-tested the sampler.

During the morning of February 13 CSD event, a single automatic composite sample was collected at Monitoring Location CSD-025 (Sixth Street North). When a sampler collects a sample, it must be reset prior to collecting another automatic sample and it cannot be reset during an active CSD. Staff then visited the sampler multiple times on February 13 to reset the sampler but were unable to due to the long duration of the February 13 CSD (i.e., an active CSD was occurring during each site visit). The sampler could not be reset to automatically collect an additional sample for the evening February 13 CSD event (through the next day). Field staff who were tracking the CSD event in real time made the effort to travel to the monitoring location during the CSD and collected a grab sample onsite during the morning of February 14.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Division Manager, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2018-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.R001) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1702.93	1633.27	0.00	0	0.00	0.00	0	0.00
September	0.00	0.00	0.00	0	0.00	0.00	1622.74	1572.86	0.00	0	0.00	0.00	0	0.00
October	0.00	4.79	0.00	0	0.00	0.05	1731.82	1643.10	0.00	0	0.00	0.00	0	0.00
November	4.31	215.48	169.96	2	6.39	4.54	2307.89	1834.01	363.39	3	277.27	3.26	1	0.40
December	2.28	87.68	72.89	0	0.00	2.28	2158.90	1974.06	163.93	1	27.40	1.93	1	0.13
January	6.57	315.06	287.32	1	10.82	6.39	2745.30	2220.03	497.21	5	556.68	4.41	1	0.28
February	9.88	586.78	594.64	1	42.33	8.67	3148.60	2401.58	685.93	2	1131.76	6.21	1	11.52
March														
April														
May														
June														
TOTAL	23.04	1209.78	1124.81	4	59.54	21.93	17106.90	14912.32	1710.47	11	1993.11	15.81	4	12.31

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for February-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	\\WWESEPPI01\TELOG:RG35_NSS.Intensity	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	\\WWESEPPI01\TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
2/1/2019	0.24	12.42	8.74			0.14	84.24	76.10	7.89			0.10		
2/2/2019	0.68	56.20	49.75			0.57	152.10	108.33	38.22			0.39		
2/3/2019	0.25	28.36	25.91			0.25	171.30	104.03	66.12			0.10		
2/4/2019	0.68	36.37	32.11			0.69	178.39	109.81	63.02			0.41		
2/5/2019	0.03	1.39	1.64			0.07	98.52	94.36	3.65			0.15		
2/6/2019	0.00	0.00	0.00			0.00	65.71	64.87	0.00			0.00		
2/7/2019	0.00	0.23	0.00			0.00	62.27	60.62	0.00			0.00		
2/8/2019	0.34	15.67	10.80			0.25	100.14	82.93	14.80			0.22		
2/9/2019	0.42	18.37	16.22			0.63	95.74	91.46	2.25			0.41		
2/10/2019	0.07	20.17	19.77			0.13	138.07	105.05	30.01			0.15		
2/11/2019	0.00	0.00	0.00			0.00	67.79	66.55	0.00			0.00		
2/12/2019	0.32	5.13	0.76			0.30	71.24	67.71	2.44			0.22		
2/13/2019	3.18	130.88	128.18	1	42.33	2.53	246.83	110.00	135.53	1	1128.81	1.89	1	11.52
2/14/2019	1.32	104.90	107.0			1.18	253.38	110.00	142.52			0.84		
2/15/2019	0.20	24.56	46.82			0.29	168.66	105.62	60.46			0.11		
2/16/2019	0.15	26.63	48.83			0.14	106.36	105.86	0.50			0.18		
2/17/2019	0.10	1.62	1.62			0.12	106.93	107.70	0.77			0.13		
2/18/2019	0.00	0.00	0.00			0.00	83.96	85.19	0.11			0.00		
2/19/2019	0.00	0.00	0.00			0.00	69.15	67.49	0.00			0.00		
2/20/2019	0.00	0.00	0.00			0.00	69.23	66.81	0.00			0.00		
2/21/2019	0.00	0.00	0.00			0.00	64.78	61.61	0.00			0.00		
2/22/2019	0.00	0.00	0.00			0.00	67.87	64.62	0.00			0.00		
2/23/2019	0.00	0.00	0.00			0.00	59.82	54.39	0.00			0.00		
2/24/2019	0.00	0.00	0.00			0.00	71.28	65.61	0.00			0.00		
2/25/2019	0.22	3.68	0.00			0.04	87.79	81.56	2.12			0.02		
2/26/2019	1.17	46.25	42.57			0.70	130.58	105.08	19.77			0.51		
2/27/2019	0.51	53.93	53.93			0.64	203.98	105.52	95.76	1	2.95	0.38		
2/28/2019	0.00	0.00	0.00			0.00	72.50	72.70	0.00			0.00		

TOTAL MONTHLY	9.88	586.78	594.64	1	42.33	8.67	3148.60	2401.58	685.93	2	1131.76	6.21	1	11.52
MONTHLY AVERAGE FLOW (MGD)	-	32.60	37.17	-	-	-	112.45	85.77	38.11	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	59.82	54.39	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	130.88	128.18	-	-	-	253.38	110.00	142.52	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

North Shore Basin CSD Summary
Feb-2019

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
2/1/2019	0.24																		
2/2/2019	0.68																		
2/3/2019	0.25																		
2/4/2019	0.68																		
2/5/2019	0.03																		
2/6/2019	0.00																		
2/7/2019	0.00																		
2/8/2019	0.34																		
2/9/2019	0.42																		
2/10/2019	0.07																		
2/11/2019	0.00																		
2/12/2019	0.32																		
2/13/2019	3.18	7:04 AM	369	11.99	7:05 AM	356	11.56	7:07 AM	38	0.19	8:14 AM	257	7.33	8:39 AM	164	10.86	8:35 AM	97	0.41
2/14/2019	1.32																		
2/15/2019	0.20																		
2/16/2019	0.15																		
2/17/2019	0.10																		
2/18/2019	0.00																		
2/19/2019	0.00																		
2/20/2019	0.00																		
2/21/2019	0.00																		
2/22/2019	0.00																		
2/23/2019	0.00																		
2/24/2019	0.00																		
2/25/2019	0.22																		
2/26/2019	1.17																		
2/27/2019	0.51																		
2/28/2019	0.00																		
1/0/1900	0.00																		
1/0/1900	0.00																		
1/0/1900	0.00																		
TOTAL	**9.88**	**-**	**369**	**11.99**	**-**	**356**	**11.56**	**-**	**38**	**0.19**	**-**	**257**	**7.33**	**-**	**164**	**10.86**	**-**	**97**	**0.41**

Central Basin #1 CSD Summary
Feb-2019

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
2/1/2019	0.14																											
2/2/2019	0.57																											
2/3/2019	0.25																											
2/4/2019	0.69																											
2/5/2019	0.07																											
2/6/2019	0.00																											
2/7/2019	0.00																											
2/8/2019	0.25																											
2/9/2019	0.63																											
2/10/2019	0.13																											
2/11/2019	0.00																											
2/12/2019	0.30																											
2/13/2019	2.53	5:33 AM	1684	146.16				11:09 AM	9	<0.01	11:11 AM	4	<0.01	5:31 AM 10:57 PM	534 807	56.67 91.96	5:31 AM 10:57 PM	534 807	103.37 164.59	6:19 AM	209	111.99	11:08 AM	14	0.01			
2/14/2019	1.18							6:05 AM	5	<0.01										5:07 AM	244	143.64	5:24 AM	101	0.01			
2/15/2019	0.29																											
2/16/2019	0.14																											
2/17/2019	0.12																											
2/18/2019	0.00																											
2/19/2019	0.00																											
2/20/2019	0.00																											
2/21/2019	0.00																											
2/22/2019	0.00																											
2/23/2019	0.00																											
2/24/2019	0.00																											
2/25/2019	0.04																											
2/26/2019	0.70																											
2/27/2019	0.64																											
2/28/2019	0.00																											
1/0/1900	0.00																											
1/0/1900	0.00																											
1/0/1900	0.00																											
TOTAL	8.67	-	1684	146.16	-	0	0.00	-	14	<0.01	-	4	<0.01	-	1341	148.63	-	1341	267.96	-	453	255.63	-	115	0.02	-	0	0.00

Note
For the storm starting on 2/13, several CSDs in Mission Creek had two discharge events separated by a 6-hour inter-event. For the same storm, there was a single discharge event in Islais Creek. The two CSD events in Mission Creek coincided with the single CSD event in Islais Creek, therefore there is one reported event for Central Basin.

Central Basin #2 CSD Summary
Feb-2019

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
2/1/2019	0.14																								
2/2/2019	0.57																								
2/3/2019	0.25																								
2/4/2019	0.69																								
2/5/2019	0.07																								
2/6/2019	0.00																								
2/7/2019	0.00																								
2/8/2019	0.25																								
2/9/2019	0.63																								
2/10/2019	0.13																								
2/11/2019	0.00																								
2/12/2019	0.30																								
2/13/2019	2.53	9:20 AM	121	1.20										6:48 AM	1391	165.51	6:46 AM	1285	20.50	6:47 AM	1212	30.90	6:46 AM	1673	92.31
2/14/2019	1.18																								
2/15/2019	0.29																								
2/16/2019	0.14																								
2/17/2019	0.12																								
2/18/2019	0.00																								
2/19/2019	0.00																								
2/20/2019	0.00																								
2/21/2019	0.00																								
2/22/2019	0.00																								
2/23/2019	0.00																								
2/24/2019	0.00																								
2/25/2019	0.04																								
2/26/2019	0.70																								
2/27/2019	0.64													4:54 AM	32	1.53	4:52 AM	27	0.17	4:54 AM	25	0.21	4:53 AM	51	1.04
2/28/2019	0.00																								
1/0/1900	0.00																								
1/0/1900	0.00																								
1/0/1900	0.00																								
TOTAL	8.67	-	121	1.20	-	0	0.00	-	0	0.00	-	0	0.00	-	1423	167.04	-	1312	20.67	-	1237	31.11	-	1724	93.35

Southeast Basin CSD Summary
Feb-2019

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
2/1/2019	0.10																		
2/2/2019	0.39																		
2/3/2019	0.10																		
2/4/2019	0.41																		
2/5/2019	0.15																		
2/6/2019	0.00																		
2/7/2019	0.00																		
2/8/2019	0.22																		
2/9/2019	0.41																		
2/10/2019	0.15																		
2/11/2019	0.00																		
2/12/2019	0.22																		
2/13/2019	1.89	11:03 AM	28	1.0				11:05 AM	58	1.67	11:06 AM	37	0.52	11:06 AM	37	0.12	11:04 AM	149	8.21
2/14/2019	0.84																		
2/15/2019	0.11																		
2/16/2019	0.18																		
2/17/2019	0.13																		
2/18/2019	0.00																		
2/19/2019	0.00																		
2/20/2019	0.00																		
2/21/2019	0.00																		
2/22/2019	0.00																		
2/23/2019	0.00																		
2/24/2019	0.00																		
2/25/2019	0.02																		
2/26/2019	0.51																		
2/27/2019	0.38																		
2/28/2019	0.00																		
1/0/1900	0.00																		
1/0/1900	0.00																		
1/0/1900	0.00																		
TOTAL	6.21	-	28	1.0	-	0	0.00	-	58	1.67	-	37	0.52	-	37	0.12	-	149	8.21

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	April 8, 2019
Test Organism:	rainbow trout	Test ended:	April 12, 2019
Organism batch ID:	RT-1909	Prepared by:	M. Concepcion
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	5	5	0	5	0	5	0	5	55
	replicate 2	10	4	6	0	6	0	6	0	6	

TUa **0.97**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	12.8	11.9	12.5	11.9	12.2	12.4	11.9	12.0	12.0	12.0
pH (units)	7.25	7.42	7.27	7.41	7.48	6.81	6.50	6.75	7.02	6.83
Dissolved oxygen (mg/L)	8.4	8.2	10.3	9.5	9.7	6.8	6.9	7.2	8.3	6.5
Residual chlorine (mg/L)	-0.1	NT	-0.6	-0.5	-0.5	-1.8	-0.9	-2.3	-1.1	-1.0
Alkalinity (mg/L)	34				42	230	214	256	260	266
Hardness (mg/L)	50				48	174	186	192	216	192
Conductivity ($\mu S/cm^2$)	133				150	1656	1466	1741	1820	2083
Total ammonia (mg/L)	< 0.02					38.9	30.5	46.6	42.6	42.3

NT = Not taken

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration (~100 bubbles/min) of effluent and control exposure solutions from 50-hrs after test initiation through test termination.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Operator of the Hetch Hetchy Regional Water System

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
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TTY 415.554.3488

April 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: March 2019 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of March 2019 for the Southeast Water Pollution Control Plant (SEP).

Compliance with Effluent Limitations. Compliance with the effluent limitation was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Effluent Characterization Study. Per NPDES permit Provision C.2., a sample was collected during February 2019 for the Effluent Characterization study. The study results were not available when the February 2019 SMR was submitted on March 29, 2019. Priority pollutants were not detected at or above the applicable water quality criteria.

Discharge Incident. Final design for a temporary bypass of the SEP final effluent 36-inch force main crossing Islais Creek is complete. Notice to proceed has been issued to the contractor to begin long lead material procurement, special work equipment rental, and continued value engineering solutions. Due to the findings of the bathymetric survey completed in February, the alignment has been slightly modified. Soil characterization needed for temporary cofferdam construction is currently being evaluated, and contractor mobilization is planned to start in June. Interagency coordination for

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Harlan L. Kelly, Jr. General Manager

environmental permitting is ongoing. The project team is coordinating the raising and lowering of the Islais Creek and Illinois Street bridges while actively seeking alternative site access methodologies.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were multiple combined sewer discharges during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Drainage Areas CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This reporting period	0	2	0
Total for Count 2018-2019 Wet Weather Season	4	13	4

System Operations of Wet Weather Facilities.
The operation of wet weather facilities during the storm event was conducted consistent with the requirements in NPDES permit Provision VI.C.5.c.i. - VI.C.5.c.iv.

Wet Weather Monitoring. The Bayside system experienced wet weather days on March 2, 3, 5-7, 9-11, 20, 22, 23, 25, and 26. Required monitoring occurred at EFF-001B, EFF-002, and EFF-003 with one exception. On March 7, staff did not collect wet weather samples for enterococcus at EFF-001B, EFF-002, and EFF-003 and fecal coliform at EFF-003. Per footnote [4] of the NPDES permit Table E-4, sample collection is required when discharges start after 4 am. Wet weather discharges were occurring at Discharge Point Nos. 001, 002 (until ~4:30am), and 003/004 (until ~7:15am). All wet weather bacteria samples were collected for same event on March 6 with numeric results less than the most stringent effluent limitations, and compliance with the wet weather enterococcus effluent limitation with achieved. Senior stationary engineers have been reminded of this monitoring requirement.

In addition, the following notes related to fecal indicator bacteria monitoring are being provided for clarity:

- On March 7, wet weather fecal coliform samples were collected at EFF-002 but not EFF-001B because only secondary treated effluent was being discharged after 1:00am, so the EFF-002 result is representative of effluent being discharged at both Discharge Points Nos. 001 and 002.

- On March 5 and 9, wet weather enterococcus and fecal coliform samples were collected at EFF-002 but not EFF-001B because SEP was discharging only secondary treated effluent, so the EFF-002 sample was representative of the effluent being discharged at both Discharge Points Nos. 001 and 002.

CSD Monitoring. CSD samples were collected at each permit-designated location during each CSD event as required by the NPDES permit.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Division Manager, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2018-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1702.93	1633.27	0.00	0	0.00	0.00	0	0.00
September	0.00	0.00	0.00	0	0.00	0.00	1622.74	1572.86	0.00	0	0.00	0.00	0	0.00
October	0.00	4.79	0.00	0	0.00	0.05	1731.82	1643.10	0.00	0	0.00	0.00	0	0.00
November	4.31	215.48	169.96	2	6.39	4.54	2307.89	1834.01	363.39	3	277.27	3.26	1	0.40
December	2.28	87.68	72.89	0	0.00	2.28	2158.90	1974.06	163.93	1	27.40	1.93	1	0.13
January	6.57	315.06	287.32	1	10.82	6.39	2745.30	2220.03	497.21	5	556.68	4.41	1	0.28
February	9.88	586.78	594.64	1	42.33	8.67	3148.60	2401.58	685.93	2	1131.76	6.21	1	11.52
March	4.75	252.87	218.99	0	0.00	4.85	2962.25	2473.66	429.81	2	199.48	3.99	0	0.00
April														
May														
June														
TOTAL	27.79	1462.65	1343.80	4	59.54	26.78	20069.15	17385.98	2140.27	13	2192.59	19.80	4	12.31

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for March-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	\\WWESEPPI01\TELOG:RG35_NSS.Intensity	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	\\WWESEPPI01\TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
3/1/2019	0.02	0.00	0.00			0.02	72.17	75.17	0.00			0.02		
3/2/2019	0.84	55.81	49.81			0.92	208.28	107.62	96.42			0.80		
3/3/2019	0.00	0.00	0.00			0.00	90.72	89.62	1.61			0.01		
3/4/2019	0.07	0.00	0.00			0.07	93.38	90.07	0.00			0.04		
3/5/2019	0.45	13.78	7.78			0.40	124.99	104.24	17.29			0.34		
3/6/2019	0.94	70.75	70.75			0.80	236.64	110.00	123.40	1	178.20	0.47		
3/7/2019	0.00	9.24	9.24			0.07	105.72	95.30	7.71			0.06		
3/8/2019	0.00	0.00	0.00			0.00	80.87	80.84	0.00			0.00		
3/9/2019	0.26	15.51	9.51			0.25	101.45	89.86	11.72			0.23		
3/10/2019	0.11	0.00	0.00			0.25	114.36	103.66	9.74			0.25		
3/11/2019	0.00	0.18	0.00			0.00	75.15	77.83	0.28			0.00		
3/12/2019	0.00	0.00	0.00			0.00	78.13	76.07	0.00			0.00		
3/13/2019	0.00	0.00	0.00			0.00	10.06	10.95	0.00			0.00		
3/14/2019	0.00	0.00	0.00			0.00	71.19	62.69	0.00			0.00		
3/15/2019	0.00	0.00	0.00			0.00	103.00	94.70	0.00			0.00		
3/16/2019	0.00	0.00	0.00			0.00	64.33	61.88	0.00			0.00		
3/17/2019	0.00	0.00	0.00			0.00	67.84	65.06	0.00			0.00		
3/18/2019	0.00	0.00	0.00			0.00	62.73	57.85	0.00			0.00		
3/19/2019	0.00	0.00	0.00			0.00	73.92	68.15	0.00			0.00		
3/20/2019	0.82	43.16	37.16			0.86	200.85	104.76	90.87	1	21.28	0.76		
3/21/2019	0.00	0.00	0.00			0.00	61.34	60.47	0.00			0.00		
3/22/2019	0.63	21.97	15.97			0.57	108.00	92.13	13.28			0.44		
3/23/2019	0.09	18.77	18.77			0.13	155.44	98.03	57.48			0.15		
3/24/2019	0.00	0.00	0.00			0.00	67.52	69.17	0.00			0.00		
3/25/2019	0.23	1.89	0.00			0.33	81.84	82.76	0.00			0.30		
3/26/2019	0.14	0.00	0.00			0.13	100.41	99.90	0.00			0.09		
3/27/2019	0.04	1.79	0.00			0.02	92.89	88.81	0.00			0.01		
3/28/2019	0.11	0.00	0.00			0.02	70.19	70.99	0.00			0.02		
3/29/2019	0.00	0.00	0.00			0.01	67.03	67.72	0.00			0.00		
3/30/2019	0.00	0.00	0.00			0.00	57.39	55.69	0.00			0.00		
3/31/2019	0.00	0.00	0.00			0.00	64.42	61.66	0.00			0.00		
TOTAL MONTHLY	4.75	252.87	218.99	0	0.00	4.85	2962.25	2473.66	429.81	2	199.48	3.99	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	22.99	27.37	-	-	-	95.56	79.80	39.07	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	10.06	10.95	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	70.75	70.75	-	-	-	236.64	110.00	123.40	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

-NPF Effluent had data anamolies on a total of 15 days: 3/1, 3/2, 3/3, 3/4, 3/5, 3/6 3/7, 3/9, 3/10, 3/11, 3/12, 3/20, 3/22, 3/23, 3/29. Of the 15 days, NPF effluent is assumed to be equal to NPF influent on 3/1, 3/3, 3/4, 3/6, 3/10, 3/12, 3/23, 3/29. Of the 15 days, NPF effluent is assumed to be 6 MG less than NPF influent on 3/2, 3/5, 3/7, 3/9, 3/11, 3/20, and 3/22.

-Operations confirmed that on 3/25 and 3/26 all plant effluent was discharged at EFF-001 and there was no discharge at EFF-002.

North Shore Basin CSD Summary
Mar-2019

Date	Total Rain (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2019	0.02																		
3/2/2019	0.84																		
3/3/2019	0.00																		
3/4/2019	0.07																		
3/5/2019	0.45																		
3/6/2019	0.94																		
3/7/2019	0.00																		
3/8/2019	0.00																		
3/9/2019	0.26																		
3/10/2019	0.11																		
3/11/2019	0.00																		
3/12/2019	0.00																		
3/13/2019	0.00																		
3/14/2019	0.00																		
3/15/2019	0.00																		
3/16/2019	0.00																		
3/17/2019	0.00																		
3/18/2019	0.00																		
3/19/2019	0.00																		
3/20/2019	0.82																		
3/21/2019	0.00																		
3/22/2019	0.63																		
3/23/2019	0.09																		
3/24/2019	0.00																		
3/25/2019	0.23																		
3/26/2019	0.14																		
3/27/2019	0.04																		
3/28/2019	0.11																		
3/29/2019	0.00																		
3/30/2019	0.00																		
3/31/2019	0.00																		
TOTAL	**4.75**	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #1 CSD Summary
Mar-2019

Date	Total Rain (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2019	0.02																											
3/2/2019	0.92																											
3/3/2019	0.00																											
3/4/2019	0.07																											
3/5/2019	0.40																											
3/6/2019	0.80	5:22 AM	616	46.28										5:19 AM	417	37.32	5:19 AM	417	68.88									
3/7/2019	0.07																											
3/8/2019	0.00																											
3/9/2019	0.25																											
3/10/2019	0.25																											
3/11/2019	0.00																											
3/12/2019	0.00																											
3/13/2019	0.00																											
3/14/2019	0.00																											
3/15/2019	0.00																											
3/16/2019	0.00																											
3/17/2019	0.00																											
3/18/2019	0.00																											
3/19/2019	0.00																											
3/20/2019	0.86	7:31 AM	202	11.24										7:32 AM	54	3.35	7:32 AM	54	6.69									
3/21/2019	0.00																											
3/22/2019	0.57																											
3/23/2019	0.13																											
3/24/2019	0.00																											
3/25/2019	0.33																											
3/26/2019	0.13																											
3/27/2019	0.02																											
3/28/2019	0.02																											
3/29/2019	0.01																											
3/30/2019	0.00																											
3/31/2019	0.00																											
TOTAL	4.85	-	818	57.53	-	0	0.00	-	0	0.00	-	0	0.00	-	1341	148.63	-	1341	267.96	-	0	0.00	-	0	0.00	-	0	0.00

Note

Central Basin #2 CSD Summary
Mar-2019

Date	Total Rain (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2019	0.02																								
3/2/2019	0.92																								
3/3/2019	0.00																								
3/4/2019	0.07																								
3/5/2019	0.40																								
3/6/2019	0.80													5:01 AM	169	13.55	4:58 AM	140	1.64	5:00 AM	134	2.28	5:01 AM	278	8.25
3/7/2019	0.07																								
3/8/2019	0.00																								
3/9/2019	0.25																								
3/10/2019	0.25																								
3/11/2019	0.00																								
3/12/2019	0.00																								
3/13/2019	0.00																								
3/14/2019	0.00																								
3/15/2019	0.00																								
3/16/2019	0.00																								
3/17/2019	0.00																								
3/18/2019	0.00																								
3/19/2019	0.00																								
3/20/2019	0.86																								
3/21/2019	0.00																								
3/22/2019	0.57																								
3/23/2019	0.13																								
3/24/2019	0.00																								
3/25/2019	0.33																								
3/26/2019	0.13																								
3/27/2019	0.02																								
3/28/2019	0.02																								
3/29/2019	0.01																								
3/30/2019	0.00																								
3/31/2019	0.00																								
TOTAL	4.85	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	169	13.55	-	140	1.64	-	134	2.28	-	278	8.25

Southeast Basin CSD Summary
Mar-2019

Date	Total Rain (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2019	0.02																		
3/2/2019	0.80																		
3/3/2019	0.01																		
3/4/2019	0.04																		
3/5/2019	0.34																		
3/6/2019	0.47																		
3/7/2019	0.06																		
3/8/2019	0.00																		
3/9/2019	0.23																		
3/10/2019	0.25																		
3/11/2019	0.00																		
3/12/2019	0.00																		
3/13/2019	0.00																		
3/14/2019	0.00																		
3/15/2019	0.00																		
3/16/2019	0.00																		
3/17/2019	0.00																		
3/18/2019	0.00																		
3/19/2019	0.00																		
3/20/2019	0.76																		
3/21/2019	0.00																		
3/22/2019	0.44																		
3/23/2019	0.15																		
3/24/2019	0.00																		
3/25/2019	0.30																		
3/26/2019	0.09																		
3/27/2019	0.01																		
3/28/2019	0.02																		
3/29/2019	0.00																		
3/30/2019	0.00																		
3/31/2019	0.00																		
TOTAL	**3.99**	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2172899

INF-001	Cyanide, Total (as CN)	Daily Maximum	<	5	ug/L	04/05/2019	None
INF-001	Flow	Daily Maximum	=	81.8	MGD	04/05/2019	None
INF-001	Flow	Daily Minimum	=	27.95	MGD	04/24/2019	None
INF-001	Flow	Monthly Discharge	=	1869.8	MGM	04/24/2019	None
INF-001	Flow	Monthly Average (Mean)	=	62.3	MGD	04/30/2019	None
INF-001	Total Suspended Solids (TSS)	Daily Maximum	=	515	mg/L	04/11/2019	None
INF-001	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	247	mg/L	04/30/2019	None

Total Calculated Data Points: 64

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1066835	04/12/2019	Acute Toxicity	Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported val	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP E001A Toxicity 201904a.pdf	E001A	15 KB
SEP E001A Toxicity 201904b.pdf	E001A	15 KB
SEP Semi-Annual Chronic Toxicity 201904 Ammonia Add-back 10% Effluent.pdf	E001A Chronic Ammonia Add-back 10% Effluent	50 KB
SEP Semi-Annual Chronic Toxicity 201904 Untreated Effluent.pdf	E001A Chronic Untreated Effluent	13 KB
SEP Semi-Annual Chronic Toxicity 201904 Zeolite Treated Effluent.pdf	E001A Chronic Zeolite Treated Effluent	13 KB
SEP Shoreline 201904.pdf	Shoreline Report	40 KB

Total Attachments: 6

Cover Letter

File Name
2019-04 SEP SMR CL Final.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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2018_....pdf

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Static-Renewal Bioassay Test -- REPORT

Southeast Plant Wet Weather Discharge

PDS (EFF-001B)

Exposure volume: 4L
Test Organism: Rainbow trout
Organism batch ID: RT-1913
Sample Date: May 19, 2019
Sample Lab-ID: 19-EFF-047

Test Started: May 20, 2019
Test Ended: May 24, 2019
Prepared by: M. Concepcion
Approved by: R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	rep 1	10	0	10	0	10	0	10	0	10	100
	rep 2	10	0	10	0	10	0	10	0	10	
Effluent	rep 1	10	0	10	2	8	4	4	0	4	40
	rep 2	10	0	10	4	6	2	4	0	4	

TUa **1.05**

Water Quality Data

Control	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	12.9	11.5	11.4	11.2	11.5	11.5
pH (units)	7.69	7.28	7.53	7.45	7.55	7.54
Dissolved oxygen (mg/L)	10.7	10.0	10.1	10.7	11.3	10.3
Hardness (mg/L)	106			108		100
Alkalinity (mg/L)	66			66		58
Conductivity ($\mu S/cm^2$)	344			343		365

Effluent	0 hours	24 hours	48 hours previous	48 hours renewal	72 hours	96 hours
Temperature (°C)	11.3	11.3	11.3	12.0	11.5	11.4
pH (units)	7.12	7.11	7.24	6.80	7.36	7.52
Dissolved oxygen (mg/L)	8.7	8.0	8.5	6.6	10.7	9.9
Hardness (mg/L)	120			106		112
Alkalinity (mg/L)	72			70		68
Conductivity ($\mu S/cm^2$)	727			715		718
Residual chlorine (mg/L)	-4.3					
Total ammonia (mg/L)	10.9					

Comments: In order to maintain dissolved oxygen levels of at least 60% saturation, control and effluent were aerated from test-initiation through test-termination
Effluent and control exposures were also oxygenated intermittently from 53- through 68-hours after test-initiation in order to maintain dissolved oxygen levels within protocol requirements.

Reference:

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

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May 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: April 2019 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of April 2019 for the Southeast Water Pollution Control Plant (SEP).

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period with the exception of acute toxicity.

Acute Toxicity. Monthly dry weather acute toxicity testing was performed for the periods of April 8-12 and April 15-19. The April 8-12 test result of 55% did not meet the 11-sample 90th percentile limitation of 70% survival, as shown in the table below. The April 15-19 test result of 95% met the effluent limitations.

Flow-through Bioassay Test Date	Results (% Survival)	11-Sample Median	11-Sample 90th percentile
July 9-13, 2018	100%	--	--
July 16-20, 2018	100%	--	--
August 6-10, 2018	100%	--	--
September 17-21, 2018	90%	--	--
October 9-13, 2018	100%	--	--
November 5-9, 2018	45%	100%	55%
December 10-14, 2018	55%	100%	55%
December 18-22, 2018	70%	100%	--
February 19-23, 2019	90%	--	--
March 29 - April 2, 2019	85%	90%	--
April 8 - April 12, 2019	**55%**	**90%**	**55%**
April 15-19, 2019	**95%**	**--**	**--**

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Anson Moran, Commissioner
Sophie Maxwell, Commissioner
Tim Paulson, Commissioner
Harlan L. Kelly, Jr., General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Investigation of intermittent poor survival results during SEP acute flow-through bioassay testing has identified ammonia as a major factor contributing to lower survivals in the effluent exposures. As a result, an acid dosing system for maintaining the lower pH of the effluent within bioassay exposure chambers will be tested in June. Maintaining the lower effluent pH will reduce the unionized ammonia interference, providing a more reliable assessment of the toxicity of SEP effluent.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

The semi-annually required chronic toxicity results (zeolite treated effluent - 5 TUc and untreated effluent – 20 TUc) with comments have been uploaded to CIWQS. Along with untreated and zeolite treated effluent, the ammonia add-back testing at 10% effluent toxicity report has been uploaded to CIWQS as an attachment; no result could be uploaded directly to CIWQS for ammonia add-back testing at 10% effluent.

Discharge Incidents. Preliminary construction sequencing for a temporary bypass of the SEP final effluent 36-inch force main crossing Islais Creek has begun, with construction expected to begin in June. Coordinating SEP shutdowns needed for construction with shutdowns for construction related to other projects (e.g., Headworks Facility Project and Biosolids Digester Facilities Project) is underway, as is evaluation of whether utilization of the Quint Street outfall for discharging after shutdowns may be needed. A project staging area has been leased from the Port of San Francisco and an encroachment permit is imminent. U.S. Army Corps of Engineers and Bay Conservation and Development Commission permits are expected to be issued in late May and early June respectively. The Regional Water Board has issued a Clean Water Act 401 certification, and the construction contractor is preparing a dewatering plan as required by that certification.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Drainage Areas CSDs	**North Shore Basin**	**Central Basin**	**Southeast Basin**
This reporting period	0	0	0
Total for Count 2018-2019 Wet Weather Season	4	13	4

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Division Manager, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2018-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1702.93	1633.27	0.00	0	0.00	0.00	0	0.00
September	0.00	0.00	0.00	0	0.00	0.00	1622.74	1572.86	0.00	0	0.00	0.00	0	0.00
October	0.00	4.79	0.00	0	0.00	0.05	1731.82	1643.10	0.00	0	0.00	0.00	0	0.00
November	4.31	215.48	169.96	2	6.39	4.54	2307.89	1834.01	363.39	3	277.27	3.26	1	0.40
December	2.28	87.68	72.89	0	0.00	2.28	2158.90	1974.06	163.93	1	27.40	1.93	1	0.13
January	6.57	315.06	287.32	1	10.82	6.39	2745.30	2220.03	497.21	5	556.68	4.41	1	0.28
February	9.88	586.78	594.64	1	42.33	8.67	3148.60	2401.58	685.93	2	1131.76	6.21	1	11.52
March	4.75	252.87	218.99	0	0.00	4.85	2962.25	2473.66	429.81	2	199.48	3.99	0	0.00
April	0.34	0.00	0.00	0	0.00	0.36	1869.80	1773.25	0.00	0	0.00	0.29	0	0.00
May														
June														
TOTAL	28.13	1462.65	1343.80	4	59.54	27.14	21938.95	19159.23	2140.27	13	2192.59	20.09	4	12.31

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for April-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	\\WWESEPPI01\TELOG:RG35_NSS.Intensity	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	\\WWESEPPI01\TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
4/1/2019	0.02	0.00	0.00			0.03	67.78	64.53	0.00			0.01		
4/2/2019	0.10	0.00	0.00			0.09	78.00	73.14	0.00			0.07		
4/3/2019	0.00	0.00	0.00			0.00	63.06	59.34	0.00			0.00		
4/4/2019	0.00	0.00	0.00			0.00	67.14	63.09	0.00			0.00		
4/5/2019	0.12	0.00	0.00			0.13	81.83	80.00				0.15		
4/6/2019	0.02	0.00	0.00			0.00	63.79	63.69	0.00			0.00		
4/7/2019	0.00	0.00	0.00			0.00	59.72	56.79	0.00			0.00		
4/8/2019	0.04	0.00	0.00			0.06	70.91	66.21	0.00			0.02		
4/9/2019	0.00	0.00	0.00			0.00	67.88	59.31	0.00			0.00		
4/10/2019	0.00	0.00	0.00			0.00	66.60	55.80	0.00			0.00		
4/11/2019	0.00	0.00	0.00			0.00	61.81	57.37	0.00			0.00		
4/12/2019	0.00	0.00	0.00			0.00	60.43	57.16	0.00			0.00		
4/13/2019	0.00	0.00	0.00			0.00	59.54	56.65	0.00			0.00		
4/14/2019	0.00	0.00	0.00			0.00	57.38	54.68	0.00			0.00		
4/15/2019	0.03	0.00	0.00			0.03	62.93	60.72	0.00			0.01		
4/16/2019	0.01	0.00	0.00			0.02	66.75	64.84	0.00			0.03		
4/17/2019	0.00	0.00	0.00			0.00	59.60	56.39	0.00			0.00		
4/18/2019	0.00	0.00	0.00			0.00	58.98	55.44	0.00			0.00		
4/19/2019	0.00	0.00	0.00			0.00	59.14	56.03	0.00			0.00		
4/20/2019	0.00	0.00	0.00			0.00	57.86	55.05	0.00			0.00		
4/21/2019	0.00	0.00	0.00			0.00	57.53	54.27	0.00			0.00		
4/22/2019	0.00	0.00	0.00			0.00	57.73	55.61	0.00			0.00		
4/23/2019	0.00	0.00	0.00			0.00	58.99	56.75	0.00			0.00		
4/24/2019	0.00	0.00	0.00			0.00	27.95	30.39	0.00			0.00		
4/25/2019	0.00	0.00	0.00			0.00	75.03	72.61	0.00			0.00		
4/26/2019	0.00	0.00	0.00			0.00	71.59	69.66	0.00			0.00		
4/27/2019	0.00	0.00	0.00			0.00	58.14	55.12	0.00			0.00		
4/28/2019	0.00	0.00	0.00			0.00	55.91	53.57	0.00			0.00		
4/29/2019	0.00	0.00	0.00			0.00	57.54	54.76	0.00			0.00		
4/30/2019	0.00	0.00	0.00			0.00	58.26	54.28	0.00			0.00		
TOTAL MONTHLY	0.34	0.00	0.00	0	0.00	0.36	1869.80	1773.25	0.00	0	0.00	0.29	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	62.33	59.11	0.00	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	27.95	30.39	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	81.83	80.00	0.00	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

-NPF Effluent had data anamolies on a total of 4 days: 4/7, 4/9, 4/10, and 4/15. NPF effluent was zeroed per confirmation from Operations for these 4 days.
-Operations confirmed that on 4/5 and 4/24 all plant effluent was discharged at EFF-001 and there was no discharge at EFF-002.
-SEP planned shutdown on 4/24

North Shore Basin CSD Summary
Apr-2019

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2019	0.02																		
4/2/2019	0.10																		
4/3/2019	0.00																		
4/4/2019	0.00																		
4/5/2019	0.12																		
4/6/2019	0.02																		
4/7/2019	0.00																		
4/8/2019	0.04																		
4/9/2019	0.00																		
4/10/2019	0.00																		
4/11/2019	0.00																		
4/12/2019	0.00																		
4/13/2019	0.00																		
4/14/2019	0.00																		
4/15/2019	0.03																		
4/16/2019	0.01																		
4/17/2019	0.00																		
4/18/2019	0.00																		
4/19/2019	0.00																		
4/20/2019	0.00																		
4/21/2019	0.00																		
4/22/2019	0.00																		
4/23/2019	0.00																		
4/24/2019	0.00																		
4/25/2019	0.00																		
4/26/2019	0.00																		
4/27/2019	0.00																		
4/28/2019	0.00																		
4/29/2019	0.00																		
4/30/2019	0.00																		
	0.00																		
TOTAL	0.34	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #1 CSD Summary
Apr-2019

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2019	0.03																											
4/2/2019	0.09																											
4/3/2019	0.00																											
4/4/2019	0.00																											
4/5/2019	0.13																											
4/6/2019	0.00																											
4/7/2019	0.00																											
4/8/2019	0.06																											
4/9/2019	0.00																											
4/10/2019	0.00																											
4/11/2019	0.00																											
4/12/2019	0.00																											
4/13/2019	0.00																											
4/14/2019	0.00																											
4/15/2019	0.03																											
4/16/2019	0.02																											
4/17/2019	0.00																											
4/18/2019	0.00																											
4/19/2019	0.00																											
4/20/2019	0.00																											
4/21/2019	0.00																											
4/22/2019	0.00																											
4/23/2019	0.00																											
4/24/2019	0.00																											
4/25/2019	0.00																											
4/26/2019	0.00																											
4/27/2019	0.00																											
4/28/2019	0.00																											
4/29/2019	0.00																											
4/30/2019	0.00																											
	0.00																											
TOTAL	0.36	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	1341	148.63	-	1341	267.96	-	0	0.00	-	0	0.00	-	0	0.00

Note

Central Basin #2 CSD Summary
Apr-2019

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2019	0.03																								
4/2/2019	0.09																								
4/3/2019	0.00																								
4/4/2019	0.00																								
4/5/2019	0.13																								
4/6/2019	0.00																								
4/7/2019	0.00																								
4/8/2019	0.06																								
4/9/2019	0.00																								
4/10/2019	0.00																								
4/11/2019	0.00																								
4/12/2019	0.00																								
4/13/2019	0.00																								
4/14/2019	0.00																								
4/15/2019	0.03																								
4/16/2019	0.02																								
4/17/2019	0.00																								
4/18/2019	0.00																								
4/19/2019	0.00																								
4/20/2019	0.00																								
4/21/2019	0.00																								
4/22/2019	0.00																								
4/23/2019	0.00																								
4/24/2019	0.00																								
4/25/2019	0.00																								
4/26/2019	0.00																								
4/27/2019	0.00																								
4/28/2019	0.00																								
4/29/2019	0.00																								
4/30/2019	0.00																								
	0.00																								
TOTAL	0.36	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Southeast Basin CSD Summary
Apr-2019

Date	GFS Rain Gauge Total (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2019	0.01																		
4/2/2019	0.07																		
4/3/2019	0.00																		
4/4/2019	0.00																		
4/5/2019	0.15																		
4/6/2019	0.00																		
4/7/2019	0.00																		
4/8/2019	0.02																		
4/9/2019	0.00																		
4/10/2019	0.00																		
4/11/2019	0.00																		
4/12/2019	0.00																		
4/13/2019	0.00																		
4/14/2019	0.00																		
4/15/2019	0.01																		
4/16/2019	0.03																		
4/17/2019	0.00																		
4/18/2019	0.00																		
4/19/2019	0.00																		
4/20/2019	0.00																		
4/21/2019	0.00																		
4/22/2019	0.00																		
4/23/2019	0.00																		
4/24/2019	0.00																		
4/25/2019	0.00																		
4/26/2019	0.00																		
4/27/2019	0.00																		
4/28/2019	0.00																		
4/29/2019	0.00																		
4/30/2019	0.00																		
	0.00																		
TOTAL	0.29	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2184937

	20 Deg. C)						
INF-001	Cyanide, Total (as CN)	Daily Maximum	=	5.74	ug/L	05/06/2019	None
INF-001	Flow	Daily Maximum	=	146.4	MGD	05/19/2019	None
INF-001	Flow	Daily Minimum	=	27.74	MGD	05/23/2019	None
INF-001	Flow	Monthly Discharge	=	2076.66	MGM	05/23/2019	None
INF-001	Flow	Monthly Average (Mean)	=	67	MGD	05/31/2019	None
INF-001	Total Suspended Solids (TSS)	Daily Maximum	=	478	mg/L	05/10/2019	None
INF-001	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	254	mg/L	05/31/2019	None

Total Calculated Data Points: 113

Violations

Violation ID	Violation Date	Violation Type	Description(+)	Corrective Action	Created By	Last Modified By
1066839	05/29/2019	Category 2 Pollutant (Effluent Violation for Group 2 Pollutant)	Chlorine, Total Residual Instantaneous Maximum limit is 0.0 mg/L and reported va	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP 001A Toxicity 201905.pdf	E001A	25 KB
SEP 001B Toxicity 201905.pdf	E001B	15 KB
SEP 003 Toxicity 201905.pdf	E003	13 KB
SEP Shoreline 201905.pdf	Shoreline Report	38 KB

Total Attachments: 4

Cover Letter

File Name
2019-05 SEP SMR CL FINAL.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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Cal/EPA | ARB | DPR | DTSC | OEHHA | **SWRCB**

2018_....pdf

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001)

Exposure volume:	4L	Test started:	June 3, 2019
Test Organism:	rainbow trout	Test ended:	June 7, 2019
Organism batch ID:	RT-1914	Prepared by:	M. Concepcion
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	3	7	0	7	0	7	0	7	60
	replicate 2	10	5	5	0	5	0	5	0	5	

TUa **0.94**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	12.5	12.3	11.8	12.1	11.6	12.8	11.8	11.6	11.9	11.7
pH (units)	7.51	7.10	7.95	7.15	7.80	6.59	6.79	6.73	6.89	6.78
Dissolved oxygen (mg/L)	7.9	8.3	8.5	8.6	8.7	6.6	7.5	8.0	7.7	6.6
Residual chlorine (mg/L)	0.0	-0.1	0.0	-0.1	-0.3	-1.6	-1.7	-0.8	-1.5	-2.8
Alkalinity (mg/L)	16				12	232	238	226	248	246
Hardness (mg/L)	32				36	220	200	236	192	164
Conductivity ($\mu S/cm^2$)	83				77	2211	1876	2299	2009	1837
Total ammonia (mg/L)	0.07				<0.02	38.5	38.8	40.9	47.0	51.2

Notes: Effluent and control exposures were gently aerated from two-hours after test initiation through test termination in order to ensure dissolved oxygen levels above the 6 mg/L protocol-recommended level. A short-term, plant-process interruption occurred during the last 24-hours of testing that did not invalidate testing.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

June 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: May 2019 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of May 2019 for the Southeast Water Pollution Control Plant (SEP).

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period with the exception of total chlorine residual as described below.

Total Chlorine Residual. On May 29, 2019 for one minute at 11:45 am, the total residual chlorine continuous analyzer for the final effluent being discharged at Discharge Point No. 001 (Pier 80) was 0.2 mg/L, which exceeded the instantaneous maximum effluent limitation of 0.0 mg/L. The exceedance measured by the analyzer was caused by an approximate three-minute (11:38-11:41) loss of the local 24-voltage power supply, which stopped the final effluent flow transmitter. Flow rate from this transmitter determines the rate of sodium bisulfite pumping. The lost signal was interpreted by the sodium bisulfite pumps as a flow rate of zero, so the pumps stopped dosing. Investigation indicates that the power loss was mostly likely caused by a mistake made by an on-site construction contractor.

Once power returned and Operations staff were alerted to the exceedance, they manually turned on the lead sodium bisulfite dosing pump to neutralize the positive chlorine readings by the upstream continuous analyzer, ending the one-minute exceedance.

London N. Breed
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General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

For the purpose of the mandatory minimum penalties, SFPUC understands that the only the maximum value among the discrete hourly readings is used, even if chlorine is measured continuously, per Table 4 footnote [2] of the NPDES permit. The 0.2 mg/L exceedance did not occur on the hour and thus has not been reported in CIWQS as the instantaneous maximum result for compliance with total residual chlorine limit. SFPUC understands the Regional Water Board retains the ability to use all continuous monitoring data for discretionary enforcement.

Discharge Incidents. Mobilization for replacement of the 36" force main crossing Islais Creek began in early June. All environmental permitting was also completed in June, with issuance of permits from the U.S. Army Corp of Engineers and the Bay Conservation and Development Commission on June 4 and 5, respectively. A crane for excavation of the cofferdams has arrived, and excavation is expected to begin in July.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were two combined sewer discharges (CSDs) during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Drainage Areas CSDs	North Shore Basin	Central Basin	Southeast Basin
This reporting period	0	0	2
Total for Count 2018-2019 Wet Weather Season	4	13	6

System Operations of Wet Weather Facilities. The operation of all other wet weather facilities during the storm events was conducted consistent with the requirements in NPDES permit Provision VI.C.5.c.i. - VI.C.5.c.iv. except on May 18-19 at Griffith Pump Station (GFS).

The SFPUC schedules maintenance and rehabilitation activities on key wet weather assets for the "dry season" in order to ensure that those assets are available to maximize treatment and storage during wet weather. Typically, SFPUC contracts for construction activities affecting wet weather assets identify the dry season as May 15 through October 15 because of the statistically small likelihood of rainfall occurring during this timeframe.

On May 15, the SFPUC initiated construction of a major rehabilitation project at the GFS that includes substantial upgrades to the electrical system, including the electrical switchgear. PG&E is physically connecting the GFS wet weather

pumps to a permanent electrical feed. During these activities, the GFS is being operated with a portable generator supporting the load of powering one or two dry weather pumps with flow rates depending on hydraulic head; the wet weather pumps are not powered. Rescheduling PG&E service was not feasible, because it would result in an unquantifiable delay to project completion as PG&E schedules these activities months in advance. Providing alternative power to the wet weather pumps is not possible because there is no on-site receptacle for a standby generator. Project staff also evaluated powering one or more wet weather pumps using the dry weather pump power feed but determined that the dry weather pump power feed is insufficient to power all the electrical needs of the wet weather pumps (e.g., sumps) and the station as a whole (e.g., HVAC).

A significant storm event occurred on the night of May 18 through the morning of May 19. The available capacity of the two online GFS dry weather pumps were exceeded, and the GFS could not be operated at its wet weather design capacity prior to two combined sewer discharges from the adjacent Yosemite Transport/Storage Structure (Discharge Point Nos. 040-042) due to the essential maintenance described above.

The SFPUC provided advance notification of this unanticipated bypass for essential maintenance to Jessica Watkins of the Regional Water Board regarding this matter on May 14, 2019.

Wet Weather Monitoring. The Bayside system experienced wet weather days on May 15, 16, 18, and 19. Required monitoring occurred at EFF-001B, EFF-002, and EFF-003.

CSD Monitoring. CSD samples were collected at each permit-designated location, except for the event on May 19. No samples were collected for the May 19 CSD event because of back-to-back CSD events. During the late-night Saturday May 18 CSD event, a single composite sample was automatically collected at Monitoring Location CSD-041 (Yosemite Avenue). When a sampler collects a sample, it must be manually reset by staff prior to collecting another automatic sample and it cannot be reset during an active CSD. The next CSD occurred about 6.5 hours later on Sunday morning May 19; staff were not available during these six hours to reset the sampler.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit except for May 19, following the CSDs occurring at Discharge Point Nos. 040, 041, and 042. Staff accidentally sampled at Monitoring Location 301.1 (Windsurfer Circle) instead of at required Monitoring Location 301.2 (Jack Rabbit Beach).

The error was realized immediately, and staff sampled at the correct location on the following day (May 20).

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Division Manager, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2018-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1702.93	1633.27	0.00	0	0.00	0.00	0	0.00
September	0.00	0.00	0.00	0	0.00	0.00	1622.74	1572.86	0.00	0	0.00	0.00	0	0.00
October	0.00	4.79	0.00	0	0.00	0.05	1731.82	1643.10	0.00	0	0.00	0.00	0	0.00
November	4.31	215.48	169.96	2	6.39	4.54	2307.89	1834.01	363.39	3	277.27	3.26	1	0.40
December	2.28	87.68	72.89	0	0.00	2.28	2158.90	1974.06	163.93	1	27.40	1.93	1	0.13
January	6.57	315.06	287.32	1	10.82	6.39	2745.30	2220.03	497.21	5	556.68	4.41	1	0.28
February	9.88	586.78	594.64	1	42.33	8.67	3148.60	2401.58	685.93	2	1131.76	6.21	1	11.52
March	4.75	252.87	218.99	0	0.00	4.85	2962.25	2473.66	429.81	2	199.48	3.99	0	0.00
April	0.34	0.00	0.00	0	0.00	0.36	1869.80	1773.25	0.00	0	0.00	0.29	0	0.00
May	2.42	111.72	88.05	0	0.00	2.23	2076.69	1876.54	131.87	0	0.00	1.96	2	7.28
June														
TOTAL	30.55	1574.36	1431.85	4	59.54	29.37	24015.64	21035.77	2272.15	13	2192.59	22.05	6	19.59

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for May-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	\\WWESEPPI01\TELOG:RG35_NSS.Intensity	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	\\WWESEPPI01\TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
5/1/2019	0.00	0.00	0.00			0.00	55.80	53.07	0.00			0.00		
5/2/2019	0.00	0.00	0.00			0.00	58.46	55.88	0.00			0.00		
5/3/2019	0.00	0.00	0.00			0.00	57.96	56.18	0.00			0.00		
5/4/2019	0.00	0.00	0.00			0.00	54.64	52.91	0.00			0.00		
5/5/2019	0.00	0.00	0.00			0.00	52.26	50.17	0.00			0.00		
5/6/2019	0.00	0.00	0.00			0.00	53.80	53.02	0.00			0.00		
5/7/2019	0.00	0.00	0.00			0.00	54.71	53.75	0.00			0.00		
5/8/2019	0.00	0.00	0.00			0.00	54.13	53.06	0.00			0.00		
5/9/2019	0.00	0.00	0.00			0.00	54.76	53.38	0.00			0.00		
5/10/2019	0.00	0.00	0.00			0.00	54.82	53.19	0.00			0.00		
5/11/2019	0.00	0.00	0.00			0.00	50.89	49.68	0.00			0.00		
5/12/2019	0.00	0.00	0.00			0.00	54.65	52.77	0.00			0.00		
5/13/2019	0.00	0.00	0.00			0.00	52.37	51.09	0.00			0.00		
5/14/2019	0.00	0.00	0.00			0.00	57.05	55.12	0.00			0.00		
5/15/2019	0.69	9.89	3.69			0.45	84.51	77.05	5.53			0.28		
5/16/2019	0.38	34.61	30.52			0.26	131.01	106.39	26.20			0.22		
5/17/2019	0.00	0.00	0.00			0.00	62.48	63.05	0.00			0.00		
5/18/2019	0.87	41.92	32.55			0.96	121.20	81.34	47.06			1.06	1	2.21
5/19/2019	0.13	23.35	21.29			0.25	146.44	103.15	53.08			0.20	1	5.07
5/20/2019	0.01	0.00	0.00			0.00	70.81	73.96	0.00			0.00		
5/21/2019	0.33	1.94	0.00			0.29	101.34	101.53	0.00			0.18		
5/22/2019	0.00	0.00	0.00			0.00	66.67	65.46	0.00			0.00		
5/23/2019	0.00	0.00	0.00			0.00	27.74	23.04	0.00			0.00		
5/24/2019	0.00	0.00	0.00			0.00	80.36	74.24	0.00			0.00		
5/25/2019	0.00	0.00	0.00			0.00	71.22	63.52	0.00			0.00		
5/26/2019	0.01	0.00	0.00			0.02	59.03	51.75	0.00			0.02		
5/27/2019	0.00	0.00	0.00			0.00	55.86	48.96	0.00			0.00		
5/28/2019	0.00	0.00	0.00			0.00	57.08	47.95	0.00			0.00		
5/29/2019	0.00	0.00	0.00			0.00	58.35	50.48	0.00			0.00		
5/30/2019	0.00	0.00	0.00			0.00	60.36	52.90	0.00			0.00		
5/31/2019	0.00	0.00	0.00			0.00	55.90	48.49	0.00			0.00		
TOTAL MONTHLY	2.42	111.72	88.05	0	0.00	2.23	2076.69	1876.54	131.87	0	0.00	1.96	2	7.28
MONTHLY AVERAGE FLOW (MGD)	-	22.34	22.01	-	-	-	66.99	60.53	32.97	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	27.74	23.04	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	41.92	32.55	-	-	-	146.44	106.39	53.08	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

-Operations confirmed that on 5/21 all plant effluent was discharged at EFF-001 and there was no discharge at EFF-002.

-Plant shutdown on 5/23

North Shore Basin CSD Summary
May-2019

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2019	0.00																		
5/2/2019	0.00																		
5/3/2019	0.00																		
5/4/2019	0.00																		
5/5/2019	0.00																		
5/6/2019	0.00																		
5/7/2019	0.00																		
5/8/2019	0.00																		
5/9/2019	0.00																		
5/10/2019	0.00																		
5/11/2019	0.00																		
5/12/2019	0.00																		
5/13/2019	0.00																		
5/14/2019	0.00																		
5/15/2019	0.69																		
5/16/2019	0.38																		
5/17/2019	0.00																		
5/18/2019	0.87																		
5/19/2019	0.13																		
5/20/2019	0.01																		
5/21/2019	0.33																		
5/22/2019	0.00																		
5/23/2019	0.00																		
5/24/2019	0.00																		
5/25/2019	0.00																		
5/26/2019	0.01																		
5/27/2019	0.00																		
5/28/2019	0.00																		
5/29/2019	0.00																		
5/30/2019	0.00																		
5/31/2019	0.00																		
TOTAL	**2.42**	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #1 CSD Summary
May-2019

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2019	0.00																											
5/2/2019	0.00																											
5/3/2019	0.00																											
5/4/2019	0.00																											
5/5/2019	0.00																											
5/6/2019	0.00																											
5/7/2019	0.00																											
5/8/2019	0.00																											
5/9/2019	0.00																											
5/10/2019	0.00																											
5/11/2019	0.00																											
5/12/2019	0.00																											
5/13/2019	0.00																											
5/14/2019	0.00																											
5/15/2019	0.45																											
5/16/2019	0.26																											
5/17/2019	0.00																											
5/18/2019	0.96																											
5/19/2019	0.25																											
5/20/2019	0.00																											
5/21/2019	0.29																											
5/22/2019	0.00																											
5/23/2019	0.00																											
5/24/2019	0.00																											
5/25/2019	0.00																											
5/26/2019	0.02																											
5/27/2019	0.00																											
5/28/2019	0.00																											
5/29/2019	0.00																											
5/30/2019	0.00																											
5/31/2019	0.00																											
TOTAL	2.23	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Note

Central Basin #2 CSD Summary
May-2019

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time	Event	Flow	Time	Event	Flow	Time	Event	Flow	Time	Event	Flow	Time	Event	Flow	Time	Event	Flow	Time	Event	Flow	Time	Event	Flow
		Started	Duration	Volume	Started	Duration	EFF-001	Started	Duration	Volume	Started	Duration	Volume	Started	Duration	Volume	Started	Duration	Volume	Started	Duration	Volume	Started	Duration	Volume
		(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)
5/1/2019	0.00																								
5/2/2019	0.00																								
5/3/2019	0.00																								
5/4/2019	0.00																								
5/5/2019	0.00																								
5/6/2019	0.00																								
5/7/2019	0.00																								
5/8/2019	0.00																								
5/9/2019	0.00																								
5/10/2019	0.00																								
5/11/2019	0.00																								
5/12/2019	0.00																								
5/13/2019	0.00																								
5/14/2019	0.00																								
5/15/2019	0.45																								
5/16/2019	0.26																								
5/17/2019	0.00																								
5/18/2019	0.96																								
5/19/2019	0.25																								
5/20/2019	0.00																								
5/21/2019	0.29																								
5/22/2019	0.00																								
5/23/2019	0.00																								
5/24/2019	0.00																								
5/25/2019	0.00																								
5/26/2019	0.02																								
5/27/2019	0.00																								
5/28/2019	0.00																								
5/29/2019	0.00																								
5/30/2019	0.00																								
5/31/2019	0.00																								
TOTAL	2.23	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Southeast Basin CSD Summary
May-2019

Date	GFS Rain Gauge Total (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2019	0.00																		
5/2/2019	0.00																		
5/3/2019	0.00																		
5/4/2019	0.00																		
5/5/2019	0.00																		
5/6/2019	0.00																		
5/7/2019	0.00																		
5/8/2019	0.00																		
5/9/2019	0.00																		
5/10/2019	0.00																		
5/11/2019	0.00																		
5/12/2019	0.00																		
5/13/2019	0.00																		
5/14/2019	0.00																		
5/15/2019	0.28																		
5/16/2019	0.22																		
5/17/2019	0.00																		
5/18/2019	1.06							10:27 PM	98	1.52	10:29 PM	44	0.56	10:29 PM	44	0.13			
5/19/2019	0.20							6:33 AM	343	4.02	6:37 AM	137	0.85	6:37 AM	137	0.20			
5/20/2019	0.00																		
5/21/2019	0.18																		
5/22/2019	0.00																		
5/23/2019	0.00																		
5/24/2019	0.00																		
5/25/2019	0.00																		
5/26/2019	0.02																		
5/27/2019	0.00																		
5/28/2019	0.00																		
5/29/2019	0.00																		
5/30/2019	0.00																		
5/31/2019	0.00																		
TOTAL	1.96	-	0	0.00	-	0	0.00	-	441	5.54	-	181	1.41	-	181	0.33	-	0	0.00

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2205012

INF-001	Flow	Monthly Average (Mean)	=	51.3	MGD	07/31/2019	None
INF-001	Nitrite Plus Nitrate (as N)	Daily Maximum	=	6.11	mg/L	07/02/2019	None
INF-001	Nitrite Plus Nitrate (as N)	Daily Maximum	=	1105	kg/day	07/31/2019	None
INF-001	Nitrite Plus Nitrate (as N)	Monthly Average (Mean)	=	4.806	mg/L	07/31/2019	None
INF-001	Nitrite Plus Nitrate (as N)	Monthly Average (Mean)	=	869	kg/day	07/31/2019	None
INF-001	Nitrogen, Total Inorganic (as N)	Daily Maximum	=	56.57	mg/L	07/22/2019	None
INF-001	Nitrogen, Total Inorganic (as N)	Daily Maximum	=	11350	kg/day	07/31/2019	None
INF-001	Total Suspended Solids (TSS)	Daily Maximum	=	890	mg/L	07/04/2019	None
INF-001	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	313	mg/L	07/31/2019	None

Total Calculated Data Points: 91

Violations

Violation ID	Violation Date	Violation Type	Description(-)	Corrective Action	Created By	Last Modified By
1066998	07/31/2019	Category 1 Pollutant (Effluent Violation for Group 1 Pollutant)	Oil and Grease Monthly Average limit is 10 mg/L and reported value was 12 mg/L at EFF-001A.	None	Case Worker	Water Board Staff

Total Violations: 1

Attachments

File Name	Description	Size
SEP 001A Toxicity 201907.pdf	E001A	25 KB
SEP Shoreline 201907.pdf	Shoreline Report	39 KB

Total Attachments: 2

Cover Letter

File Name
2019-07 SEP SMR Final nutrients.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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2018_....pdf

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
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July 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: June 2019 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of June 2019 for the Southeast Water Pollution Control Plant (SEP).

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period with the exception of acute toxicity, 5-day biochemical oxygen demand (BOD), total suspended solids (TSS), and fecal coliform.

Acute Toxicity

Monthly dry weather acute toxicity testing was performed for the periods of June 3-7, 2019 and June 28 - July 2, 2019. The June 3-7 test result of 60% survival did not meet the 11-sample median limitation of 90% survival and the 11-sample 90th percentile limitation of 70% survival, as shown in the following table. The June 28 - July 2 test result of 100% met acute toxicity effluent limitations.

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Flow-through Bioassay Test Date	Result (%Survival)	11-Sample Median	11-Sample 90th percentile
September 17-21, 2018	90%		
October 9-13, 2018	100%		
November 5-9, 2018	45%		
December 10-14, 2018	55%		
December 18-22, 2018	70%		
February 19-23, 2019	90%		
March 29 - April 2, 2019	85%		
April 8-12, 2019	55%		
April 15-19, 2019	95%		
May 6-10, 2019	95%		
June 3-7, 2019	**60%**	**85%**	**55%**
June 28 - July 2, 2019	**100%**	**--**	**--**

A follow-up test was initiated on June 28. This was the earliest that a test could be initiated because of organism and staff availability, planned plant shutdowns related to the Southeast Bay Outfall (SEO) Vent Pipe Replacement project, and the temporary loss of power to the bioassay facility due to construction of the Headworks Facility Project.

Investigation of intermittent poor survival results during the SEP acute toxicity flow-through bioassay testing has identified ammonia as a factor contributing to lower survivals in the effluent exposures. As a result, an acid dosing system for maintaining the lower pH of the effluent within bioassay exposure chambers is currently being tested. Maintaining the lower effluent pH will reduce the unionized ammonia interference, providing a more reliable assessment of the toxicity of SEP effluent. The new pH adjustment system is currently in its startup phase and it was first tested in parallel with the June 28 – July 2 test. Modifications to the system are planned to ensure its reliable functionality before it is used for an acute toxicity flow-through compliance test.

<u>BOD, TSS, and Fecal Coliform</u>

In June, SEP experienced a significant disruption of the biological secondary treatment process, resulting in exceedances of TSS, BOD, and fecal coliform effluent limitations as summarized in the tables below. The various events that contributed to the upset are described in the attached memorandum from Wastewater Enterprise Operations Manager George Engel.

Compliance Period	Average BOD Concentration	Average TSS Concentration	Compliance Result
Week - June 9-15, 2019	62 mg/L	78 mg/L	Exceeded AWEL
Week - June 16-22, 2019	59 mg/L	98 mg/L	Exceeded AWEL
Month - June 1-30, 2019	48 mg/L	60 mg/L	Exceeded AMEL
Month - June 1-30, 2019 (percent removal)	84%	80%	Exceeded AMEL

Sample Date and Time	Data Qualifier	Fecal Coliform Result (MPN/ 100 mL)
6/3/19 9:32 AM		500
6/4/19 9:17 AM		7
6/5/19 9:17 AM		30
6/6/19 9:38 AM		50
6/7/19 9:34 AM		1600
6/10/19 9:27 AM	>	1600
6/12/19 10:07 AM		300
6/21/19 11:47 AM		280
6/24/19 10:12 AM		23
6/25/19 9:22 AM	<	2
6/26/19 9:32 AM		13
6/27/19 9:23 AM	<	2
6/28/19 9:34 AM		13
Monthly Median:		**30**
% Samples ≥ 1,100 MPN 100 mL:		**15%**

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Discharge Incidents. Construction is underway for the temporary bypass of the SEP final effluent 36-inch force main crossing Islais Creek. A crane on a floating platform is being used to excavate a cofferdam (one of two) on the north side of Islais Creek. Construction of the northern cofferdam is expected to take several weeks, after which construction of the southern cofferdam will begin.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as summarized in the table below and described in the Wet Weather Summary.

Drainage Areas CSDs	North Shore Basin	Central Basin	Southeast Basin
This reporting period	0	0	0
Total for Count 2018-2019 Wet Weather Season	4	13	6

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Division Manager, Wastewater Enterprise

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102

MEMORANDUM

DATE: July 30, 2019
TO: Greg Norby, Assistant General Manager; Amy Chastain, Regulatory Manager
FROM: George Engel, Operations Manager

RE: June 2019 Southeast Plant Process Upset

During the month of June, the Southeast Treatment Plant (SEP) experienced a significant disruption of the biological secondary treatment process, resulting in violations of numeric effluent limitations for total suspended solids (TSS) and biological oxygen demand (BOD). Investigations have not identified any single cause; rather, the upset appears to have been the result of multiple events that sequentially and cumulatively compromised the efficacy of the biological process. Each of the contributing factors is described below.

In addition to the TSS and BOD exceedances, SEP effluent exceeded one of the two fecal coliform limitations. Compliance with the monthly median limit of 30 MPN/100 mL was achieved, but concentrations on June 7 and June 10 of 1,600 MPN/100 mL caused an exceedance of the requirement that no more than 10 percent of samples exceed 1,100 MPN/100 mL. The cause of this exceedance is likely the high TSS values in the effluent preventing efficacy of the disinfecting agent.

FACTORS CONTRIBUTING TO THE UPSET

Primary Sedimentation

On May 31, the levels of all the Building 042 primary sedimentation tanks were lowered to enable a rebuild of the mechanical systems in one of the seven tanks. The levels were lowered quickly, leading to a temporary condition of increased hydraulic and solids loading to secondary aeration. The rapid increase in solids loading into secondary aeration increased the food to microorganism ratio in secondary aeration, decreasing the efficacy of the biological process and resulting in elevated, though compliant, TSS concentrations in the final effluent in the first week of June.

In response to the elevated TSS concentrations, on June 5, the wasting rate was reduced from 750 to 700 gpm to increase the biological mass in the secondary system and therefore increase the degradation of solids.

RAS Pumping

On June 9, 10 and 11, Return Activated Sludge (RAS) pumping rates fluctuated and intermittently stopped. Pumping RAS from secondary clarification to aeration is critical for maintaining the health of the activated sludge by returning microorganisms which settle in the secondary clarifiers back into the aeration basins. RAS pumping **is**

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typically automatically controlled through the Distributed Control System (DCS) based upon a percentage of influent flow. On these dates, there was a loss of communication between the DCS and the RAS pumps. Due to the complexity of the system, Operations was unable to determine the cause of this loss of communication.

The loss of RAS pumping increased the amount of time that solids were retained in the secondary clarifiers during a particularly warm period, further weakening the biological system and again resulting in elevated, though compliant, TSS and BOD concentrations.

In response to the degradation of performance, on Monday June 10, the wasting rate was further reduced from 700 to 650 gpm and RAS pumping was increased by approximately 6% to increase the aeration time. High solids continued to be observed in the effluent. On Tuesday June 11, sodium hypochlorite dosing was increased to ensure adequate disinfection of the effluent. On Thursday, June 13, polymer addition was started.

Mixing

The most significant disruption to the biological process is believed to have been caused by the stoppage of mixing in two of the eight aeration trains for approximately two days (June 11 through June 13). Because there was no mixing, solids settled in the aeration basins and settled microorganisms did not receive oxygen or food, thereby decreasing the efficacy of the biological process. The cause of the mixers stopping is believed to have been due to voltage sags on the power feed to the mixers on June 11. Two voltage sags were recorded at the aeration mixer motor control center on June 11. It is believed that the above referenced mixing stopped at this time; this condition was not discovered until June 13. Likewise, on June 13, the data unit which communicates the status of the mixers to the DCS was found in a “fault” state and was not reporting the status of the mixers to the DCS. Because of the configuration of this system, the DCS showed that the mixers were operational, which was the last state of the mixers at the time that data was being transmitted. It is unknown why the data unit failed.

This issue was discovered when the polymer dosing system was being setup. The aeration process is staffed with a certified operator 24 hours a day, seven days a week. These stationary engineers are responsible to inspect the mixers and log any abnormalities regularly across a 12-hour shift. Neither the stationary engineers nor the log sheets identified any issues. This issue should have been identified by the individuals staffing the secondary process.

The affected aeration trains were immediately isolated from receiving primary effluent and RAS. Work to drain both aeration trains began shortly thereafter to limit an excess of solids being flushed out of the trains once mixing was re-established. One train was returned into service to increase aeration capacity while the second was fully drained and returned into service the next day. The same day, RAS rates were returned to normal and wasting rates were reduced to allow the microorganisms to regrow to normal levels. On Tuesday, June 16, sodium hypochlorite dosing was again increased to maintain the efficacy of disinfection.

Construction Dewatering

The effect of the issues described above on the biological processes seem to be greater than would have been expected under typical operating conditions. Operations and Engineering staff have been investigating other potential factors that may have contributed to the overall weakening of the process. One hypothesis is that intermittent dewatering from SEP construction of the new headworks facility could be inhibiting biological activity in the secondary process.

Construction dewatering began in February of this year. Intermittently, flows from construction are being discharged into SEP influent. Preliminary testing of these flows did not indicate the presence of any constituents of concern, however visual observations indicate that they contain significant amounts of clay. Various types of clay are reported in the literature as impairing the activity of activated sludge and calculations performed by process engineering indicate that the clay particles are likely to accumulate in the mixed liquor over time, further stressing the plant.

The effect of clay on the SEP biological process is a working hypothesis and fits with observations that include a progressive decline in effluent quality in April and May, repeated episodes of viscous bulking in response to rapid increases in organic loading to the plant, and the severity of the June upset. Dewatering is expected to stop in August of this year and trends in treatment performance will continue to be evaluated to assess the strength of this hypothesis and inform future management of construction dewatering flows. In the interim, the settlement boxes that remove sediment prior to discharge will be cleaned more frequently and a filter has been installed on the discharge pipe; discharges are now monitored by Operations personnel.

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2018-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG_ANA:RG35_NSS.DailyTotal	SM1TOTALIZE:NS_FQI1.OUT	SM1TOTALIZE:NS_FQI10.OUT	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG_ANA:RG21_GFS.DailyTotal	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1688.72	1633.42	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1702.93	1633.27	0.00	0	0.00	0.00	0	0.00
September	0.00	0.00	0.00	0	0.00	0.00	1622.74	1572.86	0.00	0	0.00	0.00	0	0.00
October	0.00	4.79	0.00	0	0.00	0.05	1731.82	1643.10	0.00	0	0.00	0.00	0	0.00
November	4.31	215.48	169.96	2	6.39	4.54	2307.89	1834.01	363.39	3	277.27	3.26	1	0.40
December	2.28	87.68	72.89	0	0.00	2.28	2158.90	1974.06	163.93	1	27.40	1.93	1	0.13
January	6.57	315.06	287.32	1	10.82	6.39	2745.30	2220.03	497.21	5	556.68	4.41	1	0.28
February	9.88	586.78	594.64	1	42.33	8.67	3148.60	2401.58	685.93	2	1131.76	6.21	1	11.52
March	4.75	252.87	218.99	0	0.00	4.85	2962.25	2473.66	429.81	2	199.48	3.99	0	0.00
April	0.34	0.00	0.00	0	0.00	0.36	1869.80	1773.25	0.00	0	0.00	0.29	0	0.00
May	2.42	111.72	88.05	0	0.00	2.23	2076.69	1876.54	131.87	0	0.00	1.96	2	7.28
June	0.00	0.00	0.00	0	0.00	0.00	1619.68	1477.94	0.00	0	0.00	0.00	0	0.00
TOTAL	30.55	1574.36	1431.85	4	59.54	29.37	25635.32	22513.71	2272.15	13	2192.59	22.05	6	19.59

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for June-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	\\WWESEPPI01\TELOG:RG35_NSS.Intensity	\\WWESEPPI01\SM4NSS1_ANAL:NS_FT1.PNT	\\WWESEPPI01\SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	\\WWESEPPI01\TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
6/1/2019	0.00	0.00	0.00			0.00	55.69	48.40	0.00			0.00		
6/2/2019	0.00	0.00	0.00			0.00	54.33	47.06	0.00			0.00		
6/3/2019	0.00	0.00	0.00			0.00	57.25	49.77	0.00			0.00		
6/4/2019	0.00	0.00	0.00			0.00	57.47	50.10	0.00			0.00		
6/5/2019	0.00	0.00	0.00			0.00	56.49	48.98	0.00			0.00		
6/6/2019	0.00	0.00	0.00			0.00	49.76	41.80	0.00			0.00		
6/7/2019	0.00	0.00	0.00			0.00	59.32	52.27	0.00			0.00		
6/8/2019	0.00	0.00	0.00			0.00	50.51	45.94	0.00			0.00		
6/9/2019	0.00	0.00	0.00			0.00	50.21	47.00	0.00			0.00		
6/10/2019	0.00	0.00	0.00			0.00	53.43	49.09	0.00			0.00		
6/11/2019	0.00	0.00	0.00			0.00	54.96	50.94	0.00			0.00		
6/12/2019	0.00	0.00	0.00			0.00	58.60	53.97	0.00			0.00		
6/13/2019	0.00	0.00	0.00			0.00	54.70	50.69	0.00			0.00		
6/14/2019	0.00	0.00	0.00			0.00	51.37	46.27	0.00			0.00		
6/15/2019	0.00	0.00	0.00			0.00	54.08	50.39	0.00			0.00		
6/16/2019	0.00	0.00	0.00			0.00	50.85	47.52	0.00			0.00		
6/17/2019	0.00	0.00	0.00			0.00	52.93	49.29	0.00			0.00		
6/18/2019	0.00	0.00	0.00			0.00	55.46	51.08	0.00			0.00		
6/19/2019	0.00	0.00	0.00			0.00	54.82	50.91	0.00			0.00		
6/20/2019	0.00	0.00	0.00			0.00	56.57	51.53	0.00			0.00		
6/21/2019	0.00	0.00	0.00			0.00	55.76	50.90	0.00			0.00		
6/22/2019	0.00	0.00	0.00			0.00	52.86	49.31	0.00			0.00		
6/23/2019	0.00	0.00	0.00			0.00	54.29	49.20	0.00			0.00		
6/24/2019	0.00	0.00	0.00			0.00	55.20	50.59	0.00			0.00		
6/25/2019	0.00	0.00	0.00			0.00	44.16	41.51	0.00			0.00		
6/26/2019	0.00	0.00	0.00			0.00	58.41	54.37	0.00			0.00		
6/27/2019	0.00	0.00	0.00			0.00	59.59	56.21	0.00			0.00		
6/28/2019	0.00	0.00	0.00			0.00	52.37	49.70	0.00			0.00		
6/29/2019	0.00	0.00	0.00			0.00	49.15	46.20	0.00			0.00		
6/30/2019	0.00	0.00	0.00			0.00	49.09	46.95	0.00			0.00		
TOTAL MONTHLY	0.00	0.00	0.00	0	0.00	0.00	1619.68	1477.94	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	53.99	49.26	0.00	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	44.16	41.51	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	59.59	56.21	0.00	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

NPF effluent had data anamolies on 6/15,6/16, and 6/19-6/30. NPF effluent was zeroed per confirmation from Operations for these dates

North Shore Basin CSD Summary
Jun-2019

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
6/1/2019	0.00																		
6/2/2019	0.00																		
6/3/2019	0.00																		
6/4/2019	0.00																		
6/5/2019	0.00																		
6/6/2019	0.00																		
6/7/2019	0.00																		
6/8/2019	0.00																		
6/9/2019	0.00																		
6/10/2019	0.00																		
6/11/2019	0.00																		
6/12/2019	0.00																		
6/13/2019	0.00																		
6/14/2019	0.00																		
6/15/2019	0.00																		
6/16/2019	0.00																		
6/17/2019	0.00																		
6/18/2019	0.00																		
6/19/2019	0.00																		
6/20/2019	0.00																		
6/21/2019	0.00																		
6/22/2019	0.00																		
6/23/2019	0.00																		
6/24/2019	0.00																		
6/25/2019	0.00																		
6/26/2019	0.00																		
6/27/2019	0.00																		
6/28/2019	0.00																		
6/29/2019	0.00																		
6/30/2019	0.00																		
	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Central Basin #1 CSD Summary
Jun-2019

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
6/1/2019	0.00																											
6/2/2019	0.00																											
6/3/2019	0.00																											
6/4/2019	0.00																											
6/5/2019	0.00																											
6/6/2019	0.00																											
6/7/2019	0.00																											
6/8/2019	0.00																											
6/9/2019	0.00																											
6/10/2019	0.00																											
6/11/2019	0.00																											
6/12/2019	0.00																											
6/13/2019	0.00																											
6/14/2019	0.00																											
6/15/2019	0.00																											
6/16/2019	0.00																											
6/17/2019	0.00																											
6/18/2019	0.00																											
6/19/2019	0.00																											
6/20/2019	0.00																											
6/21/2019	0.00																											
6/22/2019	0.00																											
6/23/2019	0.00																											
6/24/2019	0.00																											
6/25/2019	0.00																											
6/26/2019	0.00																											
6/27/2019	0.00																											
6/28/2019	0.00																											
6/29/2019	0.00																											
6/30/2019	0.00																											
	0.00																											
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Note

Central Basin #2 CSD Summary
Jun-2019

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time	Event	Flow	Time	Event	Flow	Time	Event	Flow	Time	Event	Flow	Time	Event	Flow	Time	Event	Flow	Time	Event	Flow	Time	Event	Flow
		Started	Duration	Volume	Started	Duration	EFF-001	Started	Duration	Volume	Started	Duration	Volume	Started	Duration	Volume	Started	Duration	Volume	Started	Duration	Volume	Started	Duration	Volume
		(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)	(hh:mm)	(minutes)	(MG)
6/1/2019	0.00																								
6/2/2019	0.00																								
6/3/2019	0.00																								
6/4/2019	0.00																								
6/5/2019	0.00																								
6/6/2019	0.00																								
6/7/2019	0.00																								
6/8/2019	0.00																								
6/9/2019	0.00																								
6/10/2019	0.00																								
6/11/2019	0.00																								
6/12/2019	0.00																								
6/13/2019	0.00																								
6/14/2019	0.00																								
6/15/2019	0.00																								
6/16/2019	0.00																								
6/17/2019	0.00																								
6/18/2019	0.00																								
6/19/2019	0.00																								
6/20/2019	0.00																								
6/21/2019	0.00																								
6/22/2019	0.00																								
6/23/2019	0.00																								
6/24/2019	0.00																								
6/25/2019	0.00																								
6/26/2019	0.00																								
6/27/2019	0.00																								
6/28/2019	0.00																								
6/29/2019	0.00																								
6/30/2019	0.00																								
	0.00																								
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Southeast Basin CSD Summary
Jun-2019

Date	GFS Rain Gauge Total (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
6/1/2019	0.00																		
6/2/2019	0.00																		
6/3/2019	0.00																		
6/4/2019	0.00																		
6/5/2019	0.00																		
6/6/2019	0.00																		
6/7/2019	0.00																		
6/8/2019	0.00																		
6/9/2019	0.00																		
6/10/2019	0.00																		
6/11/2019	0.00																		
6/12/2019	0.00																		
6/13/2019	0.00																		
6/14/2019	0.00																		
6/15/2019	0.00																		
6/16/2019	0.00																		
6/17/2019	0.00																		
6/18/2019	0.00																		
6/19/2019	0.00																		
6/20/2019	0.00																		
6/21/2019	0.00																		
6/22/2019	0.00																		
6/23/2019	0.00																		
6/24/2019	0.00																		
6/25/2019	0.00																		
6/26/2019	0.00																		
6/27/2019	0.00																		
6/28/2019	0.00																		
6/29/2019	0.00																		
6/30/2019	0.00																		
	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
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August 20, 2019

Mr. Samuel Plummer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

SUBJECT: Discharge Report (5-Day) for July 2019 Exceedance of Oil & Grease Average Monthly Effluent Limitation at the Southeast Water Pollution Control Plant (NPDES No. CA0037664)

Dear Mr. Plummer,

Attached please find a summary of currently available information regarding an exceedance of the average monthly effluent limitation for oil and grease at the Southeast Water Pollution Control Plant, as required by National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037664.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

George Engel
Operations Division Manager
Wastewater Enterprise
San Francisco Public Utilities Commission

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

ATTACHMENT: SEP Oil & Grease Exceedance (5-Day) Report
August 20, 2019

1. Discharge description and cause

A sample collected on July 2 had an oil and grease (O&G) concentration of 11.9 milligrams per liter (mg/L). No additional samples were collected during July, therefore the average monthly effluent limit (AMEL) was exceeded. The failure to initiate accelerated sampling as required by Attachment G resulted from a failure of laboratory staff to timely identify and communicate the elevated sample result. Accelerated sampling was initiated on August 8, after a sample collected on August 5 also had an elevated O&G concentration.

Investigation into the potential cause of the elevated O&G in the effluent was initiated after receipt of the August 5 sample result. Elevated effluent O&G may be caused by high influent concentrations, ineffective skimming, deficient secondary treatment processes, and/or on-site discharges of O&G from equipment leaks or construction activities. Each of these potential causes was investigated. Influent O&G concentrations were within the expected range, all skimmers were functioning, and the secondary treatment process was stable. After a review of process data, there is great confidence that the process was not the cause of the incident. Several potential on-site sources (such as spills related to ongoing construction or maintenance) were identified and investigated, but the results of these investigations failed to conclusively identify a specific cause of the elevated O&G results.

2. Period of Noncompliance (if noncompliance has not been correct, anticipated time it is expected to continue)

The period of noncompliance is the month of July 2019.

3. Steps Taken or Planned to Reduce, Eliminate, and Prevent Reoccurrence of Noncompliance

No steps have been taken or are planned to prevent a reoccurrence because no cause has been identified. The SFPUC will continue accelerated sampling daily from Monday through Friday through the end of August to assess whether effluent trends may be correlated to potential sources. As of August 20, 2019, available results indicate that the plant is in compliance with the O&G AMEL. If any sources are identified, the SFPUC will provide this information in a future monthly self-monitoring report.

Several actions have been taken to address the failure to perform accelerated monitoring as required by Attachment G. Accelerated monitoring did not occur because the elevated July 2 sample result was not identified until Laboratory staff began preparing data for submittal of the July self-monitoring report. The Analyst performing the O&G analysis was instructed to notify the Supervising Chemist immediately upon completion of any analysis showing concentrations above the effluent limitation. The Supervising Chemist will be re-trained on communications following elevated results. As a final redundant measure, the SFPUC's Laboratory Information Management System (LIMS) will be configured to generate automatic email notifications to Operations, Regulatory, and Laboratory management when elevated concentrations are observed.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
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August 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: July 2019 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of July 2019 for the Southeast Water Pollution Control Plant (SEP).

Per electronic notification from San Francisco Bay Regional Water Quality Control Board staff member James Parrish, the Regional Water Board is waiving late eSMR submittal violations for the month of July; as of the eSMR due date August 30, the State Water Board had not yet updated the Discharge Monitoring Report (DMR) form for consistency with the San Francisco Bay Nutrients Watershed permit.

As of September 30, the program coding for the DMR has not been updated for consistency with the new nutrients watershed permit effective July 1, 2019 (Order No. R2-2019-0017): the effluent parameters for the 001A location have not been removed, leading to extra form fields for three parameters (Total Nitrogen, TKN, Dissolved Reactive Phosphorus) and duplicative form fields for three other parameters (Total Ammonia, Nitrate-Nitrite, and Total Phosphorus). Accordingly, we are submitting the data with blank fields and with duplicative data to provide a timely submittal of the SMR.

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period except for total suspended solids (TSS) and oil & grease.

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

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Total Suspended Solids
In July, there were two exceedances of the TSS effluent limits as summarized in the table below.

Compliance Period	Average TSS Concentration	Compliance Result
Week – June 30 - July 6	52 mg/L	Exceeded AWEL
Monthly – July 1-31	37 mg/L	Exceeded AMEL

Throughout the month of July, the secondary treatment process was recovering from the process upset that occurred in June. This upset continued to cause high TSS results in the beginning of the month, resulting in an exceedance of the TSS average weekly effluent limit for June 30 – July 6. Details regarding the cause, investigation, and corrective actions were provided in the June 2019 monthly SMR submitted on July 30.

The AMEL was exceeded because of the June process upset, and because of construction activities the week of July 14 that resulted in elevated TSS effluent concentrations in samples collected on July 18, 19 and 20. These construction activities included dewatering of headworks channels the week of July 14 and a plant shutdown on July 17. Cumulatively the effect of these activities was a disruption of the food to microorganism ratio, which adversely impacted the microbiology in the secondary aeration process, thereby decreasing the efficacy of TSS removal.

After these adverse impacts were noted in late July, staff have postponed, re-prioritized, and rescheduled subsequent plant shutdowns to minimize impacts to plant processes.

Oil and Grease. The average monthly effluent limit for oil and grease was exceeded during this monitoring period. Multiple potential causes were identified and investigated, but the results of these investigations failed to conclusively identify a specific cause of elevated results. Details regarding the investigation and corrective actions were provided in a 5-day report submitted on August 19.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit. Due to the July 17 plant shutdown for construction, a 24-hour INF-001 composite sample for TSS, and a 24-hour EFF-001A composite sample for biochemical oxygen demand (BOD), chemical oxygen demand (COD), and TSS analyses were not available. COD and TSS results for incomplete composites are available and have been uploaded to CIWQS.

Discharge Incidents. Substantial progress was made in the construction of the temporary bypass of the SEP final effluent 36-inch force main crossing Islais Creek in August. Cofferdam construction was completed at both northern and southern connection structures, the contractor received delivery of permanent piles and immediately commenced with installation, and the new 42-inch inner diameter HDPE pipe is being fused in preparation to be floated into the Islais Channel while anchor blocks are cast on site. On August 21, two knife valves were installed to isolate the 36-inch force main and to enable preparation of existing infrastructure on both sides of Islais Channel. As communicated to the Regional Water Board case manager Sam Plummer on August 19, this installation required a temporary shutdown of the entire Pier 80 outfall (Discharge Point No. 001) during which secondary treated effluent was discharged through Discharge Point No. 002. The details of this anticipated bypass of Discharge Point No. 001 for essential maintenance, including the results of the required accelerated monitoring, will be reported with the August SMR.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as described in the Wet Weather Summary.

If you have any questions concerning this report, please contact Operations Superintendent, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

George Engel
Operations Manager

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
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October 30, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: September 2019 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of September 2019 for the Southeast Water Pollution Control Plant (SEP).

As of October 29, the program coding for the DMR has not been updated for consistency with the new nutrients watershed permit effective July 1, 2019 (Order No. R2-2019-0017): the effluent parameters for the 001A location have not been removed, leading to extra form fields for three parameters (Total Nitrogen, TKN, Dissolved Reactive Phosphorus) and duplicative form fields for three other parameters (Total Ammonia, Nitrate-Nitrite, and Total Phosphorus). In accordance with the DMR Help Desk, we are submitting the nutrients data under limit set 001-A1 and reporting no data with the no data indicator code "NODI(9)" in 001A to provide a timely submittal of the SMR.

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit. Due to plant shutdowns on September 20 and 25, incomplete composite samples were collected for monitoring locations INF-001A and EFF-001A; composite sample results for total suspended solids (TSS), 5-day biochemical oxygen demand (BOD_5), and chemical oxygen demand (COD) on these days are available and have been uploaded to CIWQS.

London N. Breed
Mayor
Ann Moller Caen
President
Francesca Vietor
Vice President
Anson Moran
Commissioner
Sophie Maxwell
Commissioner
Tim Paulson
Commissioner
Harlan L. Kelly, Jr.
General Manager

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Discharge Incidents. Construction is substantially complete for the Southeast Bay Outfall (SEO) Islais Creek Crossing Emergency Bypass project to replace the damaged 36" force main that carries final effluent from the Southeast Treatment Plant to the Pier 80 deepwater outfall (Discharge Point No. 001). As of October 9, the Emergency Bypass was activated to restore full pumping capacity from Booster Pump Station. Contractor is anticipated to fully demobilize remaining construction equipment in November.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as described in the Wet Weather Summary.

If you have any questions concerning this report, please contact Operations Superintendent, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Superintendent, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2019-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1590.14	1480.55	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1610.00	1467.17	19.38	0	0.00	0.00	0	0.00
September	0.05	0.00	0.00	0	0.00	0.09	1548.19	1435.13	0.00	0	0.00	0.02	0	0.00
October														
November														
December														
January														
February														
March														
April														
May														
June														
TOTAL	0.05	0.00	0.00	0.00	0.00	0.09	4748.33	4382.86	19.38	0	0.00	0.02	0	0.00

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for September-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.RO01	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
9/1/2019	0.00	0.00	0.00			0.00	47.81	44.40	0.00			0.00		
9/2/2019	0.00	0.00	0.00			0.00	49.23	46.03	0.00			0.00		
9/3/2019	0.00	0.00	0.00			0.00	54.02	50.25	0.00			0.00		
9/4/2019	0.00	0.00	0.00			0.00	49.92	46.67	0.00			0.00		
9/5/2019	0.00	0.00	0.00			0.00	51.50	48.63	0.00			0.00		
9/6/2019	0.00	0.00	0.00			0.00	51.60	47.79	0.00			0.00		
9/7/2019	0.00	0.00	0.00			0.00	50.47	46.52	0.00			0.00		
9/8/2019	0.00	0.00	0.00			0.00	52.89	47.84	0.00			0.00		
9/9/2019	0.00	0.00	0.00			0.00	52.53	47.96	0.00			0.00		
9/10/2019	0.00	0.00	0.00			0.00	50.02	46.31	0.00			0.00		
9/11/2019	0.00	0.00	0.00			0.00	54.11	50.12	0.00			0.00		
9/12/2019	0.00	0.00	0.00			0.00	49.83	45.93	0.00			0.00		
9/13/2019	0.00	0.00	0.00			0.00	48.46	44.03	0.00			0.00		
9/14/2019	0.00	0.00	0.00			0.00	52.35	49.04	0.00			0.00		
9/15/2019	0.00	0.00	0.00			0.00	46.97	43.78	0.00			0.00		
9/16/2019	0.04	0.00	0.00			0.05	58.79	55.18	0.00			0.02		
9/17/2019	0.00	0.00	0.00			0.00	53.36	50.13	0.00			0.00		
9/18/2019	0.01	0.00	0.00			0.01	53.10	49.12	0.00			0.00		
9/19/2019	0.00	0.00	0.00			0.00	49.04	46.04	0.00			0.00		
9/20/2019	0.00	0.00	0.00			0.00	51.07	47.18	0.00			0.00		
9/21/2019	0.00	0.00	0.00			0.00	53.43	49.50	0.00			0.00		
9/22/2019	0.00	0.00	0.00			0.00	48.62	45.59	0.00			0.00		
9/23/2019	0.00	0.00	0.00			0.00	52.29	49.16	0.00			0.00		
9/24/2019	0.00	0.00	0.00			0.00	49.58	46.72	0.00			0.00		
9/25/2019	0.00	0.00	0.00			0.00	34.87	32.62	0.00			0.00		
9/26/2019	0.00	0.00	0.00			0.00	59.29	54.28	0.00			0.00		
9/27/2019	0.00	0.00	0.00			0.03	60.23	54.55	0.00			0.00		
9/28/2019	0.00	0.00	0.00			0.00	59.16	54.19	0.00			0.00		
9/29/2019	0.00	0.00	0.00			0.00	51.28	47.29	0.00			0.00		
9/30/2019	0.00	0.00	0.00			0.00	52.38	48.26	0.00			0.00		
TOTAL MONTHLY	0.05	0.00	0.00	0	0.00	0.09	1548.19	1435.13	0.00	0	0.00	0.02	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	51.61	47.84	0.00	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	34.87	32.62	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	60.23	55.18	0.00	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

1. There was a SEP plant shutdown on 9/20 from 08:00AM to 09:40AM due to a power outage, and on 9/25 from 11:30AM to 18:10PM.
2. GFS rain gauge recorded rainfall depth while being testing on 9/10 and 9/11; this has been zeroed per confirmation from CSD.

North Shore Basin CSD Summary
Sep-2019

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
9/1/2019	0.00																		
9/2/2019	0.00																		
9/3/2019	0.00																		
9/4/2019	0.00																		
9/5/2019	0.00																		
9/6/2019	0.00																		
9/7/2019	0.00																		
9/8/2019	0.00																		
9/9/2019	0.00																		
9/10/2019	0.00																		
9/11/2019	0.00																		
9/12/2019	0.00																		
9/13/2019	0.00																		
9/14/2019	0.00																		
9/15/2019	0.00																		
9/16/2019	0.04																		
9/17/2019	0.00																		
9/18/2019	0.01																		
9/19/2019	0.00																		
9/20/2019	0.00																		
9/21/2019	0.00																		
9/22/2019	0.00																		
9/23/2019	0.00																		
9/24/2019	0.00																		
9/25/2019	0.00																		
9/26/2019	0.00																		
9/27/2019	0.00																		
9/28/2019	0.00																		
9/29/2019	0.00																		
9/30/2019	0.00																		
TOTAL	0.05	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #1 CSD Summary
Sep-2019

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
9/1/2019	0.00																											
9/2/2019	0.00																											
9/3/2019	0.00																											
9/4/2019	0.00																											
9/5/2019	0.00																											
9/6/2019	0.00																											
9/7/2019	0.00																											
9/8/2019	0.00																											
9/9/2019	0.00																											
9/10/2019	0.00																											
9/11/2019	0.00																											
9/12/2019	0.00																											
9/13/2019	0.00																											
9/14/2019	0.00																											
9/15/2019	0.00																											
9/16/2019	0.05																											
9/17/2019	0.00																											
9/18/2019	0.01																											
9/19/2019	0.00																											
9/20/2019	0.00																											
9/21/2019	0.00																											
9/22/2019	0.00																											
9/23/2019	0.00																											
9/24/2019	0.00																											
9/25/2019	0.00																											
9/26/2019	0.00																											
9/27/2019	0.03																											
9/28/2019	0.00																											
9/29/2019	0.00																											
9/30/2019	0.00																											
TOTAL	0.09	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	300	15.34	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Note

Central Basin #2 CSD Summary
Sep-2019

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
9/1/2019	0.00																								
9/2/2019	0.00																								
9/3/2019	0.00																								
9/4/2019	0.00																								
9/5/2019	0.00																								
9/6/2019	0.00																								
9/7/2019	0.00																								
9/8/2019	0.00																								
9/9/2019	0.00																								
9/10/2019	0.00																								
9/11/2019	0.00																								
9/12/2019	0.00																								
9/13/2019	0.00																								
9/14/2019	0.00																								
9/15/2019	0.00																								
9/16/2019	0.05																								
9/17/2019	0.00																								
9/18/2019	0.01																								
9/19/2019	0.00																								
9/20/2019	0.00																								
9/21/2019	0.00																								
9/22/2019	0.00																								
9/23/2019	0.00																								
9/24/2019	0.00																								
9/25/2019	0.00																								
9/26/2019	0.00																								
9/27/2019	0.03																								
9/28/2019	0.00																								
9/29/2019	0.00																								
9/30/2019	0.00																								
TOTAL	0.09	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

Note

Southeast Basin CSD Summary
Sep-2019

Date	GFS Rain Gauge Total (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
9/1/2019	0.00																		
9/2/2019	0.00																		
9/3/2019	0.00																		
9/4/2019	0.00																		
9/5/2019	0.00																		
9/6/2019	0.00																		
9/7/2019	0.00																		
9/8/2019	0.00																		
9/9/2019	0.00																		
9/10/2019	0.00																		
9/11/2019	0.00																		
9/12/2019	0.00																		
9/13/2019	0.00																		
9/14/2019	0.00																		
9/15/2019	0.00																		
9/16/2019	0.02																		
9/17/2019	0.00																		
9/18/2019	0.00																		
9/19/2019	0.00																		
9/20/2019	0.00																		
9/21/2019	0.00																		
9/22/2019	0.00																		
9/23/2019	0.00																		
9/24/2019	0.00																		
9/25/2019	0.00																		
9/26/2019	0.00																		
9/27/2019	0.00																		
9/28/2019	0.00																		
9/29/2019	0.00																		
9/30/2019	0.00																		
TOTAL	0.02	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

November 22, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: October 2019 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of October 2019 for the Southeast Water Pollution Control Plant (SEP).

As of November 27, the program coding for the DMR has not been updated for consistency with the new nutrients watershed permit effective July 1, 2019 (Order No. R2-2019-0017): the effluent parameters for the 001A location have not been removed, leading to extra form fields for three parameters (Total Nitrogen, TKN, Dissolved Reactive Phosphorus) and duplicative form fields for three other parameters (Total Ammonia, Nitrate-Nitrite, and Total Phosphorus). In accordance with the DMR Help Desk, we are submitting the nutrients data under limit set 001-A1 and reporting no data with the no data indicator code "NODI(9)" in 001A to provide a timely submittal of the SMR.

Compliance with Effluent Limitations. Compliance with the effluent limitation was achieved during this monitoring period.

Compliance with Monitoring Requirements. Due to plant shutdowns on October 3, 9, and 23, incomplete composite samples were collected for monitoring locations INF-001 and EFF-001A; composite sample results for total suspended solids (TSS), 5-day biochemical oxygen demand (BOD5), and chemical oxygen demand on some of these days are available and have been uploaded to CIWQS.

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as described in the Wet Weather Summary.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Bayside Superintendent, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2019-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1590.14	1480.55	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1610.00	1467.17	19.38	0	0.00	0.00	0	0.00
September	0.05	0.00	0.00	0	0.00	0.09	1548.19	1435.13	0.00	0	0.00	0.02	0	0.00
October	0.00	0.00	0.00	0	0.00	0.00	1605.77	1473.30	0.00	0	0.00	0.00	0	0.00
November														
December														
January														
February														
March														
April														
May														
June														
TOTAL	0.05	0.00	0.00	0	0.00	0.09	6354.10	5856.16	19.38	0	0.00	0.02	0	0.00

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for October-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
10/1/2019	0.00	0.00	0.00			0.00	51.68	45.63	0.00			0.00		
10/2/2019	0.00	0.00	0.00			0.00	53.49	47.68	0.00			0.00		
10/3/2019	0.00	0.00	0.00			0.00	32.11	30.33	0.00			0.00		
10/4/2019	0.00	0.00	0.00			0.00	61.02	54.68	0.00			0.00		
10/5/2019	0.00	0.00	0.00			0.00	52.00	47.22	0.00			0.00		
10/6/2019	0.00	0.00	0.00			0.00	52.84	48.96	0.00			0.00		
10/7/2019	0.00	0.00	0.00			0.00	52.73	48.95	0.00			0.00		
10/8/2019	0.00	0.00	0.00			0.00	55.43	51.07	0.00			0.00		
10/9/2019	0.00	0.00	0.00			0.00	41.07	38.95	0.00			0.00		
10/10/2019	0.00	0.00	0.00			0.00	63.05	59.02	0.00			0.00		
10/11/2019	0.00	0.00	0.00			0.00	53.15	49.27	0.00			0.00		
10/12/2019	0.00	0.00	0.00			0.00	55.43	50.75	0.00			0.00		
10/13/2019	0.00	0.00	0.00			0.00	51.62	48.44	0.00			0.00		
10/14/2019	0.00	0.00	0.00			0.00	53.27	49.43	0.00			0.00		
10/15/2019	0.00	0.00	0.00			0.00	51.18	47.69	0.00			0.00		
10/16/2019	0.00	0.00	0.00			0.00	54.44	49.97	0.00			0.00		
10/17/2019	0.00	0.00	0.00			0.00	50.04	46.29	0.00			0.00		
10/18/2019	0.00	0.00	0.00			0.00	49.66	45.77	0.00			0.00		
10/19/2019	0.00	0.00	0.00			0.00	49.79	45.96	0.00			0.00		
10/20/2019	0.00	0.00	0.00			0.00	48.70	45.43	0.00			0.00		
10/21/2019	0.00	0.00	0.00			0.00	51.37	46.84	0.00			0.00		
10/22/2019	0.00	0.00	0.00			0.00	53.16	47.99	0.00			0.00		
10/23/2019	0.00	0.00	0.00			0.00	21.18	19.28	0.00			0.00		
10/24/2019	0.00	0.00	0.00			0.00	66.62	61.58	0.00			0.00		
10/25/2019	0.00	0.00	0.00			0.00	62.34	57.90	0.00			0.00		
10/26/2019	0.00	0.00	0.00			0.00	47.92	43.60	0.00			0.00		
10/27/2019	0.00	0.00	0.00			0.00	55.40	48.94	0.00			0.00		
10/28/2019	0.00	0.00	0.00			0.00	52.19	47.83	0.00			0.00		
10/29/2019	0.00	0.00	0.00			0.00	55.80	49.90	0.00			0.00		
10/30/2019	0.00	0.00	0.00			0.00	54.67	49.46	0.00			0.00		
10/31/2019	0.00	0.00	0.00			0.00	52.42	48.47	0.00			0.00		
TOTAL MONTHLY	0.00	0.00	0.00	0	0.00	0.00	1605.77	1473.30	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	51.80	47.53	0.00	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	21.18	19.28	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	66.62	61.58	0.00	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

1. There were SEP shutdowns on 10/3 from 06:15AM to 2:40PM, on 10/5 from 08:45AM to 10:40AM, on 10/9 from 10:00AM to 12:40PM, and on 10/23 from 4:00AM to 7:00PM.
2. NPF effluent flow sensor data was anomalous from 10/25 - 10/29 and has been zeroed per confirmation with Operations.

North Shore Basin CSD Summary
Oct-2019

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
10/1/2019	0.00																		
10/2/2019	0.00																		
10/3/2019	0.00																		
10/4/2019	0.00																		
10/5/2019	0.00																		
10/6/2019	0.00																		
10/7/2019	0.00																		
10/8/2019	0.00																		
10/9/2019	0.00																		
10/10/2019	0.00																		
10/11/2019	0.00																		
10/12/2019	0.00																		
10/13/2019	0.00																		
10/14/2019	0.00																		
10/15/2019	0.00																		
10/16/2019	0.00																		
10/17/2019	0.00																		
10/18/2019	0.00																		
10/19/2019	0.00																		
10/20/2019	0.00																		
10/21/2019	0.00																		
10/22/2019	0.00																		
10/23/2019	0.00																		
10/24/2019	0.00																		
10/25/2019	0.00																		
10/26/2019	0.00																		
10/27/2019	0.00																		
10/28/2019	0.00																		
10/29/2019	0.00																		
10/30/2019	0.00																		
10/31/2019	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #1 CSD Summary
Oct-2019

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
10/1/2019	0.00																											
10/2/2019	0.00																											
10/3/2019	0.00																											
10/4/2019	0.00																											
10/5/2019	0.00																											
10/6/2019	0.00																											
10/7/2019	0.00																											
10/8/2019	0.00																											
10/9/2019	0.00																											
10/10/2019	0.00																											
10/11/2019	0.00																											
10/12/2019	0.00																											
10/13/2019	0.00																											
10/14/2019	0.00																											
10/15/2019	0.00																											
10/16/2019	0.00																											
10/17/2019	0.00																											
10/18/2019	0.00																											
10/19/2019	0.00																											
10/20/2019	0.00																											
10/21/2019	0.00																											
10/22/2019	0.00																											
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10/26/2019	0.00																											
10/27/2019	0.00																											
10/28/2019	0.00																											
10/29/2019	0.00																											
10/30/2019	0.00																											
10/31/2019	0.00																											
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #2 CSD Summary
Oct-2019

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
10/1/2019	0.00																								
10/2/2019	0.00																								
10/3/2019	0.00																								
10/4/2019	0.00																								
10/5/2019	0.00																								
10/6/2019	0.00																								
10/7/2019	0.00																								
10/8/2019	0.00																								
10/9/2019	0.00																								
10/10/2019	0.00																								
10/11/2019	0.00																								
10/12/2019	0.00																								
10/13/2019	0.00																								
10/14/2019	0.00																								
10/15/2019	0.00																								
10/16/2019	0.00																								
10/17/2019	0.00																								
10/18/2019	0.00																								
10/19/2019	0.00																								
10/20/2019	0.00																								
10/21/2019	0.00																								
10/22/2019	0.00																								
10/23/2019	0.00																								
10/24/2019	0.00																								
10/25/2019	0.00																								
10/26/2019	0.00																								
10/27/2019	0.00																								
10/28/2019	0.00																								
10/29/2019	0.00																								
10/30/2019	0.00																								
10/31/2019	0.00																								
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Southeast Basin CSD Summary
Oct-2019

Date	GFS Rain Gauge Total (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
10/1/2019	0.00																		
10/2/2019	0.00																		
10/3/2019	0.00																		
10/4/2019	0.00																		
10/5/2019	0.00																		
10/6/2019	0.00																		
10/7/2019	0.00																		
10/8/2019	0.00																		
10/9/2019	0.00																		
10/10/2019	0.00																		
10/11/2019	0.00																		
10/12/2019	0.00																		
10/13/2019	0.00																		
10/14/2019	0.00																		
10/15/2019	0.00																		
10/16/2019	0.00																		
10/17/2019	0.00																		
10/18/2019	0.00																		
10/19/2019	0.00																		
10/20/2019	0.00																		
10/21/2019	0.00																		
10/22/2019	0.00																		
10/23/2019	0.00																		
10/24/2019	0.00																		
10/25/2019	0.00																		
10/26/2019	0.00																		
10/27/2019	0.00																		
10/28/2019	0.00																		
10/29/2019	0.00																		
10/30/2019	0.00																		
10/31/2019	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

December 26, 2019

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: November 2019 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of November 2019 for the Southeast Water Pollution Control Plant (SEP).

As of December 23, the program coding for the DMR has not been updated to reflect the nutrients watershed permit that took effect on July 1, 2019 (Order No. R2-2019-0017): the effluent parameters for the 001A location have not been removed, leading to extra form fields for three parameters (Total Nitrogen, TKN, Dissolved Reactive Phosphorus) and duplicative form fields for three other parameters (Total Ammonia, Nitrate-Nitrite, and Total Phosphorus). In accordance with the DMR Help Desk direction, we are submitting the nutrients data under limit set 001-A1 and reporting no data with the no data indicator code “NODI(9)” in 001A to provide a timely submittal of the SMR.

Compliance with Effluent Limitations. Compliance with the effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit. Due to plant shutdowns on November 6 and 7, partial composite samples were collected for monitoring locations INF-001 and EFF-001A. The partial composite sample results for total suspended solids (TSS), chemical oxygen demand (COD), and copper on these days are available and have been uploaded to CIWQS.

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Effluent pH monitoring at Monitoring Location EFF-001A was interrupted by wet weather during the week of November 24-30. Effluent was monitored for pH five days during the week: monitoring at EFF-001A occurred on November 24, 25, and 29; monitoring at EFF-001B occurred on November 26; and monitoring at EFF-002 occurred on November 26 and 27.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were combined sewer discharges during this monitoring period as described in the attached Wet Weather Summary.

System Operations of Wet Weather Facilities.
The operation of wet weather facilities during the storm event was conducted consistent with the requirements in NPDES permit Provision VI.C.5.c.i. - VI.C.5.c.iv.

Wet Weather Monitoring. The Bayside system experienced wet weather days on November 26 and 27. Required monitoring occurred at EFF-001B, EFF-002, and EFF-003. Bacteriological monitoring for EFF-001B, EFF-002, and EFF-003 was not required on November 26 because the discharges started after 2:00 pm (see footnote [4] of NPDES permit Table E-4). A fecal coliform sample result for November 26 is available for EFF-002 because the dry weather weekly sampling was scheduled for that day and the physical monitoring location is the same as EFF-001A.

CSD Monitoring. During the November 26 CSD event, the composite sampler at Monitoring Location CSD-031A malfunctioned leading to the collection of a sample of insufficient volume (500 mL) for analysis of most laboratory analysis parameters except pH. The sampler head was replaced and tested for functionality on November 27.

Prior to the November 26 CSD event, the composite sampler at Monitoring Location CSD-025 was inaccessible for wet weather set-up because the sampler location is currently within an active construction site. Staff attempted to access the site on November 22, 25, and 26 but were unsuccessful because they could not reach construction personnel over the Thanksgiving holiday. The access issue was resolved prior to the subsequent major storm event on December 7.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit.

If you have any questions concerning this report, please contact Operations Division Manager, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew M. Clark
Superintendent, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2019-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1590.14	1480.55	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1610.00	1467.17	19.38	0	0.00	0.00	0	0.00
September	0.05	0.00	0.00	0	0.00	0.09	1548.19	1435.13	0.00	0	0.00	0.02	0	0.00
October	0.00	0.00	0.06	0	0.00	0.00	1605.77	1473.30	0.00	0	0.00	0.00	0	0.00
November	1.09	52.49	39.53	0	0.00	1.26	1743.29	1536.76	84.0	1	68.38	1.33	0	0.00
December														
January														
February														
March														
April														
May														
June														
TOTAL	1.14	52.49	39.59	0.00	0.00	1.35	8097.39	7392.92	103.39	1	68.38	1.35	0	0.00

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for November-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.RO01	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
11/1/2019	0.00	0.00	0.00			0.00	50.20	46.14	0.00			0.00		
11/2/2019	0.00	0.00	0.00			0.00	50.91	46.04	0.00			0.00		
11/3/2019	0.00	0.00	0.00			0.00	51.72	47.52	0.00			0.00		
11/4/2019	0.00	0.00	0.00			0.00	51.17	47.18	0.00			0.00		
11/5/2019	0.00	0.00	0.00			0.00	50.77	46.76	0.00			0.00		
11/6/2019	0.00	0.00	0.00			Intf Shut	8.80	8.81	0.00			0.00		
11/7/2019	0.00	0.00	0.00			0.00	51.88	46.25	0.00			0.00		
11/8/2019	0.00	0.00	0.00			0.00	74.42	68.58	0.00			0.00		
11/9/2019	0.00	0.00	0.00			0.00	67.99	63.40	0.00			0.00		
11/10/2019	0.00	0.00	0.00			0.00	49.94	46.36	0.00			0.00		
11/11/2019	0.00	0.00	0.00			0.00	50.88	47.17	0.00			0.00		
11/12/2019	0.00	0.00	0.00			0.00	53.00	49.28	0.00			0.00		
11/13/2019	0.00	0.00	0.00			0.00	50.75	47.21	0.00			0.00		
11/14/2019	0.00	0.00	0.00			0.00	50.40	47.16	0.00			0.00		
11/15/2019	0.00	0.00	0.00			0.00	49.86	46.28	0.00			0.00		
11/16/2019	0.00	0.00	0.00			0.00	52.87	49.29	0.00			0.00		
11/17/2019	0.00	0.00	0.00			0.00	48.18	44.57	0.00			0.00		
11/18/2019	0.00	0.00	0.00			0.00	50.68	46.65	0.00			0.00		
11/19/2019	0.00	0.00	0.00			0.00	52.95	47.10	0.00			0.00		
11/20/2019	0.00	0.00	0.00			0.00	54.77	50.19	0.00			0.00		
11/21/2019	0.00	0.00	0.00			0.00	49.66	46.48	0.00			0.00		
11/22/2019	0.00	0.00	0.00			0.00	50.44	46.31	0.00			0.00		
11/23/2019	0.00	0.00	0.00			0.00	50.59	46.62	0.00			0.00		
11/24/2019	0.00	0.00	0.00			0.00	49.57	45.64	0.00			0.00		
11/25/2019	0.00	0.00	0.00			0.00	49.39	44.36	0.00			0.00		
11/26/2019	0.75	31.12	21.32			0.85	108.53	70.61	30.76	1	68.38	0.94		
11/27/2019	0.03	16.99	18.21			0.11	154.30	99.22	53.24			0.19		
11/28/2019	0.12	0.00	0.00			0.18	76.62	73.47	0.00			0.09		
11/29/2019	0.00	0.00	0.00			0.00	54.85	50.16	0.00			0.00		
11/30/2019	0.19	4.38	0.00			0.12	77.23	71.95	0.00			0.11		
TOTAL MONTHLY	1.09	52.49	39.53	0	0.00	1.26	1743.29	1536.76	84.0	1	68.38	1.33	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	17.50	19.76	-	-	-	58.11	51.23	42.0	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	8.80	8.81	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	31.12	21.32	-	-	-	154.30	99.22	53.24	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

1. There was an SEP shutdown from 11/6 03:00AM to 11/7 02:00AM.
2. SEP rain gauge data was anomalous on 11/11 and 11/17 and has been zeroed.
3. NPF effluent flow sensor data was anomalous on 11/13 and has been zeroed.
4. SEP Influent flow data was calculated as the sum of CHS Total Flow (SM3CHS_CTRL:CH_FY1.RO01), SEP 011 Total Flow (SP1RAW_WELL1:01FY7.RO01), BFS Sump 1 Flow (BF01XLA003-S1FLOW), and BFS Sump 2 Flow (BF01XLA003-S2FLOW).

North Shore Basin CSD Summary
Nov-2019

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2019	0.00																		
11/2/2019	0.00																		
11/3/2019	0.00																		
11/4/2019	0.00																		
11/5/2019	0.00																		
11/6/2019	0.00																		
11/7/2019	0.00																		
11/8/2019	0.00																		
11/9/2019	0.00																		
11/10/2019	0.00																		
11/11/2019	0.00																		
11/12/2019	0.00																		
11/13/2019	0.00																		
11/14/2019	0.00																		
11/15/2019	0.00																		
11/16/2019	0.00																		
11/17/2019	0.00																		
11/18/2019	0.00																		
11/19/2019	0.00																		
11/20/2019	0.00																		
11/21/2019	0.00																		
11/22/2019	0.00																		
11/23/2019	0.00																		
11/24/2019	0.00																		
11/25/2019	0.00																		
11/26/2019	0.75																		
11/27/2019	0.03																		
11/28/2019	0.12																		
11/29/2019	0.00																		
11/30/2019	0.19																		
TOTAL	1.09	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

1. CSD #15 Sansome Street sensor anomalies; used CSD #17 Jackson Street.

Central Basin #1 CSD Summary
Nov-2019

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2019	0.00																											
11/2/2019	0.00																											
11/3/2019	0.00																											
11/4/2019	0.00																											
11/5/2019	0.00																											
11/6/2019	Intf Shut																											
11/7/2019	0.00																											
11/8/2019	0.00																											
11/9/2019	0.00																											
11/10/2019	0.00																											
11/11/2019	0.00																											
11/12/2019	0.00																											
11/13/2019	0.00																											
11/14/2019	0.00																											
11/15/2019	0.00																											
11/16/2019	0.00																											
11/17/2019	0.00																											
11/18/2019	0.00																											
11/19/2019	0.00																											
11/20/2019	0.00																											
11/21/2019	0.00																											
11/22/2019	0.00																											
11/23/2019	0.00																											
11/24/2019	0.00																											
11/25/2019	0.00																											
11/26/2019	0.85	7:09 PM	179	11.89													7:03 PM	80	11.15	7:03 PM	27	14.24						
11/27/2019	0.11																											
11/28/2019	0.18																											
11/29/2019	0.00																											
11/30/2019	0.12																											
TOTAL	1.26	-	179	11.89	-	0	0.00	-	0	0.00	-	0	0.00	-	300	15.34	-	80	11.15	-	27	14.24	-	0	0.00	-	0	0.00

NOTES

1. CSD #22 Third Street sensor I/O timeout; used CSD #23 Fourth Street North

Central Basin #2 CSD Summary
Nov-2019

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2019	0.00																								
11/2/2019	0.00																								
11/3/2019	0.00																								
11/4/2019	0.00																								
11/5/2019	0.00																								
11/6/2019	Intf Shut																								
11/7/2019	0.00																								
11/8/2019	0.00																								
11/9/2019	0.00																								
11/10/2019	0.00																								
11/11/2019	0.00																								
11/12/2019	0.00																								
11/13/2019	0.00																								
11/14/2019	0.00																								
11/15/2019	0.00																								
11/16/2019	0.00																								
11/17/2019	0.00																								
11/18/2019	0.00																								
11/19/2019	0.00																								
11/20/2019	0.00																								
11/21/2019	0.00																								
11/22/2019	0.00																								
11/23/2019	0.00																								
11/24/2019	0.00																								
11/25/2019	0.00																								
11/26/2019	0.85	6:59 PM	53	1.55										7:14 PM	97	11.61	7:09 PM	78	1.75	7:10 PM	101	3.28	7:10 PM	257	12.92
11/27/2019	0.11																								
11/28/2019	0.18																								
11/29/2019	0.00																								
11/30/2019	0.12																								
TOTAL	**1.26**	**-**	**53**	**1.55**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**0**	**0.00**	**-**	**97**	**11.61**	**-**	**78**	**1.75**	**-**	**101**	**3.28**	**-**	**257**	**12.92**

NOTES
1. CSD #30A 22nd Street uses CSD#30 20th Street

Southeast Basin CSD Summary
Nov-2019

Date	GFS Rain Gauge Total (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
11/1/2019	0.00																		
11/2/2019	0.00																		
11/3/2019	0.00																		
11/4/2019	0.00																		
11/5/2019	0.00																		
11/6/2019	0.00																		
11/7/2019	0.00																		
11/8/2019	0.00																		
11/9/2019	0.00																		
11/10/2019	0.00																		
11/11/2019	0.00																		
11/12/2019	0.00																		
11/13/2019	0.00																		
11/14/2019	0.00																		
11/15/2019	0.00																		
11/16/2019	0.00																		
11/17/2019	0.00																		
11/18/2019	0.00																		
11/19/2019	0.00																		
11/20/2019	0.00																		
11/21/2019	0.00																		
11/22/2019	0.00																		
11/23/2019	0.00																		
11/24/2019	0.00																		
11/25/2019	0.00																		
11/26/2019	0.94																		
11/27/2019	0.19																		
11/28/2019	0.09																		
11/29/2019	0.00																		
11/30/2019	0.11																		
TOTAL	1.33	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES
1. CSD #42 Fitch Street sensor I/O timeout; uses CSD #41 Yosemite Avenue

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
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January 30, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: December 2019 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of December 2019 for the Southeast Water Pollution Control Plant (SEP).

Compliance with Effluent Limitations. Compliance with the effluent limitation was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were combined sewer discharges during this monitoring period as described in the Wet Weather Summary.

System Operations of Wet Weather Facilities.
The operation of wet weather facilities during the storm event was conducted consistent with the requirements in NPDES permit Provision VI.C.5.c.i. - VI.C.5.c.iv. except for operations of the Mariposa Pump Station (MPS).

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General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

During the December 22 CSD event at the Mariposa outfall (Discharge Point No. CSD-029), MPS reached peak wet weather capacity (10 MGD) when the Mariposa CSD started but did not maintain that peak flow rate. As a result, an estimated additional 0.25 million gallons (MG) or an additional 8% was discharged through the Mariposa CSD outfall (3.32 MG).

The flow fluctuations at the pump station were indicative of a ragging event, which cleared without necessitating a need to manually remove the pumps. This type of event may occur again during the wet weather season until the project is complete in 2021. The SFPUC is reviewing pump performance as part of daily onsite inspections at MPS to minimize the likelihood of a future occurrence.

Wet Weather Monitoring. The Bayside system experienced wet weather days on December 2, 4, 6, 7, 8, 10, 11, 12, 18, 19, 22, 25, 29, and 30. Required monitoring occurred at EFF-001B, EFF-002, and EFF-003.
The following notes related to fecal indicator bacteria monitoring (see footnote [4] of NPDES permit Table E-4) being provided for clarity:

- On December 2, 4, 19, 25, and 30, wet weather enterococcus and fecal coliform samples were collected at EFF-002 but not EFF-001B because SEP was discharging only secondary treated effluent, so the EFF-002 sample was representative of the effluent being discharged at both Discharge Points Nos. 001 and 002.

- On December 6, 10, 12, and 29, wet weather enterococcus and fecal coliform samples were not collected because sampling is only required when discharges are occurring between 4 am and 2 pm per footnote [4]. This time frame is paramount to ensure that wet weather bacteria samples are collected on time for laboratory analyses (i.e., for analyses to occur during business hours). SEP (6, 10, 12, 29) and NPF (6, 29) did not begin to receive influent flows that indicated significant wet weather until after 2 pm.

- On December 11, wet weather enterococcus and fecal coliform samples were not collected because sampling is only required when discharges are occurring between 4 am and 2 pm per footnote [4]. Wet weather flows at SEP ceased prior to 4am.

CSD Monitoring. Per NPDES permit Provision C.5.b.ix., wet weather sampling was conducted during the reporting month as required with two exceptions. During the December 7 CSD event, single manual grab samples rather than composites were collected at Monitoring Locations CSD-025 and CSD-031A.

The two samplers were properly set up and tested prior to the event. However, at CSD-025, the liquid level actuator (LLA) malfunctioned and did not activate sample collection. At CSD-031A, the marine battery failed. Field staff collected a grab sample at each location while a CSD was occurring; they subsequently replaced the LLA at CSD-025, replaced the faulty battery CSD-031A, and field-tested the samplers.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit.

If you have any questions concerning this report, please contact Operations Superintendent, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Superintendent, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2019-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1590.14	1480.55	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1610.00	1467.17	19.38	0	0.00	0.00	0	0.00
September	0.05	0.00	0.00	0	0.00	0.09	1548.19	1435.13	0.00	0	0.00	0.02	0	0.00
October	0.00	0.00	0.06	0	0.00	0.00	1605.77	1473.30	0.00	0	0.00	0.00	0	0.00
November	1.09	52.49	39.53	0	0.00	1.28	1720.74	1536.76	84.0	1	71.74	1.33	0	0.00
December	6.02	258.07	204.21	1	3.23	4.41	2620.59	2167.34	307.12	2	88.00	4.93	0	0.00
January														
February														
March														
April														
May														
June														
TOTAL	7.16	310.56	243.80	1	3.23	5.78	10695.43	9560.26	410.51	3	159.74	6.28	0	0.00

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for December-2019

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.RO01	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
12/1/2019	0.27	0.00	0.00			0.18	91.45	86.13	0.00			0.17		
12/2/2019	0.35	15.82	14.62			0.27	125.18	99.50	20.04			0.28		
12/3/2019	0.01	0.00	0.00			0.02	62.87	58.07	0.00			0.03		
12/4/2019	0.24	10.60	6.18			0.23	98.45	87.18	2.52			0.26		
12/5/2019	0.00	0.00	0.00			0.00	55.15	50.44	0.00			0.01		
12/6/2019	0.44	9.71	4.12			0.43	76.75	62.96	7.32			0.38		
12/7/2019	1.04	59.65	51.49	1	3.23	0.58	193.81	108.48	81.18	1	84.67	0.60		
12/8/2019	0.27	14.35	14.08			0.19	120.61	89.27	28.54			0.10		
12/9/2019	0.00	0.00	0.00			0.01	63.95	56.44	0.00			0.01		
12/10/2019	0.23	0.00	0.00			0.18	79.52	66.64	4.64			0.20		
12/11/2019	0.24	0.00	0.00			0.17	110.44	96.06	7.43			0.16		
12/12/2019	0.03	0.00	0.00			0.04	89.31	82.58	0.63			0.08		
12/13/2019	0.06	0.00	0.00			0.06	70.07	64.68	0.00			0.01		
12/14/2019	0.07	0.00	0.00			0.03	66.60	60.22	0.00			0.05		
12/15/2019	0.00	0.00	0.00			0.00	59.00	54.98	0.00			0.00		
12/16/2019	0.00	0.00	0.00			0.00	53.22	48.60	0.00			0.00		
12/17/2019	0.01	0.00	0.00			0.03	60.16	54.81	0.00			0.01		
12/18/2019	0.83	56.18	46.27			0.48	156.73	102.93	46.46			0.49		
12/19/2019	0.00	0.00	0.00			0.00	90.01	80.66	3.98			0.01		
12/20/2019	0.00	0.00	0.00			0.00	56.33	54.41	0.00			0.00		
12/21/2019	0.00	0.00	0.00			0.00	55.39	51.16	0.00			0.00		
12/22/2019	0.72	34.11	24.06			0.67	145.39	93.16	47.32	1	3.32	0.80		
12/23/2019	0.00	0.00	0.00			0.00	60.04	57.81	0.00			0.00		
12/24/2019	0.02	0.00	0.00			0.01	57.69	54.11	0.00			0.00		
12/25/2019	0.52	23.07	17.66			0.30	106.56	84.05	17.55			0.59		
12/26/2019	0.00	0.00	0.00			0.00	53.17	49.87	0.00			0.00		
12/27/2019	0.00	0.00	0.00			0.00	49.76	45.61	0.00			0.00		
12/28/2019	0.00	0.00	0.00			0.00	51.14	47.09	0.00			0.00		
12/29/2019	0.67	18.16	11.09			0.53	84.87	68.69	9.16			0.69		
12/30/2019	0.00	16.41	14.64			0.00	115.73	88.03	30.34			0.00		
12/31/2019	0.00	0.00	0.00			0.00	61.24	62.74	0.00			0.00		
TOTAL MONTHLY	6.02	258.07	204.21	1	3.23	4.41	2620.59	2167.34	307.12	2	88.0	4.93	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	25.81	20.42	-	-	-	84.54	69.91	21.94	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	49.76	45.61	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	59.65	51.49	-	-	-	193.81	108.48	81.18	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

1. There was recorded NPF influent flow on 12/1, 12/3, 12/10-12/13, 12/17, 12/20, and 12/26 that was due to flow stored at treatment facility and drained back to combined sewer system, and has been zeroed per confirmation from WWE Operations.
2. NPF effluent flow sensor data was anomalous on 12/13 and has been zeroed per confirmation from WWE Operations.
3. SEP Influent flow data was calculated as the sum of CHS Total Flow (SM3CHS_CTRL:CH_FY1.RO01), SEP 011 Total Flow (SP1RAW_WELL1:01FY7.RO01), BFS Sump 1 Flow (BF01XLA003-S1FLOW), and BFS Sump 2 Flow (BF01XLA003-S2FLOW).

North Shore Basin CSD Summary
Dec-2019

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
12/1/2019	0.27																		
12/2/2019	0.35																		
12/3/2019	0.01																		
12/4/2019	0.24																		
12/5/2019	0.00																		
12/6/2019	0.44																		
12/7/2019	1.04	3:26 PM	49	1.31	3:26 PM	49	1.83	3:32 PM	5	<0.01	3:30 PM	9	0.05	3:37 PM	5	0.02	3:37 PM	5	0.02
12/8/2019	0.27																		
12/9/2019	0.00																		
12/10/2019	0.23																		
12/11/2019	0.24																		
12/12/2019	0.03																		
12/13/2019	0.06																		
12/14/2019	0.07																		
12/15/2019	0.00																		
12/16/2019	0.00																		
12/17/2019	0.01																		
12/18/2019	0.83																		
12/19/2019	0.00																		
12/20/2019	0.00																		
12/21/2019	0.00																		
12/22/2019	0.72																		
12/23/2019	0.00																		
12/24/2019	0.02																		
12/25/2019	0.52																		
12/26/2019	0.00																		
12/27/2019	0.00																		
12/28/2019	0.00																		
12/29/2019	0.67																		
12/30/2019	0.00																		
TOTAL	6.02	-	49	1.31	-	49	1.83	-	5	<0.01	-	9	0.05	-	5	0.02	-	5	0.02

NOTES

1. CSD #10 Pierce and #11 Laguna level sensor data anomalous on 12/7, used level sensor data from CSD #9 Baker.
2. CSD #15 Sansome level sensor data anomalous on 12/7, used level sensor data from CSD #17 Jackson.

Central Basin #1 CSD Summary
Dec-2019

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
12/1/2019	0.18																											
12/2/2019	0.27																											
12/3/2019	0.02																											
12/4/2019	0.23																											
12/5/2019	0.00																											
12/6/2019	0.43																											
12/7/2019	0.58	3:21 PM	214	14.18				3:27 PM	10	<0.01	3:27 PM	9	0.02	3:23 PM	25	1.03	3:15 PM	100	15.52	3:10 PM	48	32.41	3:27 PM	12	0.01			
12/8/2019	0.19																											
12/9/2019	0.01																											
12/10/2019	0.18																											
12/11/2019	0.17																											
12/12/2019	0.04																											
12/13/2019	0.06																											
12/14/2019	0.03																											
12/15/2019	0.00																											
12/16/2019	0.00																											
12/17/2019	0.03																											
12/18/2019	0.48																											
12/19/2019	0.00																											
12/20/2019	0.00																											
12/21/2019	0.00																											
12/22/2019	0.67																											
12/23/2019	0.00																											
12/24/2019	0.01																											
12/25/2019	0.30																											
12/26/2019	0.00																											
12/27/2019	0.00																											
12/28/2019	0.00																											
12/29/2019	0.53																											
12/30/2019	0.00																											
TOTAL	4.41	-	214	14.18	-	0	0.00	-	10	<0.01	-	9	0.02	-	325	16.37	-	100	15.52	-	48	32.41	-	12	0.01	-	0	0.00

NOTES

1. CSD #22 Third Street level sensor data anomalous on 12/7; used level sensor data from CSD #23 Fourth Street.

Central Basin #2 CSD Summary
Dec-2019

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
12/1/2019	0.18																								
12/2/2019	0.27																								
12/3/2019	0.02																								
12/4/2019	0.23																								
12/5/2019	0.00																								
12/6/2019	0.43																								
12/7/2019	0.58	3:02 PM	56	4.53										3:24 PM	102	7.27	3:20 PM	85	0.96	3:21 PM	99	1.90	3:26 PM	160	6.83
12/8/2019	0.19																								
12/9/2019	0.01																								
12/10/2019	0.18																								
12/11/2019	0.17																								
12/12/2019	0.04																								
12/13/2019	0.06																								
12/14/2019	0.03																								
12/15/2019	0.00																								
12/16/2019	0.00																								
12/17/2019	0.03																								
12/18/2019	0.48																								
12/19/2019	0.00																								
12/20/2019	0.00																								
12/21/2019	0.00																								
12/22/2019	0.67	10:11 AM	64	3.32																					
12/23/2019	0.00																								
12/24/2019	0.01																								
12/25/2019	0.30																								
12/26/2019	0.00																								
12/27/2019	0.00																								
12/28/2019	0.00																								
12/29/2019	0.53																								
12/30/2019	0.00																								
TOTAL	4.41	-	120	7.85	-	0	0.00	-	0	0.00	-	0	0.00	-	102	7.27	-	85	0.96	-	99	1.90	-	160	6.83

NOTES

Southeast Basin CSD Summary
Dec-2019

Date	GFS Rain Gauge Total (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
12/1/2019	0.17																		
12/2/2019	0.28																		
12/3/2019	0.03																		
12/4/2019	0.26																		
12/5/2019	0.01																		
12/6/2019	0.38																		
12/7/2019	0.60																		
12/8/2019	0.10																		
12/9/2019	0.01																		
12/10/2019	0.20																		
12/11/2019	0.16																		
12/12/2019	0.08																		
12/13/2019	0.01																		
12/14/2019	0.05																		
12/15/2019	0.00																		
12/16/2019	0.00																		
12/17/2019	0.01																		
12/18/2019	0.49																		
12/19/2019	0.01																		
12/20/2019	0.00																		
12/21/2019	0.00																		
12/22/2019	0.80																		
12/23/2019	0.00																		
12/24/2019	0.00																		
12/25/2019	0.59																		
12/26/2019	0.00																		
12/27/2019	0.00																		
12/28/2019	0.00																		
12/29/2019	0.69																		
12/30/2019	0.00																		
TOTAL	4.93	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
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January 31, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: Annual Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664], Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the annual self-monitoring report (SMR) for the calendar year of 2019 for the Southeast Water Pollution Control Plant.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew M. Clark
Operations Superintendent

Attachments

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

2019 Annual Self-Monitoring Report

San Francisco Public Utilities Commission
Southeast Water Pollution Control Plant

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1 Treatment Plant Performance

1.1 Volume Treated

The Southeast Water Pollution Control Plant (SEP) is permitted to discharge an average dry weather flow of 85.4 million gallons per day (MGD). The average dry weather flow for SEP was 48.3 MGD, calculated using flows from three consecutive dry weather months (August, September, and October). SEP treated an estimated 23.9 billion gallons of combined wastewater and stormwater in 2019. The North Point Wet Weather Facility (NPF) treated an estimated 1.4 billion gallons of combined wastewater and stormwater in 2019.

This report was prepared by SFPUC to satisfy the annual reporting requirement set forth in Attachment G, Section V.C.1.f of San Francisco Regional Water Quality Control Board (RWQCB) Order No. R2-2013-0029, NPDES No. CA0037664, as amended by RWQCB Order No. R2-2017-0042 (Regional Standard Provisions, and Monitoring and Reporting Requirements).

1.2 Permit Compliance and Actions Taken or Planned

1.2.1 Effluent Limit Exceedances and Unauthorized Discharges

Acute Toxicity

The effluent limitations for acute toxicity were exceeded three times during 2019 as summarized in the table below. Investigation of intermittent poor survival results during bioassay testing has identified ammonia as a factor contributing to lower survivals in the effluent exposures. An acid dosing system for maintaining the lower pH of the effluent within bioassay exposure chambers has been set-up. Maintaining the lower effluent pH will reduce interference from the unionized ammonia, providing a more reliable assessment of the toxicity of SEP effluent. The initial pH adjustment system was first tested in parallel with the June 28 – July 2 test; system modifications and test adjustments were made throughout the fall. Parallel flow-through tests were run in the winter. More tests are needed to confirm the working hypothesis.

Flow-through Bioassay Test Date	Results (% Survival)	11-Sample Median (for <90%)*	11-Sample 90th percentile (for <70%)*
February 19-23, 2019	90%	N/A	N/A
March 29 - April 2, 2019	85%	90%	N/A
April 8-12, 2019	55%	90%	**55%**
April 15-19, 2019	95%	N/A	N/A
May 6-10, 2019	95%	N/A	N/A
June 3-7, 2019	60%	**85%**	**55%**
June 28 - July 2, 2019	100%	N/A	N/A
July 8-12, 2019	95%	N/A	N/A
August 5-9, 2019	100%	N/A	N/A
August 21, 23-24, 2019	85%	90%	N/A
September 17-21, 2019	85%	90%	N/A
October 15-19, 2019	95%	N/A	N/A
November 14-18, 2019	95%	N/A	N/A
December 31, 2019 - January 4, 2020	85%	95%	N/A

*Per the effluent limitation in the NPDES permit, the 11-sample median is calculated for compliance only when the result is less than 90% survival and the 11-sample 90th percentile is calculated for compliance only when the result is less than 70% survival.

Total Residual Chlorine

On May 29, 2019 for one minute at 11:45 am, the total residual chlorine continuous analyzer for the final effluent being discharged at Discharge Point No. 001 (Pier 80) was 0.2 mg/L, which exceeded the instantaneous maximum effluent limitation of 0.0 mg/L. The exceedance measured by the analyzer was caused by an approximate three-minute (11:38-11:41) loss of the local 24-voltage power supply, which stopped the final effluent flow transmitter. Investigation indicates that the power loss was most likely caused by a mistake made by an on-site construction contractor. SFPUC will continue to hold regular meetings to discuss and coordinate on-site contractor work, and review Specific Condition Requests that contractors are required to submit detailing the timing and scope of activities that could affect specific plant processes.

BOD_5, TSS, Fecal Coliform

In June, SEP experienced a significant disruption of the biological secondary treatment process, resulting in exceedances of the TSS, BOD, and fecal coliform effluent limitations as summarized in the table below.

Compliance Period	Average BOD Concentration	Average TSS Concentration	Fecal Coliform % Samples ≥ 1,100 MPN/100 mL	Compliance Result*
Week - June 9-15, 2019	62 mg/L	78 mg/L	--	Exceeded AWEL
Week - June 16-22, 2019	59 mg/L	98 mg/L	--	Exceeded AWEL
Month - June 1-30, 2019	48 mg/L	60 mg/L	--	Exceeded AMEL
Month - June 1-30, 2019 (percent removal)	84%	80%	--	Exceeded AMEL
Month - June 1-30, 2019	--	--	15%	Exceeded acute limit
Week – June 30 - July 6	--	52 mg/L	--	Exceeded AWEL
Monthly – July 1-31	--	37 mg/L	--	Exceeded AMEL

* AWEL = Average Weekly Effluent Limitation
AMEL = Average Monthly Effluent Limitation

Investigations did not identify any single cause; rather, the disruption of secondary treatment appears to have been the result of multiple events that sequentially and cumulatively compromised the efficacy of the biological process: rapid loading in primary sedimentation, loss of Return Activated Sludge (RAS) pumping, loss of mixing, and intermittent construction dewatering. Details related to the cause, response, and corrective actions were described in detail in the June 2019 monthly SMR. Lessons learned have been reviewed and discussed with all watches responsible for the continuous plant operations. Measures to prevent reoccurrence consisted of making use of biosensors on the primary effluent and final effluent to provide real-time feedback on plant performance as a surrogate to chemical oxygen demand (COD), adding additional administrative controls on construction dewatering and activities, and reinforcing expectations for visual observation of all operational equipment by the watches.

Oil and Grease

During the month of July, the AMEL of 10 mg/L for oil and grease was exceeded with a result of 11.9 mg/L. Another elevated result in early August (16.6 mg/L on August 5) alerted staff to the issue and subsequent accelerated sampling yielded 13 non-detect results out of the 15 follow-up samples, leading to compliance with the AMEL in August. Multiple potential causes were identified and investigated, but the results of these investigations failed to conclusively identify a specific cause for the elevated results. To prevent reoccurrence of failing to perform accelerated monitoring (as occurred in July), a Supervising

Chemist was re-trained on communications following elevated results. In addition, the SFPUC's Laboratory Information Management System (LIMS) have been configured to generate automatic email notifications to Laboratory management when elevated concentrations are observed.

Unauthorized Discharges

The SFPUC reported one unauthorized discharge during 2019, which is summarized below and described in the five-day report and multiple 2019 monthly self-monitoring reports.

On October 18, 2018, SFPUC staff observed an upwelling at the surface of Islais Channel near the location of the SEP final effluent force mains. On November 3, professional divers confirmed that the 36-inch force main had failed in approximately the same area as it had failed in 2015 and 2017. Temporary bypass of the pipe rather than additional repairs was pursued, and an emergency declaration was approved to expedite contracting and financing. Design, planning, surveying, permitting, and construction of the temporary bypass was completed in 2019. On August 21, an anticipated bypass for essential maintenance was conducted to facilitate the required tie-ins for the existing 36" and 42" force mains. During this time, fully treated SEP effluent was discharged through Discharge Point No. 002. All required monitoring was performed, and all results were consistent with effluent limitations. SFPUC provided notifications and updates to Regional Water Board staff regarding this bypass on June 7 and August 19.

1.2.2 Monitoring Issues

In 2019, there were four types of monitoring issues:

- **Wet Weather Interruption for Acute Toxicity Bioassay (1):** During the month of January, a dry weather acute toxicity test at EFF-001A could not be completed; scheduled monthly tests were either interrupted due to wet weather or precluded due to forecasted wet weather and plant shutdowns for necessary maintenance and construction. Wet weather continued to delay testing in February until a complete, uninterrupted bioassay test was conducted during the week of February 19 – 23.

- **BOD_5 Analysis QA/QC Issue (1):** During the week of December 30 – January 5, the 5-day biochemical oxygen demand (BOD_5) sample did not meet a quality assurance/quality control (QA/QC) specification due to a laboratory analyst error. Discovery of this issue resulted in more frequent monitoring during the subsequent week and retraining of staff on proper laboratory procedures.

- **CSD Field Sampling (10):** In 2019, a few issues with implementation of combined sewer discharge (CSD) triggered monitoring were identified for different reasons: sampler battery failure, back-to-back CSD events preventing sampler reset, internal miscommunication regarding sample identification, liquid level actuator (LLA) malfunction, sampler malfunction, and inaccessibility due to construction. These issues resulted in the collection of a manual grab sample rather than a composite, no sample, or insufficient sample volume to perform all required analyses. In the case of equipment issues, the sampler head was replaced and tested for functionality prior to the next storm.

- **Shoreline Monitoring and Posting Not Conducted (2):** Shoreline monitoring and posting were not conducted twice during 2019 due to the partial federal government shutdown (January 1-22; S-210.1) and a monitoring location error (May 19; S-301.2). In both instances, the public was notified of CSDs via phone hotline, email, and the sfwater.org website.

1.3 Effluent Characterization Study

For this evaluation, all constituents listed in Attachment G, Table B, except for those pollutants with effluent limitations that were detected above the method Minimum Levels (ML) were evaluated. Estimated concentrations of constituents detected below the MLs were excluded from this evaluation because the uncertainty in the result when a constituent is detected below the ML prevents useful comparison.

Ten of the tested constituents were detected above the method MLs: antimony, cadmium, chloroethane, chloroform, chloromethane, chromium (total recoverable), lead, nickel, toluene, and zinc. The 2019 maximum detected level of each of the constituents was compared to the Maximum Effluent Concentration (MEC) as presented in Table F-9 of the SEP Permit (Reasonable Potential Analysis). The MECs were used as general indicators of past performance of the detected constituents.

All ten detected constituents showed decreases or no statistically significant changes compared to past performance.

The detected constituents and evaluations are summarized in the table below.

Trends for Selected Constituents

Priority Pollutant	Method Minimum Level (ML, µg/L)	2019 Maximum Detected Level (µg/L)[1]	Past Performance[2] (µg/L)	Criterion or Objective (µg/L)	Statistically Significant Increase
Antimony	0.5	0.66	0.71	4,300	No
Cadmium	0.25	3.2	1.3	9.36	No
Chloroethane	0.5	0.76	1.1	No Criteria	No
Chloroform	0.5	4.6	11	No Criteria	No
Chloromethane	0.5	1.5	1.1	No Criteria	No
Chromium (III) Chromium (VI)	0.5 0.5	0.81 (total recoverable)	3.7 1.4	No Criteria 50	No No
Lead	0.5	2.7	1.6	8.5	No
Nickel	1	3.8	5.1	13	No
Toluene	0.5	0.59	1.5	200,000	No
Zinc	1	43	55	86	No

Note:
1. Results have been rounded to two significant figures.
2. The Maximum Effluent Concentration (MEC) or the minimum detection level, as listed in Table F-9, Reasonable Potential Analysis in the SEP Permit, NPDES NO. CA0037664, Order No. R2-2013-0029, is used as an indicator for past performance.

1.4 Biosolids

In 2019, the SEP beneficially re-used a total of 10,710 dry metric tons of biosolids at the following locations:

Location	Dry Metric Tons[1]
Land Application	
Solano County	3,210
Sacramento County	360
Landfill Beneficial Use (except TIP)	
Potrero Hills	3,290
Vasco Road	1,350
Lystek – Liquid Biofertilizer	2,500
TOTAL	**10,710**

Note:
1. Tonnage has been rounded to two significant figures.

1.5 Mercury & PCBs

Consistent with the Waste Discharge Requirements for Mercury and PCBs from Municipal and Industrial Wastewater Discharges to San Francisco Bay (Order No. R2-2017-0041, NPDES No. CA0038849), **Attachment A** summarizes the mercury concentrations of each final effluent sample collected in 2019, the corresponding flow on the date the sample was collected, and the annual estimated mercury load.

2 Approved Laboratory Analyses

List of approved analyses include the following:

1. Analyses for which SFPUC is certified: See **Attachment B**.
2. Analyses performed for SFPUC by a separate certified laboratory (copies of reports signed by the laboratory director of the separate certified laboratories are not included with the annual report but are retained onsite and available upon request):
    a. Dioxin, method EPA 1613, performed by Frontier Analytical;
    b. PCB Congeners by EPA 1668c, performed by Frontier Analytical; and
    c. Nitrate+Nitrite and Nitrite by EPA 300.0, performed by Eurofins.
3. List of waived analyses: None.

3 Facility Information

3.1 Plan View Drawing or Map of Facility

A Plant Road Map is included in **Attachment C**, and a Plant Process Schematic is included in **Attachment D**.

3.2 Results of Annual Facility Report Reviews

3.2.1 Contingency Plan and Spill Prevention Plan

The SEP's Contingency Plan was reviewed and updated throughout 2019. Updates to the plan include:

- Changes in staffing and roles and responsibilities;
- Process management updates; and
- Updates to the listed emergency contacts.

3.2.2 Operations and Maintenance Manual

Review of SEP related manuals, training, and other guidance materials was completed, resulting in updates to and development of the materials described in the table below.

Category	Activities
Manuals	• SEP Primary Treatment Process Unit Operations Manual • SEP Advanced Primary Treatment Process Unit Operations Manual • Bayside Wet Weather Operations Manual • Biosolids Management System Manual
Other Guidance & Training Materials	**Field Guides** • SEP Primary Sedimentation Building 042 Hydraulic Pump & Drum Screen Operation Field Guide • Sludge Judge & Sludge Pumping Field Guide • Titration Field Guide • Bibbigard Field Guide • Gondola Swap Field Guide • ISCO Field Guide • Pista Start Up Field Guide • SED Tank Start Up Field Guide • Bruce Flynn Pump Station Field Guide **Training Videos** • 3D Process Overview 2019 Transitioning from 110 to 150 MGD • 3D Process Overview 2019 Transitioning from 150 to 250 MGD • 3D Sludge Pumping / DCS Trends – 150 MGD • 3D Sludge Pumping / DCS Trends– 366 MGD • 3D Sludge Pumping / DCS Trends– 500 MGD • 3D Sludge Judge Titration Video • Primary Effluent Odor Control Residual Chlorine Titration – Colorimetric Determination • Primary Sedimentation Tank Function & Primary Sampling • Effluent Titration • Bruce Flynn Pump Station Duperon Flexrake Barscreen • Channel Pump Station Bibbigard, Gondolas, Pump Down, and Sand Flush
Training	• Southeast Plant Operations training included in Annual Wet Weather training for all SFPUC operators held in September and October.

Review of NPF related manuals, training, and other guidance materials was completed, resulting in updates to and development of the materials described in the table below.

Category	Sections
Manuals	North Point Wet Weather Facility Operations Manual

Category	Sections
Other Guidance & Training Materials	North Point Facility Wet Weather Process Video
Training	North Point Plant Operations training included in Annual Wet Weather training for all SFPUC operators held in September and October.

3.2.3 Wastewater Facilities Status

The table below summarizes key construction activities related to the Bayside facilities. The projects listed below do not comprise a comprehensive list of all upgrades completed or underway. Planning, design and construction of numerous other mechanical, electrical, structural, and communications improvements are ongoing.

Facility/Process	Project Description	Construction Update
SEP Headworks	Replace existing wet-weather and all-weather headworks with a single 250 MGD all-weather headworks. Due to the complexity of this project, the scope is proceeding in multiple phases.	Construction of the second phase began in 2019.
SEP Primary	Make various mechanical and electrical upgrades to the wet weather primary treatment system, including new pumps and supporting structural work.	Construction began in 2019 and is expected to be complete in 2021.
	Seismic upgrade of SEP 042 Primary Sedimentation Facility, and coating and repair work in SEP 540 (Plant Effluent Control Structure), SEP 525 (Primary Disinfection Facility) and Primary Influent channels.	Construction began in 2019 and is expected to be complete in 2022.
SEP Aeration	Valve Automation of VPSA (Vacuum Pressure Swing Adsorption, Oxygen Generation).	Construction is anticipated to be complete in 2020.
	Demolish existing oxygen generation plant and liquid oxygen storage (LOX) tanks; install new LOX storage and vaporization systems.	Construction completed in 2019.
SEP Disinfection	Upgrade controls and chemical sampling station, including coating of chlorine contact channels.	Construction expected to be complete in 2020.
SEP Solids Handling	Replace the existing facilities with new digestion and solids handling processes capable of producing Class A biosolids.	Construction began in late 2019.
	Replace gas sensors, flow meters, gas compressors, hot water pumps, standby generator, waste gas burner insulation and control panels, boiler burner and boiler control panel, upgrade process equipment/piping/valves, install additional pumps for cogeneration system, and perform various structural repairs.	Planned construction was completed in 2019. Additional needs have been identified and construction is expected to be complete in 2020.
	Repair solids conveyance and storage systems.	Construction completed in 2019.
Bruce Flynn Pump Station	Furnish and install new adjustable frequency drive hardware, software, and internal electrical components; upgrade DCS communication systems.	Construction completed in 2019.
	Replace bar screens, main pumps, and sump dewatering pumps (SEP Headworks Phase II.A)	Construction expected to be complete in 2020.

Facility/Process	Project Description	Construction Update
	Replace roof of electrical structure.	Construction completed in 2019.
Channel Pump Station	Upgrade main pump variable frequency drives.	Replacement of one VFD in 2019. Anticipated replacement of another VFD in 2020.
Griffith Street Pump Station	Extensively improve to existing dry weather and wet weather pumping facilities, including replacement of the dry and wet weather pumps.	Construction began in 2017 and is expected to be complete in 2020.
Mariposa Pump Station	Rebuild existing dry weather pumping facility and force main and increase the capacity to accommodate flows from the redevelopment of Mission Bay.	Construction began in late 2019; expected completion in 2022.
North Shore Pump Station	Modify pump station, including replacing and upsizing the existing dry weather pumps, to allow dry weather pumps to provide partial redundancy to the wet weather pumps.	Construction is expected to begin late 2020; anticipated completion in 2022.
North Point Wet Weather Facility	Replace primary sedimentation tank influent gates and other mechanical and electrical improvements.	Construction anticipated to be complete in 2020.
Southeast Bay Outfall (Pier 80)	Construct an emergency bypass of one (36”) of the two force main sections under Islais Creek.	Construction completed in 2019.

4 Participation in Regional Efforts

In 2019, the SFPUC continued its financial support of and participation in the San Francisco Estuary Institute’s Regional Monitoring Program to fulfill the receiving water monitoring requirements of the SEP NPDES permit. See SEP Permit at page E-12.

As a principal member of the Bay Area Clean Water Agencies (BACWA), the SFPUC also continued to support the Regional Monitoring Program for Water Quality in the San Francisco Estuary (RMP); mercury and PCBs source control and risk reduction programs; nutrient receiving water monitoring and science plan development and implementation; participate in the development of Total Maximum Daily Loads and site-specific objectives; and support implementation of the regional copper and cyanide action plans. BACWA submitted an NPDES compliance report on January 20, 2020 on behalf its members (including the SFPUC), which continues NPDES permit compliance with NPDES permit provisions related to these efforts.

ATTACHMENT A

Mercury Information Reporting Form

Discharger: City and County of San Francisco, Southeast WW Treatment Plant

Calendar Year Reporting: 2019 Monitoring Station: EFF-001A

Month	Sample Date	Effluent Flow to Surface Waters (mgd)	Total Mercury Concentration (µg/L)	Average Monthly Mass Load (kg/month)
January	1/30/19	62.08	0.0062	0.0444
February	2/20/19	66.81	0.0041	0.0314
March	3/12/19	76.07	0.0071	0.0622
April	4/9/19	59.31	0.0039	0.0266
May	5/27/19	48.96	0.0017	0.0094
June	6/5/19	48.98	0.0053	0.0300
July	7/23/19	47.14	0.0042	0.0227
August	8/6/19	49.43	0.0033	0.0187
September	9/5/19	48.63	0.0040	0.0227
October	10/22/19	47.99	0.0038	0.0208
November	11/5/19	46.76	0.0029	0.0155
December	12/15/19	54.98	0.0016	0.0104
Total Mass (sum)				0.3147
Weighted Annual Mass Emission				0.3147
Average			0.0040	0.0262

ATTACHMENT B
List of Analyses for which SFPUC is Certified

References for Analyses Cited

Type of Test	Reference	Method Number
Ammonia	Standard Methods	4500-NH3 B,C
Bioassay	EPA	2019 (EPA-821-R-02-012) 600/R-95/136 Development Test
Biochemical Oxygen Demand	Standard Methods	5210 B
Carbonaceous BOD	Standard Methods	5210 B
Chemical Oxygen Demand	Standard Methods	5220 D/HACH8000
Chlorine Residual	Standard Methods	4500-Cl C
Coliform	Standard Methods	9221 B
Conductivity	Standard Methods	2510 B
Cyanide	Standard Methods	4500-CN^- C & 4500-CN^- E
Enterococci, IDEXX	EPA	Enterolert
Kjeldahl Nitrogen	Standard Methods	4500-NH3 C
Mercury	EPA	1631E/245.1
Metals	EPA	200.7/200.8
Oil & Grease	EPA	1664A
PAH	EPA	625
Pesticide/PCBs	EPA	608
pH	EPA/Standard Methods	150.2/4500-H^+ B
Phosphate, Ortho	Standard Methods	SM4500-P E
Phosphorus, Total	EPA	200.7
Semi -Volatile Organic Compounds	EPA	625
Settleable Solids	Standard Methods	2540 F
Temperature	Standard Methods	2550 B
Total Solids	Standard Methods	2540 B
Total Suspended Solids	Standard Methods	2540 D
Turbidity	Standard Methods	2130 B
Volatile Organic Compounds	EPA	624

NOTE:
** DISTANCE BETWEEN GRID LINES = 100'

ATTACHMENT C
Plant Road Map
Southeast Water Pollution Control Plant

LEGEND
- EXISTING STRUCTURE & No.
- FUTURE STRUCTURE & No.
- EXISTING SECURITY WALL/FENCE
- FUTURE SECURITY FENCE
- EXISTING CURB
- FUTURE CURB
- EXISTING PARKING LOT
- EXISTING RAILROAD TRACK
- ROAD X — ROAD NAME INSIDE PLANT
- *G-N10 — FUTURE GATE
- G-O10 — EXISTING GATE

CIRCOSTA IRON & METAL
RANKIN ST
EVANS AVE
QUINT ST
PHELPS ST
LASALLE AVE
KIRKWOOD AVE
JERROLD AVE
INNES AVE
HUDSON AVE
GALVEZ AVE
FAIRFAX AVE
EVANS AVE

NEW HEADWORKS
OLD HEADWORKS
PRIMARY SEDIMENTATION
AERATION TANKS
PRIMARY SEDIMENTATION
SECONDARY SEDIMENTATION
GRAVITY BELT THICKENER
SLUDGE DEWATERING
ANAEROBIC DIGESTION
ADMINISTRATION & LABORATORIES
DISINFECTION

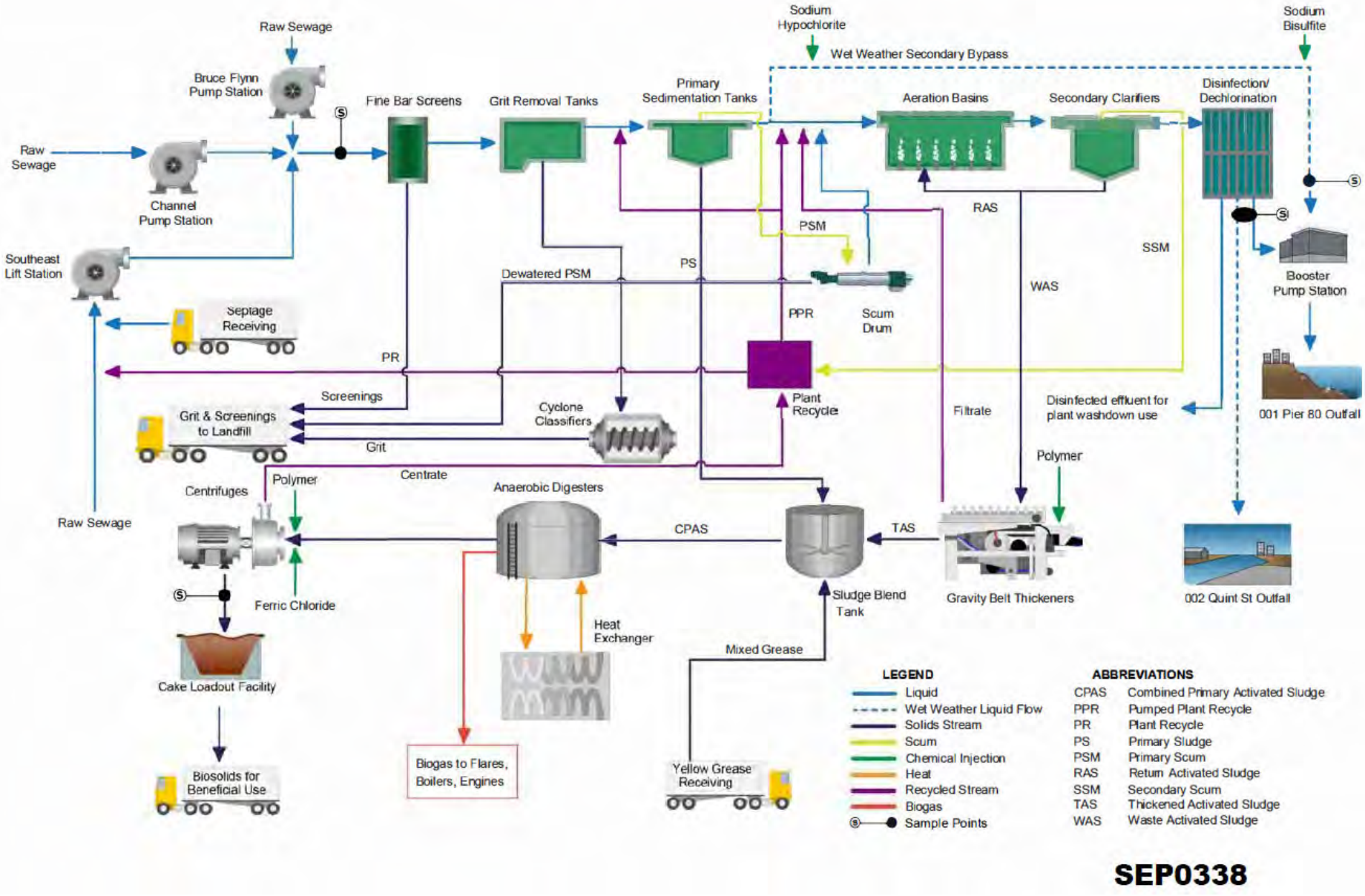
SOUTHEAST WATER POLLUTION CONTROL PLANT
Z W

SCALE: 1" = 80'

Plot Date: 01/16/2020 MK

SEP0337

ATTACHMENT D
Plant Process Schematic
Southeast Water Pollution Control Plant



SEP0338

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001A)

Exposure volume:	4L	Test started:	March 2, 2020
Test Organism:	rainbow trout	Test ended:	March 6, 2020
Organism batch ID:	RT-2004	Prepared by:	M. Concepcion
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	4	6	1	5	0	5	0	5	25
	replicate 2	10	8	2	2	0	-	0	-	0	

TUa **1.10**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	11.8	11.6	11.7	11.6	11.6	11.8	11.7	11.8	11.8	11.9
pH (units)	7.68	7.12	7.60	7.40	7.70	6.74	6.84	6.88	6.88	7.01
Dissolved oxygen (mg/L)	9.1	9.6	9.6	8.9	9.1	7.2	7.8	8.0	6.8	6.5
Residual chlorine (mg/L)	0.0	0.0	0.0	0.0	0.0	-1.3	-1.1	-0.7	-0.3	-0.5
Alkalinity (mg/L)	22				32	236	264	256	274	264
Hardness (mg/L)	20				50	156	344	470	380	400
Conductivity ($\mu S/cm^2$)	102				60	1797	3510	5000	3790	2865
Total ammonia (mg/L)	0.24				< 0.02	42.5	43.6	42.8	52.4	46.3

Aeration: source - compressed laboratory air, delivered to exposure solutions through 2ml glass pipets
procedure - gentle aeration (~100 bubbles/min) of effluent and control exposure solutions from 69hrs after test-initiation through termination of test.

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

CITY AND COUNTY OF SAN FRANCISCO - PUBLIC UTILITIES COMMISSION
Natural Resources and Lands Management Division
Acute Toxicity Flowthrough Bioassay Test -- REPORT

Southeast Plant Final Effluent (EFF-001A)

Exposure volume:	4L	Test started:	March 9, 2020
Test Organism:	rainbow trout	Test ended:	March 13, 2020
Organism batch ID:	RT-2005	Prepared by:	M. Concepcion
		Approved by:	R. Duggan

Survival Results

		0 hours	24 hours		48 hours		72 hours		96 hours		final %
		alive	dead	alive	dead	alive	dead	alive	dead	alive	survival
Control	replicate 1	10	0	10	0	10	0	10	0	10	100
	replicate 2	10	0	10	0	10	0	10	0	10	
Effluent	replicate 1	10	5	5	3	2	0	5	0	2	50
	replicate 2	10	2	8	0	8	0	8	0	8	

TUa **1.00**

Water Quality Data

	CONTROL					EFFLUENT				
	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs	0 hrs	24 hrs	48 hrs	72 hrs	96 hrs
Temperature (°C)	12.1	12.5	11.8	12.0	11.6	12.3	11.9	11.4	11.8	11.6
pH (units)	7.56	7.30	7.32	7.44	7.37	6.71	6.89	6.89	6.86	6.85
Dissolved oxygen (mg/L)	10.0	9.5	9.1	9.4	9.1	8.5	8.0	7.7	7.3	6.1
Residual chlorine (mg/L)	0.0	0.0	0.0	0.0	0.0	-1.3	-1.4	-1.2	-0.6	-0.2
Alkalinity (mg/L)	36				40	208	238	240	246	244
Hardness (mg/L)	8				20	460	236	264	322	260
Conductivity ($\mu S/cm^2$)	47				101	4940	2452	2507	3250	2529
Total ammonia (mg/L)	<0.4				<0.4	27.4	43.7	40.4	47.0	46.5

Reference

EPA 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA Office of Water, Washington, D.C. EPA-821-R-02-012

ciwqs.waterboards.ca.gov/ciwqs/readOnly/PublicReportEsmrAtGlanceServlet?reportID=2&isDrilldown=true&documentID=2288700

INF-001	Flow	Daily Minimum	=	44.93	MGD	03/22/2020	None
INF-001	Flow	Monthly Discharge	=	1793.54	MGM	03/31/2020	None
INF-001	Flow	Monthly Average (Mean)	=	57.9	MGD	03/31/2020	None
INF-001	Total Suspended Solids (TSS)	Daily Maximum	=	570	mg/L	03/06/2020	None
INF-001	Total Suspended Solids (TSS)	Monthly Average (Mean)	=	289	mg/L	03/31/2020	None

Total Calculated Data Points: 103

Violations

Violation ID	Violation Date	Violation Type	Description(-)	Corrective Action	Created By	Last Modified By
1076565	03/02/2020	Acute Toxicity	Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported value was 60 % survival at EFF-001A.	None	Case Worker	Water Board Staff
1076566	03/09/2020	Acute Toxicity	Acute Toxicity 11 Sample 90th Percentile limit is 70 % survival and reported value was 50 % survival at EFF-001A.	None	Case Worker	Water Board Staff

Total Violations: 2

Attachments

File Name	Description	Size
SEP 001B Toxicity 202003.pdf	E001B	15 KB
SEP 003 Toxicity 202003.pdf	E003	25 KB
SEP E001A Toxicity 20200302.pdf	E001A	16 KB
SEP E001A Toxicity 20200309.pdf	E001A	15 KB
SEP Shoreline 202003.pdf	Shoreline Report	41 KB

Total Attachments: 5

Cover Letter

File Name
2020-03 SEP SMR CL Final.pdf

Total No. of Cover Letter Files: 1 Cover Leter Text: No

The current report was generated with data as of: 09/03/2020
Regional Boards are in the process of entering backlogged data.
As a result, data may be incomplete.

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2018_....pdf

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
March 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/02	Tue/03	Mon/09	Tue/10	Wed/11	Mon/16	Tue/17	Mon/23	Mon/30
202.4	< 10		30			74		63	41
202.5	20		10			86		31	< 10
210.1	369		85			122		*	*
211	135		171			63		155	96
220	529		683			613		1354	771
300.1	426		3448			2495		4786	1541
301.1	3448		3282	359	3255	1510		4106	6131
301.2	530		591	3130		933	520	160	703
320	2755	448	457			**24196**	3076	4352	504

Sampling/Posting issues
Hyde St Pier (210.1) not accessible due to Covid-19 social distancing restrictions

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/02	Tue/03	Mon/09	Tue/10	Wed/11	Mon/16	Tue/17	Mon/23	Mon/30
202.4	< 10		10			10		< 10	10
202.5	< 10		< 10			20		10	< 10
210.1	20		20			10		*	*
211	20		145			10		120	41
220	< 10		< 10			10		41	< 10
300.1	20		121			41		41	51
301.1	10		185	< 10	< 10	86		< 10	20
301.2	10		< 10	10		20	< 10	10	51
320	97	20	< 10			122	10	30	< 10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/02	Tue/03	Mon/09	Tue/10	Wed/11	Mon/16	Tue/17	Mon/23	Mon/30
202.4	< 10		< 10			10		10	20
202.5	10		< 10			10		< 10	< 10
210.1	< 10		< 10			< 10		*	*
211	< 10		10			10		63	< 10
220	< 10		< 10			10		10	10
300.1	10		97			85		41	41
301.1	< 10		**546**	**213**	< 10	52		20	10
301.2	10		**295**	85		**292**	< 10	< 10	< 10
320	**110**	< 10	< 10			**193**	10	63	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)			
Crissy Field	202.4, 202.5	03/07	0.08	03/24	0.04
Aquatic Park	210.1, 211	03/15	0.27	03/28	0.11
Mission Creek	220	03/16	0.08	03/29	0.03
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	03/18	0.02		
Islais Creek	320				

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to Covid-19 restrictions

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
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TTY 415.554.3488

April 29, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: March 2020 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of March 2020 for the Southeast Water Pollution Control Plant (SEP).

In response to the outbreak of the Novel Coronavirus 2019 (COVID-19) in the general public, which is now a pandemic according to the World Health Organization, the City and County of San Francisco initiated (and has since extended) a shelter-in-place order that began on March 17, 2020. The order and associated social distancing requirements have necessitated major changes to the operations of wastewater facilities that may affect the SFPUC's ability to comply with NPDES permit requirements. Operational changes continue to be made day to day in accordance with updates to federal, state, and local requirements and guidance.

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period with the exception of acute toxicity.

Monthly dry weather acute toxicity testing was performed for the periods of March 2-6 and March 9-13. Both the March 2-6 test result of 25% survival and the subsequent March 9-13 test result of 50% survival did not meet the 11-sample 90th percentile limitation of 70% survival, as shown in the following table.

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Flow-through Bioassay Test Date	Result (% Survival)	11-Sample Median	11-Sample 90th percentile
June 3-7, 2019	60%		
June 28 - July 2, 2019	100%		
July 8-12, 2019	95%		
August 5-9, 2019	100%		
September 17-21, 2019	85%		
October 15-19, 2019	95%		
November 14-18, 2019	100%		
December 31, 2019 - January 4, 2020	85%		
January 6-10, 2020	100%		
February 3-7, 2020	90%		
March 2-6, 2020	**25%**	**95%**	**60%**
March 9-13, 2020	**50%**	**95%**	**50%**

As part of our ongoing investigations into the role of ammonia in the intermittently observed acute toxicity, both March tests were run in parallel with (1) a pH-adjusted flow-through test, (2) a pH-adjusted static renewal test, and (3) a static renewal test with unadjusted pH. Significant mortality was observed in all test exposures except for the pH-adjusted static renewal test, which had 100% survival. Neither plant operations nor the results of the chemistry analyses performed on the test samples indicated anything unusual that could be contributing to observed mortality.

As communicated to case manager Sam Plummer on March 23, accelerated monitoring was discontinued due staff limitations resulting from the COVD-19 the shelter-in-place order.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as described in the Wet Weather Summary.

System Operations of Wet Weather Facilities. The operation of wet weather facilities during the storm event was conducted consistent with the requirements in NPDES permit Provision VI.C.5.c.i. - VI.C.5.c.iv.

Wet Weather Monitoring. The Bayside system experienced wet weather days on March 14. Required monitoring occurred at EFF-001B, EFF-002, and EFF-003. Wet weather enterococcus and fecal coliform samples were not collected at EFF-001B on March 14 because sampling is only required when discharges are occurring between 4 am and 2 pm per NPDES permit Table E-4 footnote [4]. This time frame is paramount to ensure that wet weather bacteria samples are collected on time for laboratory analyses (i.e., for analyses to occur during business hours). SEP did not start discharging primary-treated effluent until after 2 pm (see footnote [4] of NPDES permit Table E-4).

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit, except for at E-210.1 (Aquatic Park - Hyde Street Pier). This shoreline monitoring location was not accessible (i.e., locked gate and blocked entrance) starting March 17 due to the COVID-19 shelter-in-place order.

If you have any questions concerning this report, please contact Operations Superintendent, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Superintendent, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2019-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1590.14	1480.55	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1610.00	1467.17	19.38	0	0.00	0.00	0	0.00
September	0.05	0.00	0.00	0	0.00	0.09	1548.19	1435.13	0.00	0	0.00	0.02	0	0.00
October	0.00	0.00	0.06	0	0.00	0.00	1605.77	1473.30	0.00	0	0.00	0.00	0	0.00
November	1.09	52.49	39.53	0	0.00	1.28	1720.74	1536.76	84.0	1	71.74	1.33	0	0.00
December	6.02	258.07	204.21	1	3.23	4.41	2620.59	2167.34	307.12	2	88.0	4.93	0	0.00
January	2.26	79.78	61.10	1	0.82	2.18	2070.50	1832.69	107.71	1	161.81	2.12	0	0.00
February	0.00	0.00	0.00	0	0.00	0.00	1546.75	1392.89	0.00	0	0.00	0.00	0	0.00
March	1.67	34.17	26.29	0	0.00	0.63	1793.53	1604.39	40.79	0	0.00	1.08	0	0.00
April														
May														
June														
TOTAL	11.09	424.51	331.19	2	4.05	8.59	16106.22	14390.22	559.01	4	321.55	9.48	0	0.00

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for March-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.RO01	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
3/1/2020	0.00	0.00	0.00			0.00	50.76	45.62	0.00			0.00		
3/2/2020	0.00	0.00	0.00			0.00	50.71	46.04	0.00			0.00		
3/3/2020	0.00	0.00	0.00			0.00	54.11	49.35	0.00			0.00		
3/4/2020	0.00	0.00	0.00			0.00	51.81	46.22	0.00			0.00		
3/5/2020	0.00	0.00	0.00			0.00	53.12	48.23	0.00			0.00		
3/6/2020	0.00	0.00	0.00			0.00	58.23	52.05	0.00			0.00		
3/7/2020	0.24	0.00	0.00			0.08	70.30	64.10	0.00			0.14		
3/8/2020	0.00	0.00	0.00			0.00	55.47	51.24	0.00			0.00		
3/9/2020	0.00	0.00	0.00			0.00	53.93	48.97	0.00			0.00		
3/10/2020	0.00	0.00	0.00			0.00	52.22	45.83	0.00			0.00		
3/11/2020	0.00	0.00	0.00			0.00	50.60	46.44	0.00			0.00		
3/12/2020	0.00	0.00	0.00			0.00	53.16	48.54	0.00			0.00		
3/13/2020	0.00	0.00	0.00			0.00	52.90	47.31	0.00			0.00		
3/14/2020	0.72	34.17	26.29			0.00	130.24	83.10	40.79			0.45		
3/15/2020	0.27	0.00	0.00			0.27	97.05	93.65	0.00			0.15		
3/16/2020	0.13	0.00	0.00			0.08	83.81	77.80	0.00			0.11		
3/17/2020	0.00	0.00	0.00			0.00	50.86	47.15	0.00			0.00		
3/18/2020	0.02	0.00	0.00			0.02	52.28	47.93	0.00			0.00		
3/19/2020	0.00	0.00	0.00			0.00	51.98	46.92	0.00			0.00		
3/20/2020	0.00	0.00	0.00			0.00	47.14	42.69	0.00			0.00		
3/21/2020	0.00	0.00	0.00			0.00	46.59	42.65	0.00			0.00		
3/22/2020	0.01	0.00	0.00			0.00	44.93	40.78	0.00			0.00		
3/23/2020	0.00	0.00	0.00			0.00	46.08	42.16	0.00			0.00		
3/24/2020	0.07	0.00	0.00			0.04	58.09	53.02	0.00			0.02		
3/25/2020	0.00	0.00	0.00			0.00	57.15	52.42	0.00			0.08		
3/26/2020	0.00	0.00	0.00			0.00	46.51	42.46	0.00			0.00		
3/27/2020	0.00	0.00	0.00			0.00	49.08	45.27	0.00			0.00		
3/28/2020	0.08	0.00	0.00			0.11	61.99	57.78	0.00			0.09		
3/29/2020	0.13	0.00	0.00			0.03	65.82	61.13	0.00			0.04		
3/30/2020	0.00	0.00	0.00			0.00	49.24	44.53	0.00			0.00		
3/31/2020	0.00	0.00	0.00			0.00	47.38	43.02	0.00			0.00		
TOTAL MONTHLY	1.67	34.17	26.29	0	0.00	0.63	1793.53	1604.39	40.79	0	0.00	1.08	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	34.17	26.29	-	-	-	57.86	51.75	40.79	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	44.93	40.78	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	34.17	26.29	-	-	-	130.24	93.65	40.79	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

1. SEP Influent flow data was anomalous on 3/14 and has been replaced with the sum of CHS Total Flow (SM3CHS_CTRL:CH_FY1.RO01), SEP 011 Total Flow (SP1RAW_WELL1:01FY7.RO01), BFS Sump 1 Flow (BF01XLA003-S1FLOW), and BFS Sump 2 Flow (BF01XLA003-S2FLOW).
2. There was recorded NPF influent that was stored and drained back to the CSS on 3/16, 3/17, 3/18, 3/19, and 3/20 and has been zeroed per confirmation from Operations.
3. There were SEP shutdowns on 3/26 from 12:30PM to 13:50PM and on 3/30 from 12:45PM to 13:35PM. BPS flow indication was lost during the 3/30 shutdown and was not estimated for the shutdown interval per confirmation from Ops.

North Shore Basin CSD Summary
Mar-2020

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2020	0.00																		
3/2/2020	0.00																		
3/3/2020	0.00																		
3/4/2020	0.00																		
3/5/2020	0.00																		
3/6/2020	0.00																		
3/7/2020	0.24																		
3/8/2020	0.00																		
3/9/2020	0.00																		
3/10/2020	0.00																		
3/11/2020	0.00																		
3/12/2020	0.00																		
3/13/2020	0.00																		
3/14/2020	0.72																		
3/15/2020	0.27																		
3/16/2020	0.13																		
3/17/2020	0.00																		
3/18/2020	0.02																		
3/19/2020	0.00																		
3/20/2020	0.00																		
3/21/2020	0.00																		
3/22/2020	0.01																		
3/23/2020	0.00																		
3/24/2020	0.07																		
3/25/2020	0.00																		
3/26/2020	0.00																		
3/27/2020	0.00																		
3/28/2020	0.08																		
3/29/2020	0.13																		
3/30/2020	0.00																		
3/31/2020	0.00																		
TOTAL	1.67	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #1 CSD Summary
Mar-2020

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2020	0.00																											
3/2/2020	0.00																											
3/3/2020	0.00																											
3/4/2020	0.00																											
3/5/2020	0.00																											
3/6/2020	0.00																											
3/7/2020	0.08																											
3/8/2020	0.00																											
3/9/2020	0.00																											
3/10/2020	0.00																											
3/11/2020	0.00																											
3/12/2020	0.00																											
3/13/2020	0.00																											
3/14/2020	0.00																											
3/15/2020	0.27																											
3/16/2020	0.08																											
3/17/2020	0.00																											
3/18/2020	0.02																											
3/19/2020	0.00																											
3/20/2020	0.00																											
3/21/2020	0.00																											
3/22/2020	0.00																											
3/23/2020	0.00																											
3/24/2020	0.04																											
3/25/2020	0.00																											
3/26/2020	0.00																											
3/27/2020	0.00																											
3/28/2020	0.11																											
3/29/2020	0.03																											
3/30/2020	0.00																											
3/31/2020	0.00																											
TOTAL	0.63	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #2 CSD Summary
Mar-2020

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2020	0.00																								
3/2/2020	0.00																								
3/3/2020	0.00																								
3/4/2020	0.00																								
3/5/2020	0.00																								
3/6/2020	0.00																								
3/7/2020	0.08																								
3/8/2020	0.00																								
3/9/2020	0.00																								
3/10/2020	0.00																								
3/11/2020	0.00																								
3/12/2020	0.00																								
3/13/2020	0.00																								
3/14/2020	0.00																								
3/15/2020	0.27																								
3/16/2020	0.08																								
3/17/2020	0.00																								
3/18/2020	0.02																								
3/19/2020	0.00																								
3/20/2020	0.00																								
3/21/2020	0.00																								
3/22/2020	0.00																								
3/23/2020	0.00																								
3/24/2020	0.04																								
3/25/2020	0.00																								
3/26/2020	0.00																								
3/27/2020	0.00																								
3/28/2020	0.11																								
3/29/2020	0.03																								
3/30/2020	0.00																								
3/31/2020	0.00																								
TOTAL	0.63	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Southeast Basin CSD Summary
Mar-2020

Date	GFS Rain Gauge Total (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
3/1/2020	0.00																		
3/2/2020	0.00																		
3/3/2020	0.00																		
3/4/2020	0.00																		
3/5/2020	0.00																		
3/6/2020	0.00																		
3/7/2020	0.14																		
3/8/2020	0.00																		
3/9/2020	0.00																		
3/10/2020	0.00																		
3/11/2020	0.00																		
3/12/2020	0.00																		
3/13/2020	0.00																		
3/14/2020	0.45																		
3/15/2020	0.15																		
3/16/2020	0.11																		
3/17/2020	0.00																		
3/18/2020	0.00																		
3/19/2020	0.00																		
3/20/2020	0.00																		
3/21/2020	0.00																		
3/22/2020	0.00																		
3/23/2020	0.00																		
3/24/2020	0.02																		
3/25/2020	0.08																		
3/26/2020	0.00																		
3/27/2020	0.00																		
3/28/2020	0.09																		
3/29/2020	0.04																		
3/30/2020	0.00																		
3/31/2020	0.00																		
TOTAL	1.08	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
April 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Mon/13	Tue/14	Wed/15	Mon/20	Mon/27
202.4	< 10			96			31	30
202.5	< 10			31			< 10	< 10
210.1	*			*			*	*
211	41			63			20	31
220	663			1130			909	727
300.1	241			714			181	1317
301.1	1565	4884	2603	**14136**	**11199**	1401	2187	5475
301.2	75			**10112**	266		487	1624
320	**> 24196**	**19863**	2098	1296			1014	1086

Sampling/Posting issues
Hyde St Pier (210.1) not accessible due to Covid-19 social distancing restrictions

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Mon/13	Tue/14	Wed/15	Mon/20	Mon/27
202.4	< 10			< 10			10	< 10
202.5	< 10			< 10			< 10	< 10
210.1	*			*			*	*
211	< 10			< 10			< 10	10
220	31			< 10			< 10	< 10
300.1	10			10			10	< 10
301.1	52	63	< 10	31	20	20	10	85
301.2	10			20	41		< 10	< 10
320	**984**	75	10	20			20	10

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/06	Tue/07	Wed/08	Mon/13	Tue/14	Wed/15	Mon/20	Mon/27
202.4	< 10			10			< 10	< 10
202.5	< 10			< 10			< 10	< 10
210.1	*			*			*	*
211	< 10			< 10			31	20
220	< 10			< 10			< 10	< 10
300.1	< 10			< 10			< 10	31
301.1	**134**	**108**	< 10	20	< 10	31	< 10	< 10
301.2	< 10			41	31		10	10
320	**496**	20	< 10	< 10			10	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	04/04 0.10
Aquatic Park	210.1, 211	04/05 0.44
Mission Creek	220	04/06 0.30
Candlestick Point State Recreation Area	300.1, 301.1, 301.2	
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to Covid-19 restrictions

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: R. Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

May 29, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: April 2020 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of April 2020 for the Southeast Water Pollution Control Plant (SEP).

In response to the outbreak of the Novel Coronavirus 2019 (COVID-19) in the general public, which is now a pandemic according to the World Health Organization, the City and County of San Francisco initiated (and has since extended) a shelter-in-place order that began on March 17, 2020. The order and associated social distancing requirements have necessitated major changes to the operations of wastewater facilities that may affect the SFPUC's ability to comply with NPDES permit requirements. Operational changes continue to be made day to day in accordance with updates to federal, state, and local requirements and guidance.

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit. During the week of April 5-11, dry weather monitoring at EFF-001A for Chemical Oxygen Demand (COD) and pH at the 5/Week required minimum sampling frequency was interrupted by wet weather. Effluent was monitored for COD more than five days during the week: monitoring at EFF-002 occurred on April 5-7 and monitoring at EFF-001A occurred on April 8-11. Effluent was monitored for pH five days during the week: monitoring

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

at EFF-002 occurred on April 6-7 and monitoring at EFF-001A occurred on April 8-10.

As communicated to case manager Sam Plummer on April 16, staff have initiated an alternative acute toxicity testing approach, which includes the April 26-30 test, due staff concerns regarding the exposure to the virus associated with the COVID-19 disease (SARS-CoV2).

Results Not Yet Available. As of May 28, pretreatment influent and effluent priority pollutant samples analyzed using EPA Methods 608 (PCBs and Organochlorine Pesticides), 624 (Volatile Organic Compounds), and 625 (Semi-volatile Organic Compounds) for samples collected on April 23 are not available. Results are anticipated to be reported in a monthly SMR once results are available.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as described in the Wet Weather Summary.

System Operations of Wet Weather Facilities.
The operation of wet weather facilities during the storm event was conducted consistent with the intent of the requirements in NPDES permit Provision VI.C.5.c.i. - VI.C.5.c.iv. During the early April storm event, the North Point Wet Weather Facility (NPF) was not activated when the level of combined wastewater in the North Shore Storage/Transport Box exceeded 200 inches because operators sought to provide to maximize the quality of treated wastewater by conveying wastewater to SEP for secondary treatment instead of to NPF for primary treatment. Operators closely tracked rain patterns and box levels as they reached a maximum of 310 inches, and operated pumping to prevent combined sewer discharges.

Wet Weather Monitoring. The Bayside system experienced wet weather days on April 5, 6, and 7. Required monitoring occurred at EFF-001B, EFF-002, and EFF-003. The following notes related to fecal indicator bacteria monitoring (see footnote [4] of NPDES permit Table E-4) being provided for clarity:

- On April 5-7, wet weather fecal indicator bacteria samples were collected at EFF-002 but not EFF-001B because SEP was discharging only secondary treated effluent, so the EFF-002 sample was representative of the effluent being discharged at both Discharge Points Nos. 001 and 002.

- On April 6-7, wet weather enterococcus samples were not collected at EFF-002 because sampling is only required when discharges are occurring between 4 am and 2 pm. This time frame is paramount to ensure that wet weather bacteria samples are collected on time for laboratory analyses (i.e., for analyses to occur during business hours). On April 6, wet weather flows at SEP ceased prior to 4am and began again after 2pm. On April 7, wet weather flows at SEP ceased prior to 4am.

For clarification, wet weather acute toxicity monitoring did not occur because it is required at EFF-001B and EFF-003, and both physical sampling locations did not experience discharges. Monitoring at EFF-001B occurs where primary-treated-only effluent is conveyed from the Primary Disinfection System (PDS); however, only secondary treated effluent was discharged during the monitoring period. Thus, no samples for acute toxicity were available for EFF-001B. Discharges did not occur at Discharge Point Nos. 003-006 (NPF) so monitoring was not conducted at EFF-003.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit, except for at E-210.1 (Aquatic Park - Hyde Street Pier). This shoreline monitoring location was not accessible (i.e., locked gate and blocked entrance) starting March 17 due to the COVID-19 shelter-in-place order.

If you have any questions concerning this report, please contact Operations Superintendent, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Superintendent, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2019-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.RO01	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1590.14	1480.55	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1610.00	1467.17	19.38	0	0.00	0.00	0	0.00
September	0.05	0.00	0.00	0	0.00	0.09	1548.19	1435.13	0.00	0	0.00	0.02	0	0.00
October	0.00	0.00	0.06	0	0.00	0.00	1605.77	1473.30	0.00	0	0.00	0.00	0	0.00
November	1.09	52.49	39.53	0	0.00	1.28	1720.74	1536.76	84.0	1	71.74	1.33	0	0.00
December	6.02	258.07	204.21	1	3.23	4.41	2620.59	2167.34	307.12	2	88.0	4.93	0	0.00
January	2.26	79.78	61.10	1	0.82	2.18	2070.50	1832.69	107.71	1	161.81	2.12	0	0.00
February	0.00	0.00	0.00	0	0.00	0.00	1546.75	1392.89	0.00	0	0.00	0.00	0	0.00
March	1.67	34.17	26.29	0	0.00	0.63	1793.53	1604.39	40.79	0	0.00	1.08	0	0.00
April	0.76	0.00	0.00	0	0.00	0.84	1577.01	1411.88	30.77	0	0.00	0.76	0	0.00
May														
June														
TOTAL	11.85	424.51	331.19	2	4.05	9.43	17683.23	15802.10	589.78	4	321.55	10.24	0	0.00

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for April-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
4/1/2020	0.00	0.00	0.00			0.00	42.45	37.26	0.00			0.00		
4/2/2020	0.00	0.00	0.00			0.00	46.19	42.35	0.00			0.00		
4/3/2020	0.00	0.00	0.00			0.00	50.65	47.23	0.00			0.00		
4/4/2020	0.05	0.00	0.00			0.10	68.09	63.50	0.00			0.05		
4/5/2020	0.43	0.00	0.00			0.44	118.85	94.49	18.29			0.43		
4/6/2020	0.28	0.00	0.00			0.30	101.25	85.16	10.20			0.28		
4/7/2020	0.00	0.00	0.00			0.00	69.05	62.54	2.28			0.00		
4/8/2020	0.00	0.00	0.00			0.00	49.20	42.84	0.00			0.00		
4/9/2020	0.00	0.00	0.00			0.00	54.80	48.61	0.00			0.00		
4/10/2020	0.00	0.00	0.00			0.00	47.49	42.32	0.00			0.00		
4/11/2020	0.00	0.00	0.00			0.00	49.18	43.30	0.00			0.00		
4/12/2020	0.00	0.00	0.00			0.00	47.82	43.36	0.00			0.00		
4/13/2020	0.00	0.00	0.00			0.00	47.96	43.26	0.00			0.00		
4/14/2020	0.00	0.00	0.00			0.00	44.87	41.34	0.00			0.00		
4/15/2020	0.00	0.00	0.00			0.00	38.10	34.63	0.00			0.00		
4/16/2020	0.00	0.00	0.00			0.00	51.55	46.07	0.00			0.00		
4/17/2020	0.00	0.00	0.00			0.00	49.73	45.59	0.00			0.00		
4/18/2020	0.00	0.00	0.00			0.00	45.04	41.16	0.00			0.00		
4/19/2020	0.00	0.00	0.00			0.00	46.45	42.56	0.00			0.00		
4/20/2020	0.00	0.00	0.00			0.00	49.14	44.07	0.00			0.00		
4/21/2020	0.00	0.00	0.00			0.00	45.45	40.86	0.00			0.00		
4/22/2020	0.00	0.00	0.00			0.00	46.80	42.32	0.00			0.00		
4/23/2020	0.00	0.00	0.00			0.00	45.29	41.58	0.00			0.00		
4/24/2020	0.00	0.00	0.00			0.00	45.05	41.12	0.00			0.00		
4/25/2020	0.00	0.00	0.00			0.00	46.95	43.53	0.00			0.00		
4/26/2020	0.00	0.00	0.00			0.00	45.57	41.41	0.00			0.00		
4/27/2020	0.00	0.00	0.00			0.00	47.28	43.48	0.00			0.00		
4/28/2020	0.00	0.00	0.00			0.00	46.68	43.11	0.00			0.00		
4/29/2020	0.00	0.00	0.00			0.00	44.83	41.21	0.00			0.00		
4/30/2020	0.00	0.00	0.00			0.00	45.24	41.62	0.00			0.00		
TOTAL MONTHLY	0.76	0.00	0.00	0	0.00	0.84	1577.01	1411.88	30.77	0	0.00	0.76	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	52.57	47.06	10.26	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	38.10	34.63	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	118.85	94.49	18.29	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

1. There was recorded NPF influent that was stored and drained back to the system on 4/3, 4,4, 4/5, 4/11, 4/12, and 4/30 that has been zeroed per confirmation from Operations.
2. There were SEP shutdowns on 4/15 from 05:00AM to 13:45PM and 4/16 from 00:30AM to 01:00AM.

North Shore Basin CSD Summary
Apr-2020

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2020	0.00																		
4/2/2020	0.00																		
4/3/2020	0.00																		
4/4/2020	0.05																		
4/5/2020	0.43																		
4/6/2020	0.28																		
4/7/2020	0.00																		
4/8/2020	0.00																		
4/9/2020	0.00																		
4/10/2020	0.00																		
4/11/2020	0.00																		
4/12/2020	0.00																		
4/13/2020	0.00																		
4/14/2020	0.00																		
4/15/2020	0.00																		
4/16/2020	0.00																		
4/17/2020	0.00																		
4/18/2020	0.00																		
4/19/2020	0.00																		
4/20/2020	0.00																		
4/21/2020	0.00																		
4/22/2020	0.00																		
4/23/2020	0.00																		
4/24/2020	0.00																		
4/25/2020	0.00																		
4/26/2020	0.00																		
4/27/2020	0.00																		
4/28/2020	0.00																		
4/29/2020	0.00																		
4/30/2020	0.00																		
1/0/1900	0.00																		
TOTAL	0.76	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #1 CSD Summary
Apr-2020

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2020	0.00																											
4/2/2020	0.00																											
4/3/2020	0.00																											
4/4/2020	0.10																											
4/5/2020	0.44																											
4/6/2020	0.30																											
4/7/2020	0.00																											
4/8/2020	0.00																											
4/9/2020	0.00																											
4/10/2020	0.00																											
4/11/2020	0.00																											
4/12/2020	0.00																											
4/13/2020	0.00																											
4/14/2020	0.00																											
4/15/2020	0.00																											
4/16/2020	0.00																											
4/17/2020	0.00																											
4/18/2020	0.00																											
4/19/2020	0.00																											
4/20/2020	0.00																											
4/21/2020	0.00																											
4/22/2020	0.00																											
4/23/2020	0.00																											
4/24/2020	0.00																											
4/25/2020	0.00																											
4/26/2020	0.00																											
4/27/2020	0.00																											
4/28/2020	0.00																											
4/29/2020	0.00																											
4/30/2020	0.00																											
1/0/1900	0.00																											
TOTAL	0.84	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #2 CSD Summary
Apr-2020

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
4/1/2020	0.00																								
4/2/2020	0.00																								
4/3/2020	0.00																								
4/4/2020	0.10																								
4/5/2020	0.44																								
4/6/2020	0.30																								
4/7/2020	0.00																								
4/8/2020	0.00																								
4/9/2020	0.00																								
4/10/2020	0.00																								
4/11/2020	0.00																								
4/12/2020	0.00																								
4/13/2020	0.00																								
4/14/2020	0.00																								
4/15/2020	0.00																								
4/16/2020	0.00																								
4/17/2020	0.00																								
4/18/2020	0.00																								
4/19/2020	0.00																								
4/20/2020	0.00																								
4/21/2020	0.00																								
4/22/2020	0.00																								
4/23/2020	0.00																								
4/24/2020	0.00																								
4/25/2020	0.00																								
4/26/2020	0.00																								
4/27/2020	0.00																								
4/28/2020	0.00																								
4/29/2020	0.00																								
4/30/2020	0.00																								
1/0/1900	0.00																								
TOTAL	0.84	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
May 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Tue/26
202.4	< 10				< 10	< 10		20
202.5	< 10				10	74		30
210.1	*				*	*		*
211	20				< 10	41		10
220	*				496	1314		554
300.1	199				4352	554		5938
301.1	7701	8664	**12997**	1515	7701	**10462**	3076	5475
301.2	109				801	161		4106
320	512				624	1246		728

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Tue/26
202.4	< 10				< 10	< 10		< 10
202.5	< 10				< 10	< 10		< 10
210.1	*				*	*		*
211	< 10				< 10	20		10
220	*				20	10		10
300.1	20				253	52		10
301.1	**1670**	**714**	**414**	10	211	305	119	75
301.2	< 10				30	10		20
320	< 10				30	31		20

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/04	Tue/05	Wed/06	Thu/07	Mon/11	Mon/18	Tue/19	Tue/26
202.4	< 10				< 10	< 10		< 10
202.5	10				< 10	10		< 10
210.1	*				*	*		*
211	< 10				< 10	< 10		52
220	*				< 10	< 10		< 10
300.1	< 10				52	10		< 10
301.1	< 10	41	< 10	20	10	10	< 10	< 10
301.2	< 10				10	< 10		< 10
320	< 10				< 10	10		< 10

Sampling/Posting issues
Mission Creek (220) on 5/4/20 and Hyde St Pier (210.1) not accessible due to Covid-19 social distancing restrictions

Table 4. Beaches/Stations/Rainfall

Beaches	Stations	Rainfall (in.)
Crissy Field	202.4, 202.5	05/12 0.04
Aquatic Park	210.1, 211	05/14 0.02
Mission Creek	220	05/15 0.01
Candlestick Point	300.1, 301.1, 301.2	05/17 0.25
State Recreation Area		05/18 0.03
Islais Creek	320	

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to Covid-19 restrictions

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

Reviewed by: Ross Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

June 22, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: May 2020 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of May 2020 for the Southeast Water Pollution Control Plant (SEP).

In response to the outbreak of the Novel Coronavirus 2019 (COVID-19) in the general public, which is now a pandemic according to the World Health Organization, the City and County of San Francisco initiated (and has since extended) a shelter-in-place order that began on March 17, 2020. The order and associated social distancing requirements have necessitated major changes to the operations of wastewater facilities that may affect the SFPUC's ability to comply with NPDES permit requirements. Operational changes continue to be made day to day in accordance with updates to federal, state, and local requirements and guidance.

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit.

As communicated to case manager Sam Plummer on April 16, staff have initiated an alternative acute toxicity testing approach, which includes the April 26-30 test, due staff concerns regarding the exposure to the virus associated with the COVID-19 disease (SARS-CoV2).

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit , except for at E-210.1 (Aquatic Park - Hyde Street Pier). This shoreline monitoring location was not accessible (i.e., locked gate) starting March 17 due to the COVID-19 shelter-in-place order. Monitoring at the (voluntary) location 220 was not conducted due to COVID-19 accessibility issues (i.e., locked gate at kayak pier).

If you have any questions concerning this report, please contact Operations Superintendent, Andrew Clark at (415) 920-4944 or aclark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Superintendent, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2019-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.RO01	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.RO01)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1590.14	1480.55	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1610.00	1467.17	19.38	0	0.00	0.00	0	0.00
September	0.05	0.00	0.00	0	0.00	0.09	1548.19	1435.13	0.00	0	0.00	0.02	0	0.00
October	0.00	0.00	0.06	0	0.00	0.00	1605.77	1473.30	0.00	0	0.00	0.00	0	0.00
November	1.09	52.49	39.53	0	0.00	1.28	1720.74	1536.76	84.0	1	71.74	1.33	0	0.00
December	6.02	258.07	204.21	1	3.23	4.41	2620.59	2167.34	307.12	2	88.0	4.93	0	0.00
January	2.26	79.78	61.10	1	0.82	2.18	2070.50	1832.69	107.71	1	161.81	2.12	0	0.00
February	0.00	0.00	0.00	0	0.00	0.00	1546.75	1392.89	0.00	0	0.00	0.00	0	0.00
March	1.67	34.17	26.29	0	0.00	0.63	1793.53	1604.39	40.79	0	0.00	1.08	0	0.00
April	0.76	0.00	0.00	0	0.00	0.84	1577.01	1411.88	30.77	0	0.00	0.76	0	0.00
May	0.41	0.00	0.00	0	0.00	0.35	1470.98	1367.30	0.00	0	0.00	0.41	0	0.00
June														
TOTAL	12.26	424.51	331.19	2	4.05	9.78	19154.21	17169.40	589.78	4	321.55	10.65	0	0.00

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for May-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
5/1/2020	0.00	0.00	0.00			0.00	45.49	42.07	0.00			0.00		
5/2/2020	0.00	0.00	0.00			0.00	43.15	39.74	0.00			0.00		
5/3/2020	0.00	0.00	0.00			0.00	44.13	40.43	0.00			0.00		
5/4/2020	0.00	0.00	0.00			0.00	46.04	41.97	0.00			0.00		
5/5/2020	0.00	0.00	0.00			0.00	48.62	45.09	0.00			0.00		
5/6/2020	0.00	0.00	0.00			0.00	24.97	23.01	0.00			0.00		
5/7/2020	0.00	0.00	0.00			0.00	59.14	53.11	0.00			0.00		
5/8/2020	0.00	0.00	0.00			0.00	52.08	48.51	0.00			0.00		
5/9/2020	0.00	0.00	0.00			0.00	43.54	40.32	0.00			0.00		
5/10/2020	0.00	0.00	0.00			0.00	49.04	45.79	0.00			0.00		
5/11/2020	0.00	0.00	0.00			0.00	49.97	47.11	0.00			0.00		
5/12/2020	0.02	0.00	0.00			0.04	50.74	47.90	0.00			0.02		
5/13/2020	0.00	0.00	0.00			0.00	45.51	42.78	0.00			0.00		
5/14/2020	0.01	0.00	0.00			0.02	50.76	48.04	0.00			0.01		
5/15/2020	0.01	0.00	0.00			0.01	48.37	45.59	0.00			0.01		
5/16/2020	0.00	0.00	0.00			0.00	48.68	45.34	0.00			0.00		
5/17/2020	0.29	0.00	0.00			0.25	74.52	70.21	0.00			0.29		
5/18/2020	0.08	0.00	0.00			0.03	59.67	56.88	0.00			0.08		
5/19/2020	0.00	0.00	0.00			0.00	46.69	43.42	0.00			0.00		
5/20/2020	0.00	0.00	0.00			0.00	45.48	42.10	0.00			0.00		
5/21/2020	0.00	0.00	0.00			0.00	45.08	41.29	0.00			0.00		
5/22/2020	0.00	0.00	0.00			0.00	42.07	37.90	0.00			0.00		
5/23/2020	0.00	0.00	0.00			0.00	41.39	37.87	0.00			0.00		
5/24/2020	0.00	0.00	0.00			0.00	50.74	47.08	0.00			0.00		
5/25/2020	0.00	0.00	0.00			0.00	43.52	40.36	0.00			0.00		
5/26/2020	0.00	0.00	0.00			0.00	48.33	45.14	0.00			0.00		
5/27/2020	0.00	0.00	0.00			0.00	30.86	28.84	0.00			0.00		
5/28/2020	0.00	0.00	0.00			0.00	55.21	51.63	0.00			0.00		
5/29/2020	0.00	0.00	0.00			0.00	46.05	42.29	0.00			0.00		
5/30/2020	0.00	0.00	0.00			0.00	42.82	40.06	0.00			0.00		
5/31/2020	0.00	0.00	0.00			0.00	48.31	45.41	0.00			0.00		
TOTAL MONTHLY	0.41	0.00	0.00	0	0.00	0.35	1470.98	1367.30	0.00	0	0.00	0.41	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	47.45	44.11	0.00	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	24.97	23.01	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	74.52	70.21	0.00	-	-	-	-	-
* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system														

NOTES

1. On 5/6/2020, SEP shutdown from 6 am to 4 pm - Confirmed by WWE Ops
2. On 5/27/2020, SEP shutdown from 5am to 3pm - Confirmed by WWE Ops

North Shore Basin CSD Summary
May-2020

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2020	0.00																		
5/2/2020	0.00																		
5/3/2020	0.00																		
5/4/2020	0.00																		
5/5/2020	0.00																		
5/6/2020	0.00																		
5/7/2020	0.00																		
5/8/2020	0.00																		
5/9/2020	0.00																		
5/10/2020	0.00																		
5/11/2020	0.00																		
5/12/2020	0.02																		
5/13/2020	0.00																		
5/14/2020	0.01																		
5/15/2020	0.01																		
5/16/2020	0.00																		
5/17/2020	0.29																		
5/18/2020	0.08																		
5/19/2020	0.00																		
5/20/2020	0.00																		
5/21/2020	0.00																		
5/22/2020	0.00																		
5/23/2020	0.00																		
5/24/2020	0.00																		
5/25/2020	0.00																		
5/26/2020	0.00																		
5/27/2020	0.00																		
5/28/2020	0.00																		
5/29/2020	0.00																		
5/30/2020	0.00																		
5/31/2020	0.00																		
TOTAL	0.41	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #1 CSD Summary
May-2020

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2020	0.00																											
5/2/2020	0.00																											
5/3/2020	0.00																											
5/4/2020	0.00																											
5/5/2020	0.00																											
5/6/2020	0.00																											
5/7/2020	0.00																											
5/8/2020	0.00																											
5/9/2020	0.00																											
5/10/2020	0.00																											
5/11/2020	0.00																											
5/12/2020	0.04																											
5/13/2020	0.00																											
5/14/2020	0.02																											
5/15/2020	0.01																											
5/16/2020	0.00																											
5/17/2020	0.25																											
5/18/2020	0.03																											
5/19/2020	0.00																											
5/20/2020	0.00																											
5/21/2020	0.00																											
5/22/2020	0.00																											
5/23/2020	0.00																											
5/24/2020	0.00																											
5/25/2020	0.00																											
5/26/2020	0.00																											
5/27/2020	0.00																											
5/28/2020	0.00																											
5/29/2020	0.00																											
5/30/2020	0.00																											
5/31/2020	0.00																											
TOTAL	0.35	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #2 CSD Summary
May-2020

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2020	0.00																								
5/2/2020	0.00																								
5/3/2020	0.00																								
5/4/2020	0.00																								
5/5/2020	0.00																								
5/6/2020	0.00																								
5/7/2020	0.00																								
5/8/2020	0.00																								
5/9/2020	0.00																								
5/10/2020	0.00																								
5/11/2020	0.00																								
5/12/2020	0.04																								
5/13/2020	0.00																								
5/14/2020	0.02																								
5/15/2020	0.01																								
5/16/2020	0.00																								
5/17/2020	0.25																								
5/18/2020	0.03																								
5/19/2020	0.00																								
5/20/2020	0.00																								
5/21/2020	0.00																								
5/22/2020	0.00																								
5/23/2020	0.00																								
5/24/2020	0.00																								
5/25/2020	0.00																								
5/26/2020	0.00																								
5/27/2020	0.00																								
5/28/2020	0.00																								
5/29/2020	0.00																								
5/30/2020	0.00																								
5/31/2020	0.00																								
TOTAL	0.35	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Southeast Basin CSD Summary
May-2020

Date	GFS Rain Gauge Total (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
5/1/2020	0.00																		
5/2/2020	0.00																		
5/3/2020	0.00																		
5/4/2020	0.00																		
5/5/2020	0.00																		
5/6/2020	0.00																		
5/7/2020	0.00																		
5/8/2020	0.00																		
5/9/2020	0.00																		
5/10/2020	0.00																		
5/11/2020	0.00																		
5/12/2020	0.02																		
5/13/2020	0.00																		
5/14/2020	0.01																		
5/15/2020	0.01																		
5/16/2020	0.00																		
5/17/2020	0.29																		
5/18/2020	0.08																		
5/19/2020	0.00																		
5/20/2020	0.00																		
5/21/2020	0.00																		
5/22/2020	0.00																		
5/23/2020	0.00																		
5/24/2020	0.00																		
5/25/2020	0.00																		
5/26/2020	0.00																		
5/27/2020	0.00																		
5/28/2020	0.00																		
5/29/2020	0.00																		
5/30/2020	0.00																		
5/31/2020	0.00																		
TOTAL	0.41	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

City and County of San Francisco
SFPUC Wastewater Enterprise
Monthly Bay Shoreline Bacteriological Report
June 2020

Table 1. Total Coliform Bacteria (MPN) single sample criterion **≥10,000** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/09	Mon/15	Tue/16	Mon/22	Mon/29
202.4	52	41		2187	52	41	31
202.5	20	41		63	10	20	41
210.1	*	*		*		*	*
211	85	52		10		98	41
220	284	435		379		285	231
300.1	4352	1267		1374		326	315
301.1	1334	7701		6488	591	3873	981
301.2	278	**> 24196**	381	97		395	142
320	520	4106		97		794	399

Sampling/Posting issues
Hyde St Pier (210.1) not accessible due to Covid-19 social distancing restrictions

Table 2. *E. coli* Bacteria (MPN) single sample criterion **≥400** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/09	Mon/15	Tue/16	Mon/22	Mon/29
202.4	< 10	< 10		< 10	< 10	< 10	< 10
202.5	< 10	< 10		< 10	< 10	< 10	10
210.1	*	*		*		*	*
211	75	< 10		< 10		20	10
220	41	< 10		< 10		< 10	< 10
300.1	132	52		41		< 10	52
301.1	41	131		**738**	20	173	41
301.2	10	< 10	171	< 10		10	10
320	20	20		10		96	52

Table 3. Enterococcus Bacteria (MPN) single sample criterion **≥104** MPN/100 mL[1]

Location	Mon/01	Mon/08	Tue/09	Mon/15	Tue/16	Mon/22	Mon/29
202.4	< 10	10		**6488**	< 10	10	< 10
202.5	< 10	< 10		**269**	< 10	< 10	< 10
210.1	*	*		*		*	*
211	10	< 10		< 10		< 10	10
220	< 10	< 10		< 10		< 10	< 10
300.1	< 10	< 10		20		< 10	< 10
301.1	< 10	20		10	< 10	< 10	10
301.2	10	< 10	10	< 10		< 10	< 10
320	10	< 10		< 10		30	< 10

Table 4. Beaches/Stations/Rainfall

Beaches	Stations
Crissy Field	202.4, 202.5
Aquatic Park	210.1, 211
Mission Creek	220
Candlestick Point State Recreation Area	300.1, 301.1, 301.2
Islais Creek	320

Rainfall (in.)
None

STATION POSTED due to elevated bacteria count
STATION POSTED due to Combined Sewer Discharge
* Station not accessible due to Covid-19 restrictions

[1]A full description of posting criteria can be found at http://beaches.sfwater.org (click on Read More)

 Reviewed by: R Duggan

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

July 29, 2020

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: NPDES Wastewater Division

SUBJECT: June 2020 Self-Monitoring Report for the Southeast Water Pollution Control Plant [NPDES No. CA0037664] Regional Water Quality Control Board Order No. R2-2013-0029

To Whom It May Concern:

Transmitted herewith is the self-monitoring report (SMR) for the month of June 2020 for the Southeast Water Pollution Control Plant (SEP).

In response to the outbreak of the Novel Coronavirus 2019 (COVID-19) in the general public, which is now a pandemic according to the World Health Organization, the City and County of San Francisco initiated (and has since extended) a shelter-in-place order that began on March 17, 2020. The order and associated social distancing requirements have necessitated major changes to the operations of wastewater facilities that may affect the SFPUC's ability to comply with NPDES permit requirements. Operational changes continue to be made day to day in accordance with updates to federal, state, and local requirements and guidance.

Compliance with Effluent Limitations. Compliance with effluent limitations was achieved during this monitoring period.

Compliance with Monitoring Requirements. Dry weather compliance monitoring was completed as required by the NPDES permit. As communicated to case manager Sam Plummer on April 16, staff have initiated an alternative acute toxicity testing approach, which includes the April 26-30 test, due to staff concerns regarding the exposure to the virus associated with the COVID-19 disease (SARS-CoV2).

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

Discharge Incidents. As reported in a discharge report submitted June 22, on June 10-12, secondary treated and disinfected wastewater was discharged to San Francisco Bay from the SEP final effluent outfall pipe at a point approximately 470 feet upstream of Discharge Point No. 001. The discharge resulted from construction activities related to replacing a vent pipe section. The leak was identified on June 11, and the construction contractor repaired it using hydrophilic waterstop on June 12. The repair areas were monitored for several days after the repairs to confirm that the leak had been successfully repaired.

Wet Weather Operations and Monitoring. Below is a brief summary of activities related to the wet weather performance of SEP and the Bayside wet weather facilities.

Combined Sewer Discharge Summary. There were no combined sewer discharges during this monitoring period as described in the Wet Weather Summary.

Shoreline Monitoring and Posting. Shoreline monitoring and posting were conducted consistent with the requirements in the NPDES permit, except for at E-210.1 (Aquatic Park - Hyde Street Pier). This shoreline monitoring location was not accessible (i.e., locked gate) starting March 17 due to the COVID-19 shelter-in-place order. Monitoring at the (voluntary) location 220 was not conducted due to COVID-19 accessibility issues (i.e., locked gate at kayak pier).

If you have any questions concerning this report, please contact Operations Superintendent, Andrew Clark at (415) 920-4944 or AClark@sfwater.org; or Regulatory Manager, Amy Chastain at (415) 554-1683 or AChastain@sfwater.org.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Andrew Clark
Operations Superintendent, Wastewater Enterprise

Annual Wet Weather Summary - North Shore, Central and Southeast Basins for 2019-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
MONTH\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
July	0.00	0.00	0.00	0	0.00	0.00	1590.14	1480.55	0.00	0	0.00	0.00	0	0.00
August	0.00	0.00	0.00	0	0.00	0.00	1610.00	1467.17	19.38	0	0.00	0.00	0	0.00
September	0.05	0.00	0.00	0	0.00	0.09	1548.19	1435.13	0.00	0	0.00	0.02	0	0.00
October	0.00	0.00	0.06	0	0.00	0.00	1605.77	1473.30	0.00	0	0.00	0.00	0	0.00
November	1.09	52.49	39.53	0	0.00	1.28	1720.74	1536.76	84.0	1	71.74	1.33	0	0.00
December	6.02	258.07	204.21	1	3.23	4.41	2620.59	2167.34	307.12	2	88.0	4.93	0	0.00
January	2.26	79.78	61.10	1	0.82	2.18	2070.50	1832.69	107.71	1	161.81	2.12	0	0.00
February	0.00	0.00	0.00	0	0.00	0.00	1546.75	1392.89	0.00	0	0.00	0.00	0	0.00
March	1.67	34.17	26.29	0	0.00	0.63	1793.53	1604.39	40.79	0	0.00	1.08	0	0.00
April	0.76	0.00	0.00	0	0.00	0.84	1577.01	1411.88	30.77	0	0.00	0.76	0	0.00
May	0.41	0.00	0.00	0	0.00	0.35	1470.98	1367.30	0.00	0	0.00	0.41	0	0.00
June	0.00	0.00	0.00	0	0.00	0.00	1367.91	1269.90	0.00	0	0.00	0.00	0	0.00
TOTAL	12.26	424.51	331.19	2	4.05	9.78	20522.12	18439.30	589.78	4	321.55	10.65	0	0.00

Monthly Wet Weather Summary - North Shore, Central and Southeast Basins for June-2020

DRAINAGE BASIN	NORTH SHORE					CENTRAL						SOUTHEAST		
Metrics	Rainfall	Treatment Plant Influent	Treatment Plant Effluent	Combined Sewer Discharges		Rainfall	Treatment Plant Influent	Treatment Plant Effluent		Combined Sewer Discharges		Rainfall	Combined Sewer Discharges	
Location Name	Total 24-hour rain	INF-002	EFF-003	CSD 009 - 017		Total 24-hr rain	INF-001	EFF-001	EFF-002	CSD 018-035		Total 24-hr rain	CSD 037 - 043	
Location Description	NPF Rain Gauge	NPF Influent*	NPF Effluent	# of CSD Events	CSD Volume	SEP Rain Gauge	SEP Influent	Deep Water Outfall	Islais Creek Outfall	# of CSD Events	CSD Volume	GFS Rain Gauge	# of CSD Events	CSD Volume
Data Tag	TELOG:RG35_NSS.Intensity	SM4NSS1_ANAL:NS_FT1.PNT	SM4NSS1_ANAL:NS_FI10.MEAS	-	-	SM1RAIN_GA:930TQ200A.PNT	SP1RAW_WELL1:01FY900.R001	Upto 110 MGD of Total Plant Effluent (SK1MISC:30FY901A.R001)	Total Plant Effluent (SK1MISC:30FY901A.RO01) - Deep Water Outfall	-	-	TELOG:RG21_GFS.Intensity	-	-
DAY\UNIT	INCHES	MG	MG	-	MG	INCHES	MG	MG	MG	-	MG	INCHES	-	MG
6/1/2020	0.00	0.00	0.00			0.00	46.28	43.65	0.00			0.00		
6/2/2020	0.00	0.00	0.00			0.00	46.90	44.46	0.00			0.00		
6/3/2020	0.00	0.00	0.00			0.00	40.55	38.00	0.00			0.00		
6/4/2020	0.00	0.00	0.00			0.00	48.27	45.94	0.00			0.00		
6/5/2020	0.00	0.00	0.00			0.00	42.56	40.63	0.00			0.00		
6/6/2020	0.00	0.00	0.00			0.00	41.39	39.22	0.00			0.00		
6/7/2020	0.00	0.00	0.00			0.00	48.15	45.56	0.00			0.00		
6/8/2020	0.00	0.00	0.00			0.00	48.55	46.23	0.00			0.00		
6/9/2020	0.00	0.00	0.00			0.00	46.98	43.86	0.00			0.00		
6/10/2020	0.00	0.00	0.00			0.00	22.69	20.57	0.00			0.00		
6/11/2020	0.00	0.00	0.00			0.00	68.35	64.75	0.00			0.00		
6/12/2020	0.00	0.00	0.00			0.00	42.65	38.97	0.00			0.00		
6/13/2020	0.00	0.00	0.00			0.00	46.15	43.32	0.00			0.00		
6/14/2020	0.00	0.00	0.00			0.00	47.74	45.57	0.00			0.00		
6/15/2020	0.00	0.00	0.00			0.00	45.47	41.51	0.00			0.00		
6/16/2020	0.00	0.00	0.00			0.00	44.48	41.93	0.00			0.00		
6/17/2020	0.00	0.00	0.00			0.00	46.78	44.23	0.00			0.00		
6/18/2020	0.00	0.00	0.00			0.00	42.43	39.95	0.00			0.00		
6/19/2020	0.00	0.00	0.00			0.00	42.95	39.80	0.00			0.00		
6/20/2020	0.00	0.00	0.00			0.00	44.37	41.25	0.00			0.00		
6/21/2020	0.00	0.00	0.00			0.00	49.96	45.06	0.00			0.00		
6/22/2020	0.00	0.00	0.00			0.00	46.86	42.77	0.00			0.00		
6/23/2020	0.00	0.00	0.00			0.00	48.43	41.50	0.00			0.00		
6/24/2020	0.00	0.00	0.00			0.00	47.96	43.64	0.00			0.00		
6/25/2020	0.00	0.00	0.00			0.00	45.48	41.92	0.00			0.00		
6/26/2020	0.00	0.00	0.00			0.00	43.35	39.40	0.00			0.00		
6/27/2020	0.00	0.00	0.00			0.00	40.80	37.09	0.00			0.00		
6/28/2020	0.00	0.00	0.00			0.00	49.61	46.17	0.00			0.00		
6/29/2020	0.00	0.00	0.00			0.00	46.64	42.92	0.00			0.00		
6/30/2020	0.00	0.00	0.00			0.00	45.13	40.04	0.00			0.00		
TOTAL MONTHLY	0.00	0.00	0.00	0	0.00	0.00	1367.91	1269.90	0.00	0	0.00	0.00	0	0.00
MONTHLY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	45.60	42.33	0.00	-	-	-	-	-
MINIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	22.69	20.57	0.00	-	-	-	-	-
MAXIMUM DAILY AVERAGE FLOW (MGD)	-	0.00	0.00	-	-	-	68.35	64.75	0.00	-	-	-	-	-

* Includes upto 6 MG of flows stored at the treatment facility and drained back to combined sewer system

NOTES

1. On 6/10/20, SEP shutdown from 5:00am to 9:45pm - confirmed by Operations
2. On 6/12, SEP shutdown from 7:17am to 1:44pm - confirmed by Operations

North Shore Basin CSD Summary
Jun-2020

Date	NPF Rain Gauge Total (inches)	CSD #9 Baker Street			CSD #10 Pierce Street			CSD #11 Laguna Street			CSD #13 Beach Street			CSD #15 Sansome Street			CSD #17 Jackson Street		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
6/1/2020	0.00																		
6/2/2020	0.00																		
6/3/2020	0.00																		
6/4/2020	0.00																		
6/5/2020	0.00																		
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6/7/2020	0.00																		
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6/9/2020	0.00																		
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6/27/2020	0.00																		
6/28/2020	0.00																		
6/29/2020	0.00																		
6/30/2020	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #1 CSD Summary
Jun-2020

Date	SEP Rain Gauge Total (inches)	CSD #18 Howard Street			CSD #19 Brannan Street			CSD #22 Third Street			CSD #23 Fourth Street North			CSD #24 Fifth Street North			CSD #25 Sixth Street North			CSD #26 Division Street			CSD #27 Sixth Street South			CSD #28 Fourth Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
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6/29/2020	0.00																											
6/30/2020	0.00																											
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Central Basin #2 CSD Summary
Jun-2020

Date	SEP Rain Gauge Total (inches)	CSD #29 Mariposa Street			CSD #30 20th Street			CSD #30A 22nd Street			CSD #31 Third Street North			CSD #31A Islais Creek North			CSD #32 Marin Street			CSD #33 Selby Street			CSD #35 Third Street South		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
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6/29/2020	0.00																								
6/30/2020	0.00																								
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

Southeast Basin CSD Summary
Jun-2020

Date	GFS Rain Gauge Total (inches)	CSD #37 Evans Avenue			CSD #38 Hudson Avenue			CSD #40 Griffith Street			CSD #41 Yosemite Avenue			CSD #42 Fitch Street			CSD #43 Sunnydale Avenue		
		Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow EFF-001 (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)	Time Started (hh:mm)	Event Duration (minutes)	Flow Volume (MG)
6/1/2020	0.00																		
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6/3/2020	0.00																		
6/4/2020	0.00																		
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6/18/2020	0.00																		
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6/27/2020	0.00																		
6/28/2020	0.00																		
6/29/2020	0.00																		
6/30/2020	0.00																		
TOTAL	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00	-	0	0.00

NOTES

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wastewater Enterprise
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
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June 22, 2020

Mr. Samuel Plummer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

SUBJECT: 5-Day Report for Discharge Treated Effluent from the Southeast Water Pollution Control Plant to an Unpermitted Location (NPDES CA0037664)

Dear Mr. Plummer:

As required by National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037664, Order No. R2-2013-0029, enclosed is information regarding two discharges of treated and disinfected wastewater from the Southeast Water Pollution Control Plant (SEP) final effluent outfall at locations upstream of Discharge Point 001. Both discharges were associated with the outfall's air vent pipe. One occurred intermittently between April 4, 2017 and June 25, 2019. The other began on June 10, 2020 and ended on June 12, 2020.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

George Engel
Operations Division Manager
Wastewater Enterprise
San Francisco Public Utilities Commission

London N. Breed Mayor
Ann Moller Caen President
Francesca Vietor Vice President
Anson Moran Commissioner
Sophie Maxwell Commissioner
Tim Paulson Commissioner
Harlan L. Kelly, Jr. General Manager

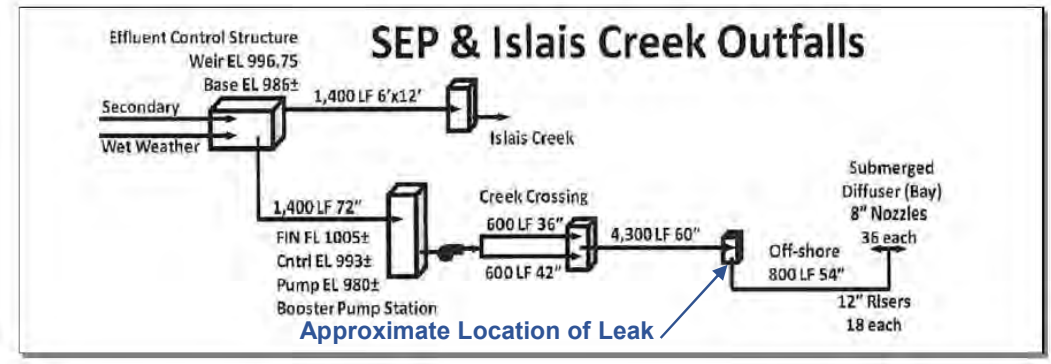
OUR MISSION: To provide our customers with high-quality, efficient and reliable water, power and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care.

ATTACHMENT: SEP Discharge Incident 5-Day Report
June 22, 2020

1. Discharge Incident Description and Cause

From approximately 9:00pm on June 10 through 7:15am on June 12, secondary treated and disinfected wastewater discharged to San Francisco Bay from the Southeast Water Pollution Control Plant (SEP) final effluent outfall, at a point approximately 470 feet upstream of Discharge Point No. 001. The discharge resulted from construction activities related to replacing a vent pipe section associated with the outfall. Specifically, the discharge occurred at the connection of the new vent pipe section and the offshore 54" outfall pipe when the connection grouting failed. More details are provided below.

A schematic of the outfall structure and approximate location of the leak is shown below.



The vent pipe allows air entrained in the outfall pipe to be released in the air above Pier 80. A section of the vent pipe is embedded in concrete just below the Pier 80 deck. The section where the vent pipe connects to the outfall is suspended under the Pier 80 deck. The work performed on June 10 was the last step in a multi-year scope of work related to replacement of both sections (embedded and suspended) of the vent pipe.

As described in a 5-day report submitted to the Regional Water Board on February 28, 2017, the SFPUC identified that a section of the vent pipe suspended under the Pier 80 deck had failed, allowing treated effluent to discharge to the Bay. The failed section of the pipe was replaced in March 2017. On April 4, 2017, divers under Pier 80 observed a small and intermittent discharge (figure shown at end) from the seawall at the point where the vent pipe exits the seawall; this was reported to the Regional Water Board in a 5-day report submitted on April 11, 2017. Because the vent pipe behind the seawall is embedded in concrete and not visible, SFPUC sought to confirm that it was coming from the vent pipe by increasing flows through the SEP outfall. After this test indicated that the discharge correlated to SEP flows greater than 90 mgd, the SFPUC proceeded to develop plans to replace the entire vent pipe structure. Planning, design, contracting and permitting of the vent pipe replacement occurred between discovery of the leak in 2017 through summer of 2019.

In the summer of 2019, the contractor completed several stages of work, including replacement of the portion of pipe embedded in the Pier 80 deck and replacing section of pipe suspended under Pier 80. This work addressed the cause of the intermittent discharge observed in 2017. The work remaining included connecting the new vent pipe to the outfall pipe, Installing two new sections of vent pipe, and demolishing portions of the old vent pipe and its tie-in to a manhole. Due to conflicts with shipping schedules, SEP shutdown windows, and tide cycles, this remaining work could not be completed until June 2020.

On June 10, 2020, the contractor commenced work to complete the replacement of the vent pipe. The contractor requested eight hours to complete the remaining work, during which discharge from SEP to Discharge Point No. 001 had to be stopped. Once work began, the contractor discovered that the suspended sections of pipe installed in 2019 had rotated under the Pier 80 deck, and each pipe needed to be unbolted and adjusted. This unforeseen work delayed the subsequent work, including the final step of tying-in the new vent pipe to the SEP outfall pipe. To expedite the tie-in before SEP start-up the contractor used a fast-setting, non-shrink grout. The tie-in was completed at approximately 9:00pm; pumping from Booster Pump Station to the outfall started at approximately 9:45pm.

On the morning of June 11, SFPUC staff inspected the vent pipe area from Pier 80 and noted the sound of trickling water. SFPUC staff then inspected the vent pipe tie-in site by boat and visually confirmed that water was leaking through the grout. The construction contractor was notified in the early morning and arrived shortly thereafter to inspect the site and confirm the leak. Repairs were scheduled for low tide the following day to enable the contractor to mobilize for the repairs and for SEP to treat the wastewater stored during the June 10 shutdown.

The contractor completed the repairs the morning of June 12. The repairs included using hydrophilic waterstop; dry-packing the entire area with non-shrink grout; and forming and pouring reinforced non-shrink grout against the repair area. As a precautionary measure, similar procedures were used at the location where the old vent tied into the outfall pipe. The contractor monitored the repair areas for several days during discharge and did not observe any leaking, including when the contractor returned to the site on June 15 to remove the wooden forms used for the grout and check that the grout curing was complete.

2. Period of Noncompliance (if noncompliance has not been corrected, anticipated time it is expected to continue)

The small leak observable only from the seawall, originally reported on April 11, 2017 is believed to have occurred intermittently between April 4, 2017 and June 25, 2019. The volume of discharge cannot be estimated. No volume was recovered.

The leak resulting from the June 10 construction activities is conservatively assumed to have started June 10 at 9:00pm. The leak stopped on June 12 at approximately 7:15 am when SEP ceased discharge and the contractor initiated the necessary grout repairs. The volume of the discharge is difficult to estimate but is assumed to be approximately two gallons per minute based on visual observations. The total volume discharged is estimated to have been 4,100 gallons. No volume was recovered.

Neither discharge is believed to have posed risk to the Bay or public health. The discharge consisted of fully treated and disinfected wastewater, meeting permit effluent limitations at monitoring location EFF-001A. The discharge volumes were very small. The discharges were to an inaccessible location under Pier 80. Observations performed on June 11 and 12 confirmed that there were no observable impacts to water quality or wildlife in the area.

3. Steps Taken or Planned to Reduce, Eliminate, and Prevent Reoccurrence of Noncompliance

Steps taken to reduce and eliminate both discharges are described in the first section of this report. In both instances, the work was completed as quickly as possible. The seawall leak was repaired as quickly as contracting and scheduling permitted. Scheduling these repairs was extremely challenging because the work can only be performed during the dry season and the schedule had to be coordinated with Pier 80 vessel traffic, tide cycles, and SEP's shutdown schedule. The June 10-12 leak was repaired the day after it was identified.

Preventative measures are inapplicable in this situation because the vent pipe has been replaced, and because the unique construction challenges presented by the location of this infrastructure. Based upon the contractor's assessment, the leak was an isolated incident that was related to construction and there is no reason to believe the leak will reoccur. In advance of the June 10 work, the contractor had prepared for contingencies by having surplus materials ready, as well as materials to create an emergency plug if necessary.

ATTACHMENT: SEP Discharge Incident 5-Day Report
June 22, 2020

4/4/2017 Intermittent Leak Location in Seawall:

Appendix I-Cherny

SAN FRANCISCO
PLANNING DEPARTMENT

1650 Mission St.
Suite 400
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Article 10 Landmark Designation
Fact Sheet

"History of Medicine in California"

Two panels of the Bernard Zakheim's fresco in Toland Hall, UCSF Parnassus Heights

Photos from Architectural Resources Group, Inc. report to UCSF, 2020

Historic Name:	*"History of Medicine in California" frescoes*
Address:	533 Parnassus Avenue, UCSF Parnassus Heights
Block/Lot:	2634A/011
Zoning:	P (Public) / 130-D
Year Built:	1936-1938
Artist:	Bernard Baruch (Boruch) Zakheim
Prior Historic Studies/Other Designations:	Carey & Co., 2003. *University of San Francisco Parnassus Heights Campus, Historic Resource Evaluation Report*. September. Carey & Co., 2011. *UCSF Historic Resources Survey*. February.

	Page & Turnbull, 2005. *UC Hospital, 533 Parnassus Avenue, University of California, San Francisco Parnassus Heights Campus San Francisco, California, Historic American Building Survey Documentation*, November. University of California, San Francisco (UCSF), 2005. *Environmental Impact Report for LRDP Amendment No. 2 – Hospital Replacement Program*. January 14.
Prior HPC Actions:	None

Significance Criteria	<u>*Events:*</u> Associated with events that have made a significant contribution to the broad patterns of our history. <u>*Architecture/Design:*</u> Embodies the distinctive characteristics of a type, period, or method of construction, and/or represents the work of a master.
Period of Significance	The period of significance for the "History of Medicine in California" frescoes is 1936-1938. These dates encompass the painting of the 10-panel (plus two descriptive panels) series of frescoes in Toland Hall.
Statement of Significance	The "History of Medicine in California" frescoes, created by artist Bernard Zakheim and his assistant Phyllis Wrightson onsite at the University of California, San Francisco's Parnassus campus from 1936-1938, are significant for their association with the history of the Works Project Administration's Federal Art Project; and as an excellent example of the work of master artist and muralist, Bernard Zakheim, that displays distinctive characteristics of New Deal-era progressive mural artwork. The "History of Medicine in California" frescoes consist of 12 panels (10 pictorial and 2 descriptive) depicting California medical history with vivid, diverse images of doctors, lab scientists, and other medical professionals, and of suffering and recovered patients.

Assessment of Integrity	The seven aspects of integrity as defined by the National Park Service (NPS) and the National Register of Historic Places (NRHP) are location, design, materials, workmanship, setting, feeling, and association.[1] *"History of Medicine in California,"* painted between 1936 and 1938 by Bernard Zakheim and assistant Phyllis Wrightson, retains a high degree of integrity to convey its artistic and cultural significance. The 12 panels (10 pictorial and 2 descriptive) retain high degree of integrity of location, design, association, workmanship, setting, and feeling. Although the murals have been restored and several currently exhibit water damage, they also retain a high degree of integrity of materials. Overall, the Department has determined that the "History of Medicine in California" frescoes in Toland Hall retain integrity to convey their historical and cultural significance.

[1] "How to Apply the National Register Criteria for Evaluation," *National Register Bulletin,* U.S. Department of the Interior, National Park Service, 1995, p. 44.

Character-Defining Features	The character-defining features of the "History of Medicine in California" frescoes are those physical features associated with structural support, construction, and visual depiction of the 12 mural panels (10 pictorial and 2 descriptive panels), including: • All metal (or other) furring channels that support the mural panels; • All metal lathe and plaster, including the scratch, brown, and other plaster coats that underlie the *fresco buono* artwork of each panel; • The combination of pigment and plaster that forms each *fresco buono* panel; • The size, shape, form, and materials of each mural panel; • The arrangement, or sequence, of the mural panels as they currently exist and as per the artist's written description, as follows: Curved wall, from east to west Fresco 1: Dedication scroll Fresco 2: Doctors of Gold Rush Period/Early San Francisco Doctors Fresco 3: "Invasion of California" - Anza Expedition, 1775/Spanish Surgeon General Soler, 1798/Trapper Peg-Leg Smith Fresco 4: English Explorers of the 16th Century/Native California Herbs Fresco 5: Native Indians and their healing methods Fresco 6: Mission Indians/Portola Expedition, San Diego, 1789/Trapper J.O. Pattie, 1828 Fresco 7: Pioneer Doctors of Southern California/Doctors of Old Los Angeles Fresco 8: Description Scroll Flat wall, from west to east Fresco 9: University of California Medical School Fresco 10: Tribute to Hooper Foundation for Medical Research Fresco 11: Science – Past, Present, Future Fresco 12: San Francisco Medical History Note: Numbers for each panel are from a Key Plan prepared by Architectural Resources Group, Inc. for UCSF and included herein as a reference on page XX.

Statement of Significance Summary

The "History of Medicine in California" frescoes, created by artist Bernard Zakheim and his assistant Phyllis Wrightson onsite at the University of California, San Francisco's Parnassus campus from 1936-1938, are significant for their association with the history of the Works Project Administration's Federal Art Project; and as an excellent example of the work of master artist and muralist, Bernard Zakheim, that displays distinctive characteristics of New Deal-era progressive mural artwork. The "History of Medicine in California" frescoes consist of 12 panels (10 pictorial

and 2 descriptive) depicting California medical history with vivid, diverse images of doctors, lab scientists, and other medical professionals, and of suffering and recovered patients.

Description and History

The mural cycle, "History of Medicine in California," consists of 10 decorated panels and 2 descriptive panels created in *fresco buono* style by artist, Bernard Zakheim, on the curved and flat walls of Toland Hall. Toland Hall is an auditorium that is located on the first floor of UC Hall at the University of California, San Francisco (UCSF) Parnassus Heights campus.

The UCSF Parnassus Heights campus site is the oldest and largest of the UCSF campus sites in the city. This campus site, which comprises approximately 107 acres of land, is in the Inner Sunset mixed-use neighborhood. UCSF's facilities are concentrated at the north end of the campus site with the physical core located along Parnassus Avenue, which extends east-west through this densely developed area. These include Moffitt and Long Hospitals, the Langley Porter Psychiatric Institute (LPPI), and Medical Building 1 as well as other institutional buildings housing clinics, research facilities, housing, parking, and other support services. The 61-acre Mount Sutro Open Space Reserve occupies the central and southern portion of the campus site. The streets adjacent to the developed portion of the campus are occupied by two- to three-story single-family and multi-family residences constructed in the early decades of the 1900s.

UC Hall

The Beaux-Arts style UC Hall (formerly UC Hospital or UCH) is a monumental seven-story building that stands at the south side of Parnassus Avenue between 3rd and 4th Avenues. UC Hall is located at west end of the UCSF Parnassus campus site, adjacent to the courtyard in from of the Dental Clinics building (707 Parnassus Avenue) on west side and Clinical Sciences building (521 Parnassus Avenue) on east side. Opposite UC Hall, on block bounded by 3rd and 4th Avenues, is a small plaza with large Beniamino Bufano sculpture, the low-slung UCSF Marilyn Reed Lucia Childcare Center, and several two-story multi-family residential buildings.

Completed in 1917 by architect Lewis P. Hobart, UC Hall was the first new hospital building and first major addition to the hospital complex and remains the oldest extant building at the University of California, San Francisco's Parnassus Heights site. UC Hall was:

> constructed as a seven-story brick and steel building, which was "fireproof and sound-proof" with natural ventilation in every room. The building featured a machine shop and laundry in the basement; a grand lobby, kitchen, cafeteria and amphitheater [auditorium] (named for Hugh Toland) on the first floor; the surgery department on the second floor; and wards, nursing stations, laboratories, and patient rooms (capable of holding 220 patients) on the third through fifth floors. The building's plan featured a long, double-loaded corridor with four wings [containing the four wards (medical, surgical, women's, and children's)] that extended southward toward the rear of the steeply sloping site.[2]

[2] Page & Turnbull, Inc., *UC Hospital, 533 Parnassus Avenue, University of California, San Francisco Parnassus Heights Campus San Francisco, California, Historic American Building Survey Documentation*, November 22, 2005, 3.

Adjacent to the east end of the larger structure was a small one-story Classical Revival style pavilion with hipped roof and Ionic columns that was used as the hospital's waiting room and admissions desk.[3] This small building was removed/remodeled in 1930s during construction of the adjacent Clinical Sciences building.

The UC Hall building features a tripartite composition with large arched windows, a rusticated base, lavishly ornamented bay windows, and a well-defined classical cornice. The following description is excerpted from the 2003 Carey & Co. historic resource evaluation of the building:[4]

> The primary façade is highlighted by four primary bays that are separated by three narrow bays with lower, modest cornices. The upper bays' painted plaster walls are each symmetrically subdivided by vertically aligned windows framed by profiled trim and a central projecting volume. The historic surviving fenestration primarily features rectangular wood three-lite hoppers over double-hung three-over-three windows. The top story windows all terminate into arches. The five, ornately detailed, prominent terra-cotta framed window boxes at the third and fourth floors were originally designed to illuminate surgical suites with indirect, northern sunlight through the fourteen-lite steel fixed window with two small casements. Terra-cotta detailing accents the north elevation with horizontal banding, festoons, medallions, figure sculptures, engaged pilasters, and cartouches.
>
> The ornate upper story detailing wraps around to encompass the northernmost bay on both the east and west elevations. The remainder of the side and rear elevations are more simply detailed than the north. The painted plaster walls feature a few architectural details. … Numerous windows on the secondary elevations have been replaced with aluminum double-hung units. Other alterations include the addition of ductwork and pipes, air conditioning units, and seismic reinforcing ties.

The south (rear) façade is characterized by several unique architectural features, including the semi-circular massing of Toland Hall in the westernmost courtyard formed by two of the four projecting wings.

<u>Toland Hall</u>

This auditorium (or lecture hall) was named for Hugh H. Toland, founder of Toland Medical College, precursor of University of California (UC) Medical School. Located at the west end of the first floor of UC Hall, the semi-circular Toland Hall appears on the south façade as a "…two-story drum-shaped mass with raised skylights and roof equipment."[5] The room, which has three sections of tiered seating that descends downwards from the outer walls, is accessed via doors at either end of the flat north wall. A semi-circular raised platform extends from the center of the north wall, at the lowest point in the room, out into the curved seating area. This platform is accessed by stair ramps from either side that extend down along the north wall of the room to the platform. Walls are constructed of reinforced concrete with plaster cladding and the only fenestration consists of

[3] Page & Turnbull (2005), 8.

[4] Carey & Co., Inc., *UCSF Parnassus Heights Campus Historic Resources Evaluation*, September 2003, 15-16.

[5] Page & Turnbull (2005), 21.

metal-and-glass skylights arranged in a starburst pattern on the ceiling. The skylight monitors project above a nearly flat roof with simple parapet.

On the interior, the north wall is flat while the other walls gently curve to form a semi-circle. Wall sections are delimitated by simple plaster pilasters. Due to the configuration and height of the room, the north wall is tallest. The center, lower portion of the north wall, at the platform or speaker's podium, contains whiteboards and a door. Above these features, an elaborately carved wood surround frames a roll-down screen. On either side of the wood surround are large rectangular murals and then murals that are irregular in shape as they follow the slope of the stair ramps. At either end of the north walls are contemporary wood doors. Adjacent to these doors, at either end of the room, are plaster walls with a descriptive mural panel – at east wall is dedication panel and at west end is description panel. The remaining curved plaster walls are occupied by murals. All murals rest on a slightly projecting sill (or chair rail) and are divided by simple plaster pilasters. The ceiling is divided by plaster coffering and the floor coverings are carpet in the seating area and parque in the lecture area.

The carved wood surround and murals were added to Toland Hall in the 1930s as noted in the Page & Turnbull (2005).[6]

> The WPA, through the Federal Art Project, commissioned Bernard Zakheim to paint a series of frescoes in UC Hospital's Toland Hall and in the Medical School Building's Cole Hall. From 1935 to 1938, Zakheim worked on these murals, which depicted the history of medicine in California and included scenes of traditional Native American medicine, the founders of the UC Medical School, and the Berkeley Cyclotron. The Federal Art Project also provided funds for an elaborately carved wood chalkboard surround and podium, which were completed in 1937 by Russian woodcarver and New Deal artist Michael von Meyer.[7]

"History of Medicine in California"

The "History of Medicine in California" mural cycle consists of a series of ten pictorial panels and two descriptive panels on the walls of Toland Hall, a large auditorium or lecture room within UC Hall. Bernard Zakheim completed the Toland Hall frescoes with his assistant Phyllis Wrightson, who compiled much of the historical research, and plasterer Kai Andersen, between 1936 and 1938.[8] In addition to conducting much of medical research for the murals, Wrightson also transferred the

[6] Nancy Rockafellar, *A History of the University of California San Francisco,* http://history.library.ucsf.edu/ accessed August 9, 2020, paraphrased in Page & Turnbull (2005), 11.

[7] Michael von Meyer (1894-1984) was born in Odessa, Russia and died in Laguna Honda Hospital in San Francisco. He was an artist that carved elaborate wood sculptures for interior installations. In addition to his piece in Toland Hall, his work includes carved stair railings at Beach Chalet, SF; and, garden decoration in Fleishacker Playground, SF. He studied at California School of Fine Arts and taught at the CCAC [California College of the Arts] in the 1940s. Fine Arts Museums of San Francisco website at https://art.famsf.org/michael-von-meyer accessed August 6, 2020.

[8] Page & Turnbull (2005), 17.

cartoon drawings for Zakheim in preparation for painting the final images and added parts of the paintings.[9]

The large frescoes range in size with two of irregular shape due to the stair ramps at the north wall of the auditorium. The murals along the curved wall are approximately 14-feet by 4-feet. Recent investigations of the murals to assess condition and feasibility of removal indicates that "plaster was likely applied to the expanded metal lath in several layers, including a scratch coat, brown coat (arriccio layer), and the finish coat (intonaco layer) that Zakheim painted on."[10] The curved frescos are "installed on a furred wall that has minimal attachment to the existing concrete wall" while the "flat frescos are installed on a furred wall in front of a hollow clay tile wall with areas of brick masonry infill."[11] At curved walls, the furred wall consists of

> vertical black iron furring channels, at least two horizontal black iron furring channels, expanded metal lath, and plaster. The channels and metal lath are tied together with wire. The narrow void between the furred wall and concrete wall is filled with plaster debris from the application of the scratch coat of plaster.[12]

Like many other WPA-era murals, including those at Coit Tower (1 Telegraph Hill Boulevard - listed on the National Register of Historic Places and as San Francisco Landmark No. 165) and the Alemany Health Center (35-45 Onondaga Avenue, San Francisco Landmark No. 272), the "History of Medicine in California" was painted in *fresco buono.* In utilizing the *fresco buono* technique, Zakheim followed

> …the ancient Italian tradition as the Mexican artists [such as Diego Rivera and Jose Orazco] interpreted it. In this process, fine marble dust is mixed with slaked lime to create the painting surface. In *fresco buono*, the plasterer prepares the painting surface with layers of cement and rough lime plaster, a day's worth of work; the artist applies the color as long as the surface remains moist. As the plaster dries, the painting becomes part of the wall.[13]

The fresco process is elaborated further by Nathan and Matthew Zakheim, the sons of artists Bernard Zakheim and Phyllis Wrightson,[14] in their description of the UCSF murals restoration in 1960s, which was originally published in the UCSF student newspaper, "Synapse," and reprinted

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[9] Robert S. Sherins, MD, ed. and comp., "History of Medicine in California Articulated in Frescoes: The Story behind the Murals of Toland Hall, UCSF" (2014), 29. Accessed via http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.675.6932&rep=rep1&type=pdf

[10] Architectural Resources Group, Inc. (ARG), *Feasibility Study – UCSF Toland Hall Frescoes* (March 16, 2020), 2. Similar information is also included in Page & Turnbull, Inc., *UCSF UC Hall Mural Relocation Validation Study* (March 13, 2020).

[11] ARG (2020), 2-3.

[12] ARG (2020), 2.

[13] National Register of Historic Places, Coit Memorial Tower (Amendment), City and County of San Francisco, California, National Register #07001468, 2018, Section 8, page 29.

[14] Wrightson was Zakheim's assistant during creation of "History of Medicine in California." The two later married and had two sons, Nathan and Matthew.

in a research manuscript on the "History of Medicine in California" frescoes prepared by Robert S. Sherins, MD, in honor of the sesquicentennial of UCSF, School of Medicine (Sherins (2014)):

> For thousands of years frescoes have been a method through which artists paint directly on the wet plaster of walls. Pigments are brushed directly into fresh plaster using only water as a vehicle, the plaster itself being the medium. Once hardened [the] plaster and pigment becomes one. Seen under a microscope, one particle of pigment would be surrounded by ten particles of plaster. The pigments are exclusively earth colors - Indian red, yellow ochre, burnt sienna, terra verte, to name a few. With time the plaster can harden to limestone, remaining as vivid for centuries as when first painted. This durability explained the present-day survival of ancient Byzantine and Italian frescoes.[15]

Zakheim's assistant, and later, his second wife, Phyllis Wrightson notes that Zakheim's affiliation with UCSF followed on his work at Coit Tower as well as at Alemany Health Center (35-45 Onondaga Avenue, 1935).

> during the period following the completion of the Public Works of Art Program, Zakheim was commissioned under the sponsorship of the SERA [State Emergency Relief Administration] to execute two frescoes in the Alemany Health Center, for the San Francisco Department of Public Health. Called, 'Community Spirit' and 'Growth' the excellence of these murals was instrumental in an award to him of subsequent decorations in the University of California Hospital.[16]

Sherin's study also provides first-person accounts of the development of the "History of Medicine in California" murals by Dr. Chauncey Leake, who was one of the primary UCSF staff that spearheaded the Cole Hall and Toland Hall mural projects. At the time these murals were installed, Dr. Chauncey Leake (1896-1978) was a UCSF Professor of Pharmacology and of the History of Medicine and served as Librarian.[17] The following biographical information is from his obituary in the *New York Times:*

> Leake was born in Elizabeth, New Jersey and graduated from Princeton in 1917 and then the University of Wisconsin where he earned a Ph.D. and taught pharmacology and physiology. In 1928, Dr. Leave moved to the University of California, San Francisco, where he established the department of pharmacology. He discovered the anesthetic divinyl ether … and also did research on a wide variety of subjects including leprosy, the action of narcotic drugs, the regulation of the production red blood cells, and the biochemistry of the brain and the central nervous system. In 1942, Dr. Leake gave up his research…to become a full-time administrator. He became executive vice president of the University of Texas Medical School in Galveston, and in 1956, he moved again, to Ohio State University in

[15] UCSF student newspaper, "Synapse," [Synapse: Vol.12 No.6, 8 April 1968], quoted in Robert S. Sherins, MD, Research Manuscript in Celebration of the Sesquicentennial of University of California, San Francisco, School of Medicine, *"History of Medicine in California": Articulated in Frescoes* (2014), 77.

[16] Sherins (2014), 40, quoting Phyllis Wrightson. No citation is provided for Wrightson's description.

[17] "Zakheim Frescoes by Dr. Chauncey Leake," UCSF Student Newspaper, Synapse, Vol 7, No. 7, 19 April 1968. Reprinted in Sherins (2014), 14.

> Columbus, where he stayed until 1962. At that time, he returned to the University of California, San Francisco, and took responsibility there for coordinating the growing programs of research and training for medical students. … Dr. Leake wrote books on the amphetamine drug, the history of yellow fever, ancient Egyptian medicine, Harvey's discovery of the circulatory system, medical ethics and the pioneers of physiology and pharmacology. … He was a popularizer of science, an advocate of strong public health measures … and urged a stronger role for music and the humanities at a time when the world was placing growing emphasis on science.[18]

From a Letter to the Editor by Dr. Leake, originally published in "Synapse," and reprinted in Sherins manuscript:[19]

> It was Dr. Isabella Perry, in 1935, who suggested that we might obtain funds from the Public Works Administration for some artworks around our campus. At the time, during the midst of the [Great] Depression, there was little artistic activity around our campus. We were developing the humanities, particularly through an effort in the History and Philosophy of the Health Professions.
>
> We were able to secure the interest of the WPA and arranged with Bernard Zakheim, the brilliant and then young pupil of Diego Rivera, to attempt fresco decoration on the blank walls of the large auditorium [Cole Hall] on the top floor of the old yellow brick Medical School building [demolished]…

Zakheim's first mural project at UCSF, as noted in the excerpt above, was two mural panels flanking the podium in Cole Hall auditorium (these two murals were removed from Cole Hall prior to its demolition in the 1960s and relocated to the current Health Sciences West building on UCSF, Parnassus Heights site). These two panels, completed in 1935 and titled "Rational Medicine" and "Superstitious Medicine," were meant to contrast the "irrational superstitious and highly emotional approach to sickness and health, which had been characteristic of medicine for so many centuries with the more direct, cool, and clear-cut straight-line scientific approach characteristic of our times…" wrote Dr. Chauncey Leake in 1968.[20]

While Dr. Perry may have made the initial recommendation, Zakheim undertood the murals with the support of UCSF doctors George Lyman and Chauncey D. Leake.[21] Dr. Leake appears to have been particularly important in ensuring funding, facilitating access to UCSF staff and medical history, and promoting and defending the artworks and artist. In addition to interviews with medical staff, Zakheim was provided unrestricted access to the Crummer Room containing

[18] "Dr. Chauncey D. Leake Dies at 81; Pharmacologist and Administrator," *New York Times*, January 13, 1978. Accessed via https://www.nytimes.com/1978/01/13/archives/dr-chauncey-d-leake-dies-at-81-pharmacologist-and-administrator.html on August 7, 2020.

[19] "Zakheim Frescoes by Dr. Chauncey Leake," UCSF Student Newspaper, Synapse, Vol 7, No. 7, 19 April 1968. Reprinted in Sherins (2014), 12-13.

[20] "Dr. Chauncey Leake, Letter to the Editor," UCSF Student Newspaper, "Synapse" published April 1968. Reprinted in Sherins, 13.

[21] Page & Turnbull (2005), 17.

numerous books and on the history of medicine, including recently published *California's Medical Story* by Dr. Henry Harris.[22] Dr. Leake remained a champion of the murals throughout his affiliation with UCSF. After returning to UCSF in 1962 as an administrator, Dr. Leake was an active proponent of having the covered murals restored and returned to public view.

Although the mechanics of the transition from the original two panel commission to the second, larger "History of Medicine in California" commission are unclear, it appears that Zakheim's mural cycle in Toland Hall built-upon his previous work. Given overlaps in timing, funding sources, and the consistent involvement of a small group of UCSF administrative staff, it appears that Zakheim's Toland Hall was intended to be an extension, or expansion, on the original themes outlined for "Rational Medicine" and "Superstitious Medicine." Zakheim wrote to fellow muralist, Jose Clement Orozco, that the "…Toland Hall series followed a specific program 'to use as subject the history of medicine in the state of California…As to the subject, I did not pick only the beautiful or heroic parts of history, because the contrast of good and bad constitutes the dramatic quality of narrative."[23] Besides these lofty goals, there were practical reasons for adding these images to the walls of Toland Hall. Contemporary accounts indicate that the frescoes were added to the space because it was a "dark, ugly cave, very depressing" and the artist's purpose was to "try to lift it, lighten it, give it color, to make it interesting and attractive."[24] Zakheim took advantage of Toland Hall's architectural features, which included curved walls and an articulated ceiling.[25]

In addition to the administrative and medical staff at UCSF, Zakheim worked closely with his assistant, Phyliss Wrightson, on developing the imagery and historical references in the "History of Medicine in California" murals. Sherin's describes Wrightson's role in the "History of Medicine in California" as follows:

> Phyllis Wrightson, a young San Francisco artist in her own right, took the offer to assist Bernard Zakheim on the WPA project in painting frescoes in Toland Hall at the University of California School of Medicine. She researched information about the history of medicine in California by visiting and researching at the institutions, archives and newspaper offices regarding each of the events and specific individuals portrayed in the murals.

In addition to the murals, Zakheim painted a legend (Descriptive Scroll, Fresco 8) [for the purposes of this document, the 12 panels of "History of Medicine in California" have each been assigned a number] that reads:[26]

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[22] Polina Ilieva, "Recent Acquisitions: Bernard Zakheim Collection," posted on Brought to Light, Blog for UCSF Archives and Special Collections, February 24, 2015. Accessed at https://blogs.library.ucsf.edu/broughttolight/tag/Phyllis-wrightson/, August 9, 2020.

[23] Anthony W. Lee, "Painting on the Left, Diego Rivera, Radical Politics, and San Francisco's Public Murals," University of California Press, Berkeley, California, 1999. Excerpts in Sherins (2014), 45.

[24] Toland Hall Mural Tour by D. Chauncey Leake, 1976. Available via https://archive.org/details/cum_000015.

[25] Page & Turnbull (2005), 17.

[26] Page & Turnbull (2005), 17. Individual panels of "History of Medicine in California" fresco are described in various texts but they are not titled or numbered in any of the contemporaneous documentation. The numbers

History of Medicine in California
Curved Wall
Native Indians and their healing methods [Fresco 5]
Left: English Explorers of 16th Century [Fresco 4]
Native California Herbs [Fresco 4]
Anza Expedition, 1775 [Fresco 3]
Spanish Surgeon General Soler, 1798 [Fresco 3]
Trapper Peg-Leg Smith [Fresco 3]
Doctors of the Gold Rush Period [Fresco 2]
Early San Francisco Doctors [Fresco 2]
Right: Mission Indians [Fresco 6]
Portola Expedition, San Diego, 1789 [Fresco 6]
Trapper J.O. Pattie, 1828 [Fresco 6]
Pioneer Doctors of Southern California [Fresco 7]
Doctors of Old Los Angeles [Fresco 7]
Front Wall
University of California Medical School [Fresco 9]
San Francisco Medical History [Fresco 12]
Hooper Panel [Fresco 10], Science Panel [Fresco 11]

In addition to the legend, he also painted a dedication scroll [Fresco 1] that reads:[27]

> These interpretations of the History of Medicine in California are the handiwork of Bernard Zakheim and his assistant, Phyllis Wrightson. They are dedicated to California's developing artistic tradition, and were made possible through the Federal Art Project and the progressive scientists of the University of California Medical School. The plastering was done by Kai Andersen. These frescoes were begun April 4, 1936 and completed May 3, 1938.

During the UCSF projects, Wrightson kept a research manuscript that includes the following description of the murals and Toland Hall:

> The space now being decorated by frescoes is a large lecture amphitheater with a curved wall something over one hundred feet in circumference, a straight wall across the front to accommodate a screen and blackboard, and a low ceiling broken by skylights, and supported by large beams radiating from the center of the front wall in sunburst fashion.
>
> …Each of the six panels thus formed is fourteen and one - half by four and one - half feet high, the small height being due to the sharp rise of the tiers of seats from the floor level.

assigned in this document are in the order in which they are placed in Toland Hall for ease in identification throughout this document. The numbers are not intended to demonstrate artistic intentions or significance.

[27] Ibid.

> Repeating the principle of radiation upon which the room is built, the movement of the composition travels to left and right of the center of the curved wall [in back of the room], where a design of the rising sun reflects the sunburst pattern of floor and ceiling, and symbolizes an eastward direction. To the left of this is shown the development of medicine in northern California, and to the right, that of southern California. The six panels are treated somewhat in the manner of a frieze, with a strong wave - like rhythm acting as a connecting force. [28]

This description is expanded on by author Anthony W. Lee who describes the center panel(s) at curved wall – a description that borrows from the extensive documentation of the murals prepared by Dr. Chauncey Leake and included in Sherins (2014) – thusly:

> "The series begins with an Indian figure [that] reaches out to greet the morning sun, his back to the viewer. His gesture – arms flung open – is like a directional cue, and the rest of the panels spread out laterally, curving from the back of the amphitheater and continuing across the flat front wall…" "…The central Indian, from whose open arms the historical parade unfolds, is a figure of pathos. The medical achievements, the notable physicians, the life - saving vaccines and famous surgeries pictured in the amphitheater are set against the brutality of exploration, settlement, and expansion. A narrative of medical progress coexists with a more troubling counter - narrative of corrupt regress. The tension crops up between the scenes, undermining the glorification of events and personalities…"[29]

As presented in Sherins (2014), Lee's analysis indicates that the mural series begins with what we are calling Fresco 4. In his detailed description of the series, however, Dr. Leake appears to consider the center – or beginning – of the mural series to be Fresco 4 and Fresco 5 together, the medical influence of the English explorers juxtaposed – or sharing focus – with Native American healing. To the left of Frescoes 4 and 5, the panels focus on medical history of northern California (Frescoes 2 and 3). To the right of the center frescoes, the panels focus on medical history of southern California (Frescoes 6 and 7). The panels on the north wall detail history of UCSF (Fresco 9), pay tribute to the Hooper Foundation for Medical Research and applications of biological science (Fresco 10), describe science past, present and future (Fresco 11), and outline the history of medicine in San Francisco (Fresco 12).

The "History of Medicine in California" depicts practices and knowledge of native people and acknowledges their skill and recognized medical expertise. In Fresco 4, three Native Americans offer medicinal herbs, and another panel depicts a child-birth ceremony. The frescoes also depict founders, scientists, and educators pivotal to the important and revolutionary breakthroughs in medicine; the individuals noted herein are only a small selection of the medical professionals and practitioners, scientists, researchers, patients, politicians, and founders depicted in the fresco. Many

[28] Phyllis Wrightson's research manuscript of the allegory portrayed in the frescoes was made available to Dr. Robert Sherins (December 2013) - with permission to publish the material - by Nathan Zakheim, son of the Bernard and Phyllis (Wrightson) Zakheim. "Wrightson, Phyllis, Toland Hall Frescoes of the University of California Medical School, self - published, San Francisco, circa 1936. Sherins (2014), 45.

[29] Anthony W. Lee, "Painting on the Left, Diego Rivera, Radical Politics, and San Francisco's Public Murals," University of California Press, Berkeley, California, 1999. Excerpt in Sherins (2014), 52.

friends and family members of Zakheim and his associates are also included in the panels. Among the medical professionals associated with UCSF that are depicted: in different scenes in Fresco 9 are Dr. Lucy M. F. Wanzer, the first woman admitted to the University of California Medical Department in 1873, and Dr. Herbert C. Moffitt with Dr. Robert Langley Porter (namesakes for Moffit Hospital and Langley Psychiatric Hospital, respectively); Dr. Chauncey Leake, Dean of Pharmacology at UCSF and Zakheim's benefactor One figure included in the murals is that of Bridgett "Biddy" Mason (1818-1891) in Fresco 7. A former slave that secured her freedom when she petitioned a Los Angeles Court in 1856, Biddy Mason was skilled healer, midwife, and nurse in addition to being one of the first African-American women to own land in Los Angeles.[30] She was an astute business woman and philanthropist, founding a school and orphanage, and organizing the First AME Church of Los Angeles, the city's first black church. As a nurse, Mason worked with physician John Strother Griffin; Mason and Griffin are shown side-by-side caring for a malaria patient (Fresco 7).

The frescos along curved wall contain imagery of medical practices and procedures in scenes from the history of California. Some selections include of this imagery include: Sir Francis Drake attending over an early autopsy with a ship in the background (Fresco 4); the 1775 Anza Expedition, a crude surgery by Spanish Dr. Don Pablo Soler, and self-amputation of an injured leg (Fresco 3); the first hospital in California, established in 1789 to treat members of the Portola Expedition suffering from scurvy (Fresco 6); covered wagons of settlers and a doctor saving the life of a young miner during Gold Rush along with Dr. Hugh Huber Toland, founder of Toland Medical School, predecessor of UCSF, on horseback, Dr. Victor J. Foureaud, holding title page of his monograph on diptheria, and Dr. John Townsend hanging sign announcing the first medical office in San Francisco in 1846 (Fresco 2).[31] On the flat wall, the panels contain imagery of medical research, education, and conflicts in 19th century San Francisco. The influences of bubonic plague epidemic in San Francisco in 1900 are depicted with images of rats, the source of spread of the disease, and suffering patients juxtaposed with imagery of the politicians and medical professionals fighting the disease and establishing UCSF (Fresco 12). A panel on science with imagery of a science wheel or generator with wheels and belts running on ball bearings inscribed with names of scientists that "…spins out of control, serving military, not humane needs, its products bombs and poisonous gases, its victims the defenseless."[32] The medical achievements, notable physicians, life-saving vaccines and famous surgeries are

> set against the brutality of exploration, settlement, and expansion. A narrative of medical progress coexists with a more troubling counter-narrative of corrupt regress. The tension crops up between the scenes, undermining the glorification of events and personalities.[33]

[30] The Biddy Mason Charitable Foundation at http://thebiddymasoncharitablefoundation.org/bm/ accessed August 9, 2020.

[31] These descriptions are paraphrased from excerpts from Dr. Chauncy Leake and from UCSF Student Newspaper, "Synapse," reprinted in Sherins (2014).

[32] Antony W. Lee, "Painting on the Left, Diego Rivera, Radical Politics, and San Francisco's Public Murals. University of California Press, 2009. Excerpt quoted in Sherins (2014), 67.

[33] Antony W. Lee (2009). Excerpt quoted in Sherins (2014), 52.

The following is excerpted from Page & Turnbull (2005):

> When the frescoes were completed in 1938, the staff of the University of California hailed them as an excellent addition to their lecture hall and the murals brought thousands of visitors to the UCSF Medical School.[34]
>
> Although the frescoes were initially lauded, their style and politics came under increased scrutiny by the late 1940s. In 1948, the University of California wallpapered Zakheim's murals due to "complaints" that the murals were a distraction for students attending lectures.[35] However, other accounts suggest that the mural's political ideas, socialist overtones, and "subversive" messages were too radical for the University of California, which was recovering from the Depression-era economy and political climate rife with McCarthyism.[36] Zakheim was outraged "History of Medicine in California" frescoes were covered with wallpaper and indicated that he felt this action cost him future commissions.[37]
>
> The Toland Hall murals remained covered for thirteen years until University staff and alumni uncovered them in 1961. From 1961 to 1977, the University alumni association undertook and completed a massive campaign to raise $15,000 for their restoration.[38] The murals were respectfully restored by Nathan B. Zakheim and Jennifer Waechter in August 1978.

Currently, the "History of Medicine in California" murals reside in their original location on the walls of Toland Hall and are in good condition except for some water damage on several panels.

Events

Works Project Administration's Federal Art Project

The "History of Medicine in California" was partially funded through the Works Progress Administration's Federal Art Project, the visual arts component of the Federal Project Number One, a work relief program for thousands of unemployed actors, musicians, writers, historians, and other creative professionals and white-collar workers. Federal One was established in 1935 and operated until 1943. It was the longest and most productive of the New Deal arts programs. Federal One programs included the Federal Theater Project, Federal Writer's Project, Federal Music Project and the Historical Records Survey. The FAP's work focused on three main areas: production of artwork, art education through classes and community centers, and art research through the Index of

[34] "U.C. Medical School Mural is Covered," *San Francisco Chronicle* (January 5, 1948). Quoted in Page & Turnbull (2005), 17.

[35] Ibid.

[36] Anne M. Schmid, "Suggestions for Brochure for Solicitation of Funds for Mural Repair," in UCSF Special Collections, file "Bernard Zakheim." Quoted in Page & Turnbull (2005), 18.

[37] "Obituaries: Artist Bernard Baruch Zakheim," *San Francisco Chronicle*, November 30, 1985.

[38] Anne M. Schmid, in Page & Turnbull (2005), 18.

American Design. The Federal Art Project employed numerous artists who were or would become famous, including Jacob Lawrence, Alice Neel, Henry Louise Freund, Mark Rothko, Lee Krasner, among many others. [39]

Prior to the establishment of the FAP, unemployed performing and visual artists found work through projects and programs funded through the Federal Emergency Relief Administration (FERA) and the Civil Works Administration (CWA), two of the first New Deal agencies established after FDR took office in 1933. The two administrations employed thousands of San Francisco residents on infrastructure improvement and construction projects, including building, repairing, or upgrading roads, schools, housing complexes, parks, and playgrounds.

The first New Deal program to solely aid unemployed artists was the short-lived Public Works Art Project (PWAP). Also established in 1933 and funded through CWA, the PWAP operated from December 1933 to June 1934 and during that time more than 3,000 artists across the country decorated public buildings with murals and other works depicting everyday American life. The Coit Tower murals are the first known and the largest PWAP/CWA-funded project. Other New Deal-era art programs included the Department of the Treasury's Section of Painting and Sculpture, later known as the Section of Fine Arts (1934-1942), and the Treasury Relief Art Project (TRAP, 1935-1938).[40] The breadth of artworks produced collectively from 1934 to 1942 is truly amazing: with approximately 100,000 paintings, 18,000 sculptures, 13,000 prints, and 4,000 murals.[41]

Through the FAP, artists created works in a variety of mediums, including photography, graphic arts, sculpture, and painting. The FAP operated over 100 community art centers nationwide and commissioned 2,566 murals during the course of the program. The sculpture division employed 500 sculptors and produced 17,744 works and the FAP funded 108,099 easel paintings and produced more than 2 million posters. The output of murals was small in comparison to the other visual arts divisions, but they were the most plentiful public art form and they could be incorporated into the planning of new buildings funded by New Deal agencies or to update existing buildings. The scenes of American life decorating the walls of post offices and other public buildings throughout the country became one of the most recognizable artistic products of the New Deal era, and for many, the "mural division will forever be remembered in the public mind as the primary achievement of the entire project." [42]

Hundreds of murals, sculpture, and other art works were commissioned for public buildings in San Francisco. They included works at several San Francisco public schools: Victor Arnautoff's "Life of George Washington" murals at George Washington High School; murals by Nelson Pool and George Wilson Walker at Roosevelt Junior High School; and Edith Hamlin's murals at Mission High

[39] *Draft San Francisco New Deal Historic Context Statement,* 28-29, 51, 117; *Projects by Artist,* https://livingnewdeal.org/artists/; *Alice Neel,* http://edan,.si.edu/saam/id/person-institution/3504; *Jacob Lawrence* https://www.nga.gov/collection/artist-info.1468.html;

[40] *Ibid,* 24-32, 43-46; Coit Tower National Register Nomination, 2018, Section 8.25-8.26.

[41] Megan Hogan, "1934: A Stimulus Package for the Soul," in *Common Ground*, Summer 2009, 25.

[42] *Draft San Francisco New Deal Historic Context Statement,* 117; Martin R. Kalfatovic, *The New Deal Fine Arts Projects: A Bibliography, 1933-1992,* (Metuchen, NJ: Scarecrow Press, 1994) xxxvi – xxxvii; Masha Zakheim, *Coit Tower, San Francisco: Its History and Art* (Volcano, CA: Volcano Press, 2009), 12.

School. Public works also included Diego Rivera's Pan-American Unity mural at City College; the San Francisco Zoo's Mother's House murals and mosaics by Helen Forbes and Esther Bruton, Margaret Bruton and Helen Bruton; Lucien Labaudt's frescoes at the Beach Chalet; Beniamino Bufano's outdoor granite animal sculptures; and interior and exterior art works at the Aquatic Park Bathhouse, among other locations. [43]

The "History of Medicine in California" murals, which were artist Bernard Zakheim's largest FAP commission, are significant for their association with the WPA's Federal Art Project, a work relief program the provided employment for hundreds of out of work visual artists. The FAP was the longest running New Deal-era arts program and supported artists who were, or would become, leading figures in the twentieth century art world. The murals commissioned by the FAP are some of the most recognizable public art works of the WPA-era.

Architecture/Design

The mural cycle "The History of Medicine in California" is significant as an excellent example of New Deal-era mural artwork displaying the distinctive characteristics of New Deal-era frescos with a consistent earth-toned palette, intense saturated colors, figurative content, rounded forms, and overall stylistic influence of the Mexican mural movement of the 1920s. Zakheim's murals are in an expressionist style that bears considerable similarity to the style of Mexican muralist, Jose Clement Orozco. Although their theme - medicine and medical history - is somewhat unusual, it was typical for fresco or mural installations of the period to reflect a unifying concept that often related to the building or institution that housed or commissioned the artwork.[44]

"History of Medicine in California" is also significant as the work of by master artist and muralist, Bernard Zakheim. In this artwork, Zakheim sought to depict the "…evolution of medicine from medieval concepts to scientifically based principals" with "works [that] were an allegory about the history of California Medicine displayed in art."[45] The "History of Medicine in California" is largest, most immersive *fresco buono* work of Zakheim's career and the last fresco commission that he completed in San Francisco.

Bernard Zakheim

Bernard Baruch (or Boruch) Zakheim (1898-1985) was born in Warsaw, Poland and died at the Jewish Home for the Aged in San Francisco.[46] The youngest son of a wealthy family of Hasidic Jews, his family intended him for the synagogue to be a rabbi. After becoming politically active, and against the wishes of his family, Zakheim began studying art as well as upholstery and furniture

[43] *Draft San Francisco New Deal Historic Context Statement,* 117-130, 167.

[44] Similar New Deal-era frescoes depicting medical history and practices were installed at Harlem Hospital in New York City (Oil on canvas mural, "Modern Medicine" and "Magic in Medicine," Charles Alston, 1940; Fresco buono, "Modern Surgery and Anesthesia," Alfred Crimi, 1936). Zakheim's fellow San Francisco fresco artist, Victor Arnautoff, also did several frescoes in Palo Alto, California depicting scenes of a medical clinic (Stanford Medical Clinic (Roth Building, Palo Alto, California: Frescoes of Medical Clinic, 1932).

[45] Sherins (2014), 101.

[46] "Obituary Artist Bernard Baruch Zakheim," *San Francisco Chronicle,* November 30, 1985.

design. Zakheim met and married Eda Spiegleman in Poland. The couple had two daughters before divorcing in 1937.[47] In 1941, Zakheim married Phyllis Wrightson (1907-1998), [48] who had worked as his assistant on the Alemany Health Center and UCSF mural projects. The couple had two sons. An article in 1941 notes that Wrightson "exhibited watercolors and oil paintings at many bay region shows, the World's Fair on Treasure Island and San Francisco Museum of Art and been a teacher of art in both public and private schools."[49] In historic documentation about the Alemany Health Center and UCSF murals, Wrightson is noted as an artist – painter – in her own right, but little information has been located about her work or life.

Unless otherwise noted, the following biographical information about Zakheim is from the landmark designation application for the Alemany Health Center:[50]

> During World War I, he joined the Polish Army in 1918, and was later captured and held for nine months in a German prisoner of war camp.[51] After his release, he studied art at the Danzig Polytechnicum where he met and then married Eda Spiegleman, "a young dramatist," with whom he eventually had two daughters.[52] They arrived in New York City in the fall of 1920, staying briefly before traveling to San Francisco. A job in a furniture factory took them to Los Angeles where their first daughter was born in 1921. After three years, they returned to San Francisco where Zakheim studied at the School of Fine Arts, but he became disillusioned by the instruction there which ended his formal art education.
>
> In 1925, at age twenty-seven, he opened a custom furniture business and based it on the European Guild model. His company was the first in San Francisco to offer a 44-hour work week which included paid vacation time. Additionally, he "was the moving spirit in organizing the Yiddish Folkschule at 1057 Steiner Street" and became a "leader in the Yiddish movement in San Francisco." He "rented a small studio at the California School of Fine Arts (the San Francisco Art Institute) for a short period" before sending sketches to Diego Rivera.[53] After [being] invited, he traveled to Mexico to study with Rivera. Zakheim

[47] *San Francisco Chronicle*, October 1, 1937, 13. Quoted in David Hooper and Lisa Dunseth, *Application for Historic Landmark Designation - Alemany Emergency Hospital & Health Center & Bernard Zakheim murals,* 2015, 44-45.

[48] Biographical information about Phyllis Wrightson from askART website at https://www.askart.com/artist_bio/Phyllis_Wrightson/10059864/Phyllis_Wrightson.aspx. Accessed August 6, 2020.

[49] "Three San Francisco Artists Start Farm-Arts Workshop," *Sonoma West Times and News*, September 26, 1941. Accessed via https://newspapers.com on August 9, 2020.

[50] David Hooper and Lisa Dunseth, *Application for Historic Landmark Designation - Alemany Emergency Hospital & Health Center & Bernard Zakheim murals,* 2015, 45-56.

[51] Elizabeth M. Boone, "'Something of his Own Soil': Jewish History, Mural Painting, and Bernard Zakheim in San Francisco," in *American Jewish History* 90.2, 2002, 123. Quoted in Hooper and Dunseth (2015), 44.

[52] "Bernard Zakheim," abstract from *California Art Research: Maxine Albro, Chin Chee, Bernhard Zakheim, Andree Rexroth, Chiura Obata,* ed. Gene Hailey, (San Francisco: California Art Research Project, 1937), 63. Quoted in Hooper and Dunseth (2015), 44.

[53] "Bernard Zakheim," abstract from *California Art Research (1937),* 50-54. Quoted in Hooper and Dunseth (2015), 45.

> returned to San Francisco by June of 1930 with Rivera's encouragement to put "something of his own soil, of his own people" into his art.
>
> In 1931, he left his wife in San Francisco…while he went to Europe -- first Paris, then Florence -- to study art. He visited a small Hungarian town where he met an artist named Professor Gebauer who painted frescoes…with Gebauer's encouragement, Zakheim painted his first fresco titled *Jews in Poland*. … By October 1932 he had returned to San Francisco, but not before begging his European family to leave Poland.[54] Zakheim paid tribute to his 300 relatives lost in the Holocaust in a later work, a sculpture titled *Monument to the Warsaw Ghetto Uprising*.[55]

In the 1930s, Zakheim's art focused on several mural projects, including Coit Tower, San Francisco Jewish Community Center, Alemany Health Center, UCSF, and two post offices in Texas. Except for the Jewish Community Center commission, his other mural projects were all partially or fully funded by PWAP or FAP. His first mural commission, for the Jewish Community Center (discussed below) received positive critiques and appears to have established him in the San Francisco art community. Unfortunately, his entry into this community coincided with the harsh effects of the Great Depression with many artists joining the sizeable ranks of the unemployed and impoverished across the country.

During this period, Zakheim, who long held an interest in worker's rights, became involved with the San Francisco Artists and Writers Union.[56] Along with his leftist politics and interest in workers' rights, Zakheim also brought the Union his experience organizing the Conference of Yiddish-Speaking Organizations and Yiddish Folkschule and the Yiddish Literary and Dramatic Club. Shortly after the formation of the artists union, the group received notice of the formation of the Public Works of Art Program (PWAP – described previously) and authorization of the first PWAP-funded project, the Coit Tower murals. The artist's union picketed and wrote letters in support of artistic freedom of expression during the controversy over several images in the Coit Tower panels, but shortly after the Tower opened to the public, the San Francisco Artists and Writers Union was dissolved. Zakheim remained involved in the artists' labor movement by becoming one of the sponsors of the San Francisco section of the American Artists Congress, a national protective organization of artists that formed in the mid-1930s.[57]

Shortly after completing his fresco in Coit Tower, Zakheim also had a one-man exhibition of watercolors, designs for fresco and drawings at a San Francisco gallery.[58] Press commentary on the

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[54] "Bernard Zakheim," abstract from *California Art Research (1937),* 56-57. Quoted in Hooper and Dunseth (2015), 46.

[55] Walter Blum, "Remind the World," *San Francisco Chronicle*, December 8, 1968. "Memorial to the Six Million-Zakheim Warsaw Ghetto Memorial Monument," Mount Sinai Memorial Park pamphlet, VF-Biography, San Francisco History Center, San Francisco Public Library. Quoted in Hooper and Dunseth (2015), 46.

[56] "Bernard Zakheim," abstract from *California Art Research: Maxine Albro, Chin Chee, Bernhard Zakheim, Andree Rexroth, Chiura Obata, ed. Gene Hailey, (San Francisco: California Art Research Project, 1937),* 63.

[57] "Bernard Zakheim," abstract from *California Art Research (1937),* 78-79.

[58] "Bernard Zakheim," abstract from *California Art Research (1937),* 64.

one-man gallery show was mixed, perhaps due to the show coinciding with the controversy over some of the imagery, including Zakheim's, in several Coit Tower murals. One critic wrote that Zakheim was "…neither a cubist nor a sur-realist…he is more what one would call a self-expressionist…and has more interest in recording an ordinary experience as in responding to a psychological power."[59]

In the 1940's Zakheim moved to an apple farm in Sebastopol, California where he continued painting and began sculpting in wood and granite. In later life, he turned increasingly to sculpture and produced a series of six wood sculptures commemorating the Holocaust.[60] His final mural project was done in 1961 where he was invited by the *Jewish Social and Cultural Society* to paint a mural that would be his last. He titled it "Songs of the Polish Jews," saying at the time that "fresco is my main interest...wall painting in the fresh wet cement is really the idiom of drama … For the artist to have a wall to paint fresco is a rare thing."[61]

Zakheim continued to participate in exhibitions with his paintings and sculptures and was recognized for this work.

> He was awarded a Certificate of Honor "in appreciative public recognition of distinction and merit" by the San Francisco Board of Supervisors in July 1972. He had a retrospective exhibition of his paintings at the Judah L. Magnes Memorial Museum in Berkeley in 1973 to celebrate his 75th [sic] birthday and continued to make art until the end of his life.[62] …The Sonoma County Museum had a memorial exhibition of his work in 1986.[63] His work is in the collections of the San Francisco Museum of Modern Art, Brandeis University, and the Jewish Historical Institute in Warsaw, Poland.[64]190 In 2001, during the conservation and move of Zakheim's mural at the Jewish Community Center, *San Francisco Chronicle*'s art critic Allan Temko said of him: "he wasn't a Michelangelo...but his work is good, for what it is, and worth saving."[65]

Assessing a one-man exhibition of Zakheim's watercolors, drawings, and studies for frescoes, Ada Hanifin, art reviewer for the *Examiner*, wrote in an article published on July

[59] Jehanne Bietry Salinger, "Emanu-El and Jewish Journal," July 7, 1934. Quoted in "Bernard Zakheim," abstract from *California Art Research (1937),* 66.

[60] Elizabeth M. Boone, "'Something of his Own Soil': Jewish History, Mural Painting, and Bernard Zakheim in San Francisco," in *American Jewish History* 90.2, 2002, 123-140.

[61] "Artist Finds Room for a Fresco on an Empty Wall in Poland," *Examiner*, August 5, 1962, Examiner Newspaper Clippings, Zakheim, Bernard Baruch. Artist. San Francisco History Center, San Francisco Public Library. Quoted in Hooper and Dunseth (2015), 55.

[62] "In The Galleries," *San Francisco Chronicle*, March 4, 1973. VF-Artist's File, Art, Music, & Recreation Dept. San Francisco Public Library. Quoted in Hooper and Dunseth (2015), 55.

[63] "Zakheim Exhibit to Open at Sonoma County Museum," *California Historical Courier,* Feb/March 1986. Quoted in Hooper and Dunseth (2015), 55.

[64] Ibid.

[65] Steve Rubenstein, "Race to Beat Wrecking Ball," *San Francisco Chronicle*, November 2, 2001, A21. Quoted in Hooper and Dunseth (2015), 55.

17, 1934, "he belongs to no school…His work has vigor, sensitivity, vitality and power. He paints sincerely and spontaneously."[66] In 1937, Ray Boynton, a fresco artist and instructor of Art at the California School of Fine Arts, assessed Zakheim and his work thusly:

> His work has always been concerned with human values and human drama and his point of view has always been sympathetic to human struggle and effort. … I think this work has real social value in that it is charged with positive qualities of believe and protest rather than negative qualities of indifference. …his ideas are alive to his time and environment.[67]

Zakheim's Mural Projects[68]

Jewish Community Center (JCC) Mural

Zakheim's first solo mural commission in San Francisco drew upon his Jewish heritage when, in 1933, he won a commission to paint a mural (extant – relocated) and design a mosaic fountain (demolished) at the new Jewish Community Center. As noted in David Hooper's and Lisa Dunseth's Landmark Designation Application for Alemany Health Center, Zakheim's proposal, which depicts a traditional Jewish wedding and features "folkloric aspects of Jewish culture," was selected by JCC's leaders who were "…interested in reaching out to a 'broader segment of society' with their programming."[69] At the time of the JCC's opening, "newspapers reported that Zakheim's 'vivid colored fresco...attracted much attention from the thousands of visitors who flocked through the building during the dedication week program'."…It was reported that he painted in "the primitive...two-dimensional style of the modern Mexican school," a direct reference to Rivera's influence. [70]

The art critic for the *Argonaut*, a San Francisco newspaper from 1878 to 1956, Joseph A. Danysh, wrote of the mural on August 4, 1933:

> San Francisco has its latest heroic fresco. Bernard Zakheim, [one-time] business man, now turned to art … as a significant way of life, is the painter. … Given a space one hundred feet square in area … No muralist anywhere ever started with a more unsympathetic space to paint … Few artists could have improved upon Zakheim's design. …he has combined the

[66] "Bernard Zakheim," abstract from *California Art Research (1937),* 68.

[67] "Bernard Zakheim," abstract from *California Art Research (1937),* 103.

[68] The following descriptions are for mural projects that were completed and are extant. There is documentation, including sketches, that indicates Zakheim planned to do a four-panel mural, in 1937, at the Union Recreation Center at 32 Clay Street, titled "History of the San Francisco Waterfront." While the historical record is a bit unclear, it is unlikely that this mural was ever completed.

[69] Elizabeth M. Boone, "'Something of his Own Soil': Jewish History, Mural Painting, and Bernard Zakheim in San Francisco," in *American Jewish History* 90.2, 2002, 123-140. Quoted in Hooper and Dunseth (2015), 55.

[70] "Vivid Fresco By Zakheim Attracts," *Examiner*, November 12, 1938. Examiner Newspaper Clippings-Zakheim, Bernard Baruch. Artist. San Francisco History Center, San Francisco Public Library. Quoted in Hooper and Dunseth (2015), 55.

> technique of true fresco painting with the subject material of the Heroic cult of Hasidim. His composition is conceived primarily in terms of movement. … In this mural, the design has reached outside itself to become an integral part of the architecture, counteracting a large mass here, a rushing line of the building there, moving beautifully in terms of its own irregular frame. …he has also made his wall come alive in the spirited reproduction of his legend. Jugglers…drummer, fiddler and piper playing…chants of the Hasidim; singing maidens; hasty weddings; archers and judges; prayers and dancers; all contribute life and conviction to a finely executed picture.[71]

Glen Wessels, in the *Argonaut* of June 22, 1934, commented on the JCC fresco, saying "Bernard Zakheim has a achieved a style of his own, most evident in the strong rhythms characterizing his drawing and his design…"[72]

This fresco was removed from the original location when the former Jewish Community Center building was demolished. The fresco was moved to the third-floor stairwell when the Jewish Community Center was rebuilt: it was reinstalled and rededicated in 2004 where it is currently open to the public.

Coit Tower Mural

In 1933-1934, Zakheim, along with 24 other master artists, was hired to contribute to the Coit Tower murals that were meant to depict variations on the theme of "the contemporary American Scene in all its various aspects."[73] Of the artist's hired, Zakheim, who had studied with Diego Rivera in Mexico and painted a fresco in Europe, was one of the few with experience creating murals although several of the artists, including Zakheim, had studied fresco with Ray Boynton at the California School of Fine Arts. Zakheim, who was active in workers' and artists' unions of the period, may also have been a proponent of using Coit Tower as the location for the first federally-funding New Deal-era art program, known as PWAP. He was certainly involved in encouraging local officials to put San Francisco artists to work with the newly created PWAP.

The Coit Tower murals, titled "Aspects of Life in California, 1934," depict social, political, and economic concerns of the 1930s as well as San Francisco bay landscapes.[74] Zakheim's contribution to the Coit Tower murals, which is evocative of his social and political views, is described in the amendment to the Coit Memorial Tower National Register Nomination (2018):

> *Library* by Bernard Baruch Zakheim (1896-1985)[75]
> Technique: *fresco buono*
> On a wall opposite the law library fresco, and measuring 10' by 10', this mural speaks to the concepts of freedom of expression based on a scene in a public library reading room. The

[71] "Bernard Zakheim," abstract from *California Art Research (1937),* 60-61.

[72] "Bernard Zakheim," abstract from *California Art Research (1937),* 61.

[73] National Register of Historic Places, Coit Memorial Tower (Amendment), City and County of San Francisco, California, National Register ##07001468, 2018, Section 7, Page 7.

[74] Coit Memorial Tower (Amendment), 2018, Section 7, Page 8.

[75] Coit Memorial Tower (Amendment), 2018, Section 7, Page 11.

> scenevis crowded with well-known figures, book spines, and bold newspaper headlines about such timely topics as the destruction of Rivera's fresco at Rockefeller Center, a commission for sculptor Benjamin Bufano, mortgage foreclosures, and other issues of the day. The muralist included likenesses of artist Fred Olmsted and William Gerstle, a local arts patron and civic leader. The mural abounds with likenesses of Zakheim's colleagues, friends, and family, specifically the artist's young daughter, Ruth, and his assistants for this mural, Julia Rogers and Shirley Staschen. A figure, artist John Langley Howard, removes a copy of Karl Mate's *Das Kapital* from the library shelves. Col. Harold Mack of the PWAP supervisory committee stands in front, carefully monitoring the entire scene. Overall, the library scene pays homage to literature, education, and political awareness.

The inclusion of *Das Kapital* in this mural is one of the elements that contributed to their controversy and delayed the public tower's opening. The following information about this controversy and Zakheim's response is taken from Hooper and Dunseth:

> Zakheim, Victor Arnautoff, Clifford Wight (all of whom had worked with Rivera) and John Langley Howard "scandalized the City by including left-wing political commentary" in their murals.[76] This was happening, of course, at a time of great economic hardship during the Great Depression and just before the violence and upheaval of the Longshoremen's strike, protest, and riots which were to come later that summer. Originally meant to open in April, the building and murals were finally opened to the public in October 1934.
>
> A newspaper article from the period featured a "doctored" photo of Zakheim's mural, adding a hammer and sickle encircled by the slogan "Workers of the World Unite" over which a caption read "Here is the painting in the Coit Memorial Tower that has caused a bitter dispute."[77] Zakheim's response was "I have painted no hammer and sickle over my fresco or anywhere else...and the directors of the Public Works of Art Project have never asked me to change any part of my mural."[78] This was true. However, during the Coit Tower controversy, Fleishhacker had, indeed, asked him to edit his mural. And Zakheim's angry refusal, according to an interview with Lewis Ferbache in 1964, was "I am a hammer and sickle painter."[79]

Zakheim's interest in Communism can be found in his early years in Los Angeles. In the late 1920s he was deeply influenced by his friendship with Kenneth Rexroth who was engaging in Communist debates and organizing the Montgomery Block artists and writers. Together Zakheim and Rexroth assembled "the most coherent leftist group of artists and writers the city had ever seen."[80]

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[76] *New Deal Art, California*, De Saisset Art Gallery and Museum, University of Santa Clara, c1976, p. 75. Quoted in Hooper and Dunseth (2015), 49.

[77] Fred Rosenbaum, *Cosmopolitans*, U. of California Press, 2009, p. 277. Quoted in Hooper and Dunseth (2015), 49.

[78] "Bernard Zakheim," abstract from *California Art Research (1937),* 69. Quoted in Hooper and Dunseth (2015), 49.

[79] Anthony W. Lee (1999), 154. Quoted in Hooper and Dunseth (2015), 49.

[80] Anthony W. Lee (1999), 97. Quoted in Hooper and Dunseth (2015), 49.

Alemany Health Center Murals
Following the completion of the Public Works of Art Program (PWAP) and his work at Coit Tower, Zakheim was commissioned, in 1934, under the sponsorship of the SERA (State Emergency Relief Administration) to execute two frescoes in the Alemany Health Center, for the San Francisco Department of Public Health. Called "Community Spirit" and "Growth," the murals must have been completed while the center was in operation since it officially opened in August 1933. These murals, painted as decorations in the waiting room on the wide chimney of the room's fireplace with one mural above, and one below, the balcony that divided the chimney, is partially described by Phyllis Wrightson, who called them "…a very beautiful piece of work,":

> The portion below the balcony is adapted in color and literary content to the room and its uses. It is entitled [Growth] and is an arrangement of symbolic figures
> in an elliptical pattern against a background of the slender silvery trunks of young fig trees, an ancient symbol of fertility.

Hooper and Dunseth describe the Alemany Health Center murals as follows:

> The mural on the upper floor is titled *Community Spirit.* This mural is damaged but in relatively good condition. The mural on the first floor, *Growth*, as described by Wrightson, symbolically depicts birth, growth, and parenthood: [no] photographs or drawings depicting the entire mural [have been located]. It was painted over in the mid 1970s -- perhaps because either the theme or the imagery was considered offensive.
>
> In a letter dated 17 February 1976, Zakheim wrote to Herb Caen about the Alemany mural: "Again they amputeded [sic] a part of my soul. This time at the Alemany Baby Health Center...they painted over a half of my frescoe [sic], and this is the third time in a row." On 29 March 1976, Caen mentions Zakheim "frothing with anger" over the Alemany mural. He quotes Zakheim: "An insult! ... Besides, they've covered over the most important part of all -- the fertility rites!"[81]

The buildings and murals have not been open to the public since 2011. The Alemany Health Center Landmark No. 272 in 2016 and the "Community Spirit" and "Growth" murals by Bernard Zakheim are identified as character-defining features of the building.

UCSF Murals – Cole Hall
Unless otherwise noted the following description is from Hooper and Dunseth:

> In 1935-36 Zakheim, again with SERA [and FAP] funding, began two murals in UCSF's Cole Hall (the University of California, Medical School.) It has been suggested that his work at the Alemany Health Center helped him win this job at UCSF. Titled *Superstitious Medicine* and *Rational Medicine*, they were moved, in 1966, to their present location in the Health Sciences Building West at UCSF.

[81] News clipping, Bernard Zakheim collection, 1902-2010 (bulk 1935-1990), MSS, 2014-15, UCSF Library. Quoted in Hooper and Dunseth (2015), 52.

> The Toland Hall amphitheater murals, completed in 1938, became a four-year, ten panel project commissioned by Dr. Isabella Perry, after seeing the Alemany murals, and then spearheaded by Dr. Chauncey Leake. They were partially funded by the WPA. This series of murals is titled the *History of Medicine in California* and they fill the walls of the lecture hall.

Dr. Chauncey Leake, Dean of Pharmacology at UCSF, who spearheaded the institution's support for both of Zakheim's mural projects at UCSF, prepared a comprehensive brochure on the pair of murals painted for Cole Hall, "Rational Medicine" and "Superstitious Medicine." Dr. Leake was motivated to expand the relationship between science and the humanities, desiring that the frescoes might provoke medical students to consider the philosophical and social ideas of their profession.

The Cole Hall frescoes were displayed for the public, along with an exhibition of the watercolor studies Zakheim produced in preparation for the murals, for a week in February 1936. Art critic for the *San Francisco Chronicle*, Alfred Frankenstein, called it "…one of the most extraordinary art exhibitions ever held in this or any other city…" for it was "…unique in subject matter, unique in locale…" and displays "…co-operation, if not the inter-penetration, of science and fine art."[82] Another critic took exception to the murals, stating that "…Zakheim tried to do too much…You can't put in the whole history of medicine in two frescoes. The frescoes are as complicated as a set of viscera to the lay mind."[83] In this comment, perhaps, is the impetus for the second commission at UCSF, which expanded on the theme of medical history in California across 10 pictorial panels.

As noted above, "Rational Medicine" and "Superstitious Medicine" were removed from Cole Hall prior to the building's demolition and moved to their current location(s) on the UCSF Parnassus campus. They are believed to be in good condition.

Texas Post Office Murals

Zakheims last mural projects in the United States were for two post offices in Texas. The first, an oil-on-canvas mural called, "New and Old Methods of Transportation, 1938," in Mineola, Texas. The original Mineola mural was damaged by neglect after it was removed from the post office building and stored. In 2005, the mural was reinstalled in the Mineola Historical Museum after being restored (or recreated) by Nathan Zakheim, and other Zakheim family members.[84] The second, in Rusk, Texas, was titled "Agriculture and Industry, 1939." The "…mural illustrates Rusk's rough agrarian and industrial history from multiple perspectives" capturing how "Native

[82] "Bernard Zakheim," abstract from *California Art Research (1937),* 90.

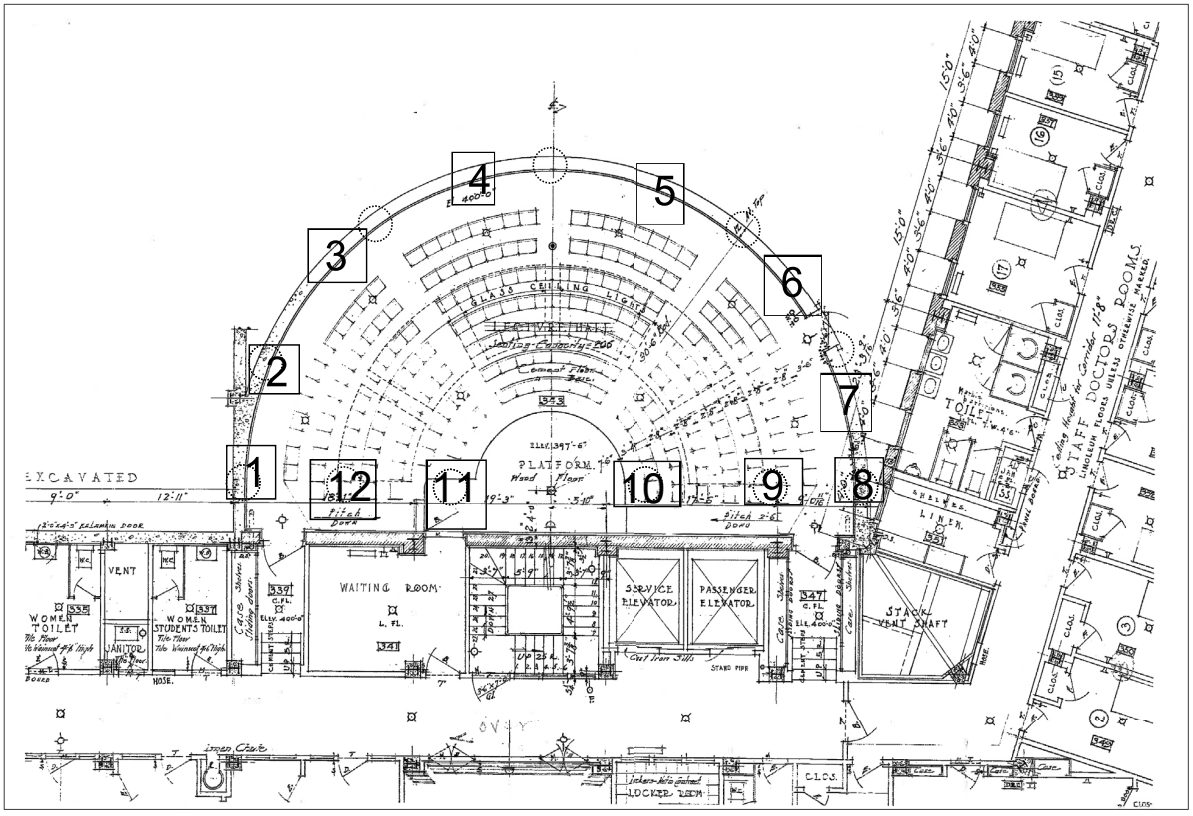
[83] H.L. Dungan, *Oakland Tribune*, February 23, 1936; quoted in "Bernard Zakheim," abstract from *California Art Research (1937),* 93.

[84] "Texas buildings' murals show community identity," January 14, 2011. Accessed on August 11, 2020 via https://www.deseret.com › texas-buildings-murals-show-community-identity

American, Hispanic, and Anglo American residents of the area viewed development and change over time."[85] This oil-on-canvas painting was also cleaned and restored by Nathan Zakheim in 2011.

[85] Matt Carmichael, "Rusk Post Office and Its New Deal Mural." Accessed on August 11, 2020 via East Texas History website via https://easttexashistory.org/items/show/116.

Photos

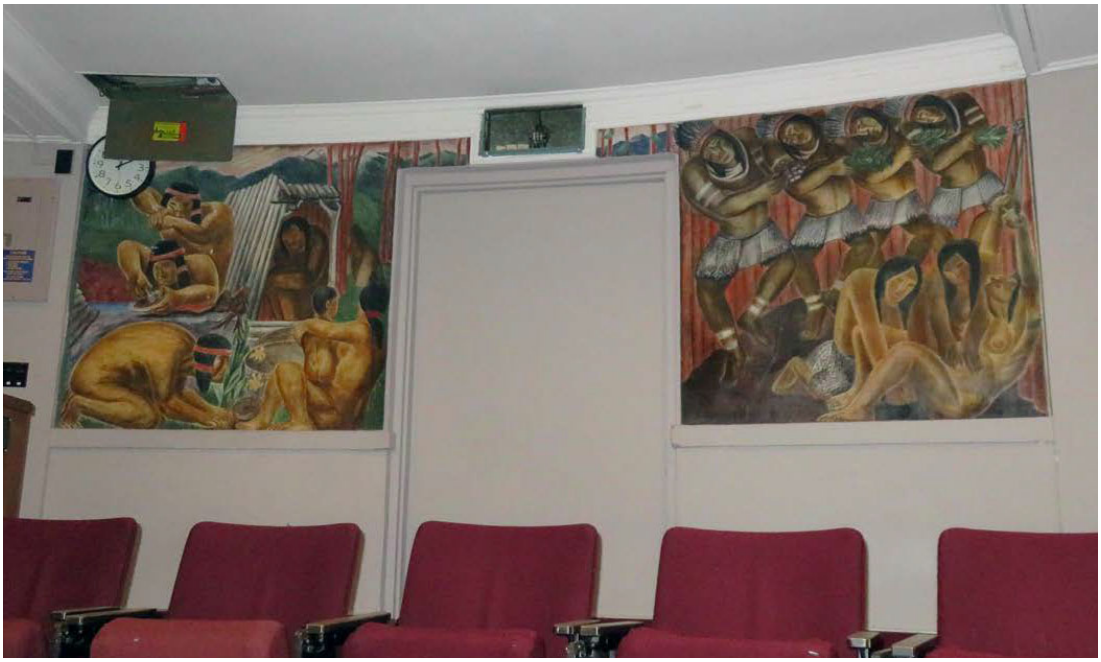


Fresco Key Plan – 1917 floor plan of 1st floor UC Hall. Number on plan is included with the photographs of each panel that follows. Key Plan and photographs by Architectural Resources Group, 2020. Photographs of each fresco panel and this key plan are from exhibits for an Architectural Resources Group prepared for UCSF and used with permission of UCSF.

Fresco 2

Fresco 3

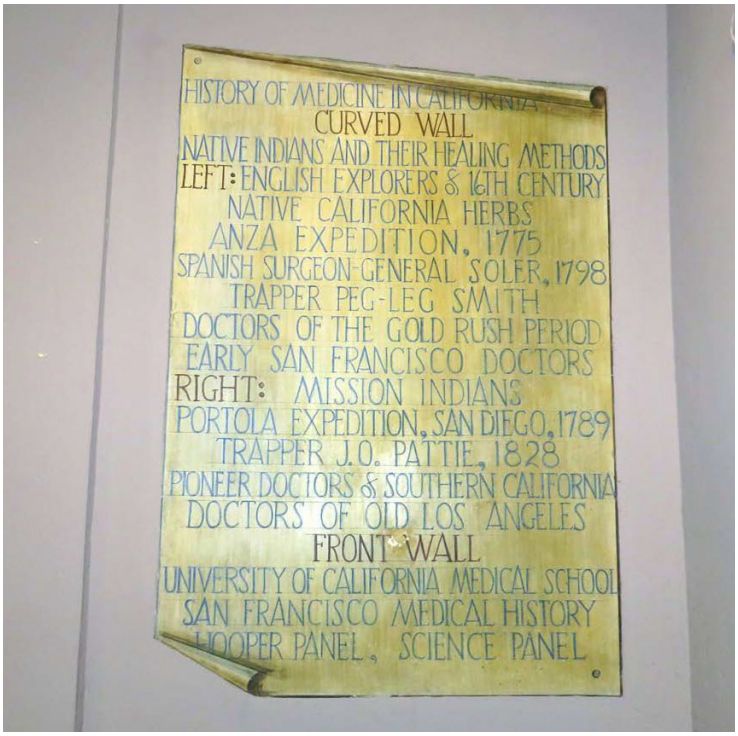
Fresco 4



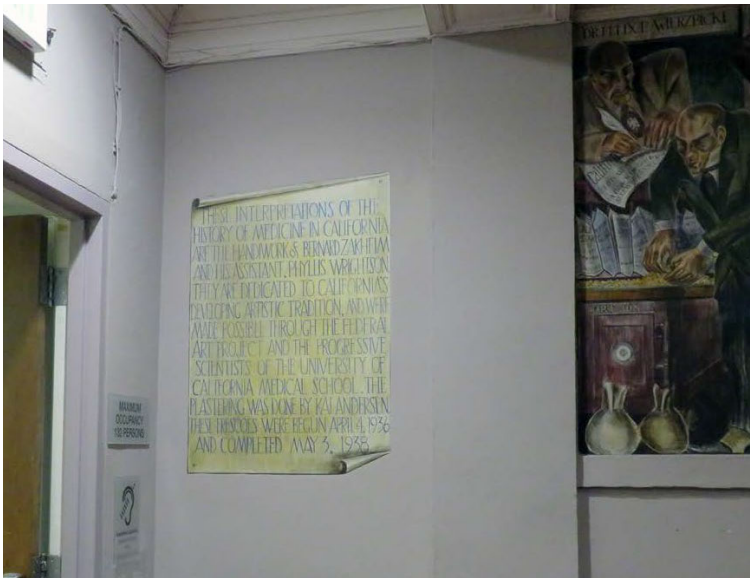
Fresco 5

Fresco 6

Fresco 7



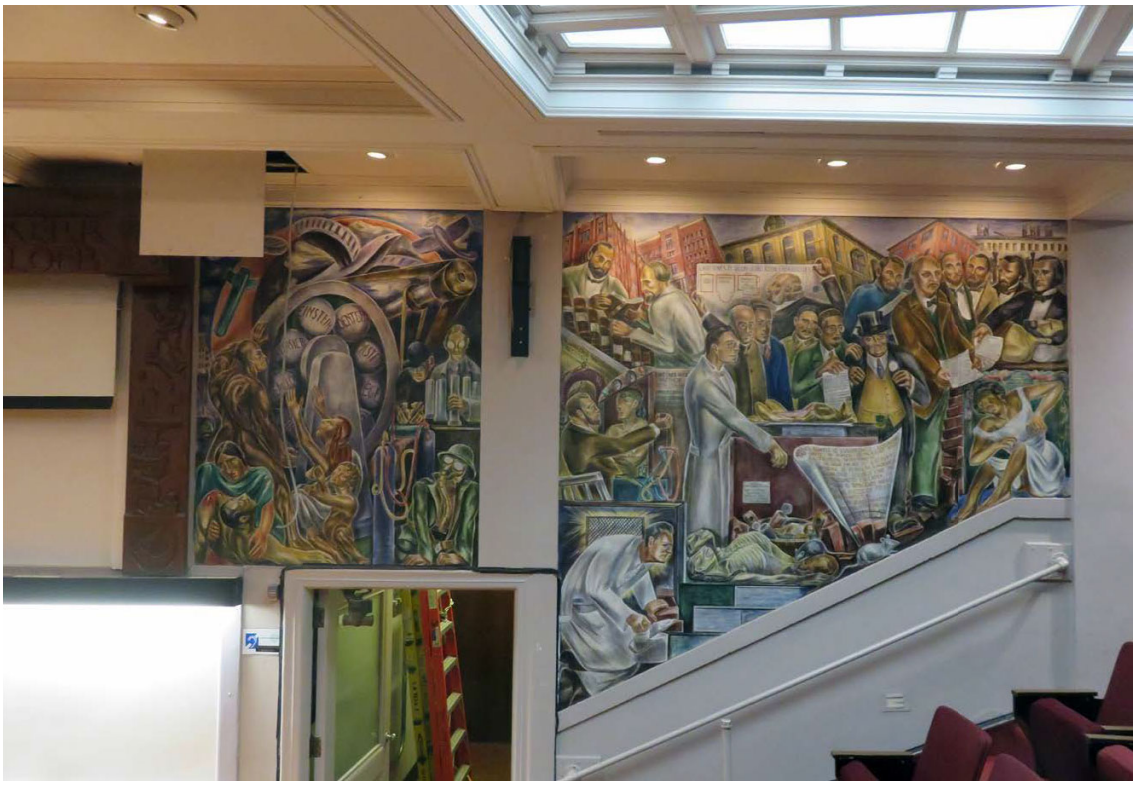
Fresco 8 (Description Scroll)



Fresco 1 (Dedication scroll)

Fresco 9 Fresco 10

Note: To right of Fresco 10 is a portion of the carved wood frame done by Michael von Meyer, 1937.



Fresco 11 Fresco 12

Note: To the left of Fresco 11 is a portion of the carved wood frame by Michael von Meyer, 1937.

Toland Hall, view northwest, 2015. Photo from *San Francisco Chronicle*.

Toland Hall, view of curved south wall with frescoes covered, 1953. Image from UCSF Archives and Special Collections, Photograph Collection, Toland Hall.

1948 Photograph of Bernard Zakheim's "History of Medicine in California," Toland Hall, UC Hospital
(Source: San Francisco Public Library, History Center) From Page & Turnbull, 2005. *UC Hospital, 533 Parnassus Avenue, University of California, San Francisco Parnassus Heights Campus San Francisco, California, Historic American Building Survey Documentation*, November, 56.

Toland Hall in use as a lecture hall, showing the Zakheim murals in place, 1941. Image from UCSF Archives and Special Collections, Photograph Collection, Toland Hall

1939 Photographs of Toland Hall (Source: San Francisco Public Library, History Center) From Page & Turnbull, 2005. *UC Hospital, 533 Parnassus Avenue, University of California, San Francisco Parnassus Heights Campus San Francisco, California, Historic American Building Survey Documentation*, November, 49-50.

Viewing murals at Toland Hall, F. Stanley Durie, Dr. William E. Carter, Phyllis Wrightson, Joseph Allen (State Director of WPA Federal Art Project), Bernard Zakheim, circa 1939
Recent Acquisition: Bernard Zakheim Collection, Brought To Light, UCSF blog, Posted on February 24, 2015 by Polina Ilieva.

Bernard Zakheim and helpers work on designs for fresco for Toland Hall, 1937, [AAK-0588]
San Francisco History Center, San Francisco Public Library

Bernard Zakheim at work on a mural for Toland Hall, 1937
San Francisco History Center, San Francisco Public Library
[MOR-0557]

Bernard Zakheim painting "History of Medicine in California" fresco, 1937. Image from UCSF Archives and Special Collections, Photograph Collection, Toland Hall

Appendix I-Maerki

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Office of the President

TO MEMBERS OF THE FINANCE AND CAPITAL STRATEGIES COMMITTEE:

ACTION ITEM

For Meeting of March 18, 2020

PRELIMINARY PLANS FUNDING, THE NEW HOSPITAL AT UCSF HELEN DILLER MEDICAL CENTER AT PARNASSUS HEIGHTS, SAN FRANCISCO CAMPUS

EXECUTIVE SUMMARY

UCSF has been actively engaged in a planning effort to re-envision and revitalize the Parnassus Heights campus site as a whole, to create a place that fosters collaboration among education, research, and patient care activities. The planning process resulted in the development of the Comprehensive Parnassus Heights Plan (CPHP), which provides a long-term development framework for the revitalization of the Parnassus Heights physical environment and cultural vitality of the entire neighborhood. This is one of three items being presented at this meeting that are related to projects supporting the broader plans at Parnassus Heights and the New Hospital Program.

UCSF proposes the New Hospital at UCSF Helen Diller Medical Center at Parnassus Heights Program (Program) to address seismic deficiencies for acute inpatient care and outdated clinical facilities that cannot accommodate the growing patient population. The Program comprises several projects, including seismic upgrade of the Moffitt hospital building; select renovation of Moffitt and Long hospital buildings; and construction of a new acute care hospital building to increase the existing hospital capacity and expand the current emergency, surgical, interventional radiology, and imaging services.

UCSF received a $500 million commitment from the Helen Diller Foundation to support the planning, design, and construction of the new hospital building. The commitment allows UCSF to begin the extensive planning process for an environmentally sustainable hospital building, which is expected to open its doors to patients by 2030.

The Regents are being asked to approve preliminary plans funding in the amount of $181.8 million to be funded with hospital reserves. The proposed funding would allow the campus to engage with an executive architect and construction professionals to refine program and scope, complete environmental analysis, and advance the proposed project through design development. Approval of full budget, external financing, and design following action pursuant to the California Environmental Quality Act would be requested for the project at a future meeting.

RECOMMENDATION

The President of the University recommends that the Finance and Capital Strategies Committee recommend to the Regents that the 2019-20 Budget for Capital Improvements and the Capital Improvement Program be amended to include the following project:

San Francisco: New Hospital at UCSF Helen Diller Medical Center at Parnassus Heights – preliminary plans – $181.8 million funded from hospital reserves.

BACKGROUND

UCSF Health is internationally renowned for providing highly specialized and innovative care. Investing in UCSF Health's future is critical to sustaining its public mission of providing top-quality care to all patients and supporting research and education. By investing in its facilities, UCSF Health is investing in its providers, patients, and staff by creating more inviting, functional, and state-of-art buildings in which to provide care.

Currently, patients on the Parnassus Heights campus receive care at two aging structures known as the Moffitt and Long Hospitals, as well as Medical Building 1 ("Ambulatory Care Center"). Moffitt Hospital was built in 1955 and thus, under State law SB 1953, it must be decommissioned for inpatient care or retrofitted by 2030 to conform to seismic code requirements.

Options for seismically retrofitting the existing Moffitt Hospital are being evaluated, along with the building's future use and function. The existing Long Hospital building will remain in operation as an inpatient hospital. It is anticipated that Long Hospital will require renovations to accommodate the expanded program and connection to the new hospital building. This project was presented to the Regents as a discussion in July 2019 and as part of discussions regarding the Integrated Form of Agreement in September and November 2019.

In 2017-18, a Strategic Clinical Facilities planning process was undertaken to develop achievable and affordable facilities options that would be aligned with UCSF Health's long-term strategy, volume projections, business plans, and financial capabilities. The conclusion of this planning process is that a larger hospital than what had been envisioned in the 2014 LRDP is needed at Parnassus Heights.

UCSF has significant capacity constraints resulting in an overcrowded emergency department, patients remaining in recovery rooms overnight, denial of transfer cases from other hospitals, and patients unable to transfer out of critical care units due to lack of downstream beds. These constraints create patient safety and satisfaction concerns, as well as provider and employee dissatisfaction. In addition to these current capacity issues, patient demand volume is expected to continue to increase. This is due to growth in the aging population as a whole, UCSF's affiliation network expansion, and the Bay Area's population growth, which show the nine-county area outpacing the growth rate in any other part of California.

PROJECT OBJECTIVES

In 2018, guiding principles for the planning and design of the New Hospital at Parnassus Heights were developed and include:

- Reimagining patient care by creating an optimal healing environment that addresses social, psychological, spiritual, and behavioral components of health in one place.

- Designing and constructing buildings based on "whole-patient" needs – from leading-edge diagnostic tests and therapies to the privacy, natural spaces, clean air, and human connection essential to physical and emotional healing.

- Maximizing innovation, quality, productivity, flexibility, and collaboration to create value for cost though use of the current, best-in-class project delivery model for large healthcare programs.

- Building an appropriately sized hospital and surgical intervention platform to meet the needs of the growing Bay Area population and beyond.

In addition, investing in UCSF Health's future is critical to sustaining UCSF Health's vision to be the best provider of health care services, the best place to work, and the best environment for teaching and research.

Based on the 2018 visioning work, the planning and space programming is being developed in the context of functional needs across the UCSF Helen Diller Medical Center at Parnassus Heights, including Long and Moffitt hospitals. The goal is to develop a holistic plan that enables the Parnassus Heights campus site to remain a destination supporting UCSF's excellence in clinical care, life sciences research, and education.

PROJECT DESCRIPTION

The proposed project would construct a new building of approximately 955,000 gross square feet (gsf) of new acute care space and new and expanded central utilities to serve the new building. Initial programming elements include:

- Planned increase in patient beds

- Surgical platform: 40 Operating Rooms and new Pre-Operative and Post-Anesthesia Care Unit support

- Interventional platform: 15 state-of-the-art interventional rooms

- Emergency department: 59 Emergency Department and 12 Clinical Decision Unit bays

- New and/or expanded kitchen, sterile processing, pharmacy, clinical laboratories, and overall support space

- Program space would also include hospital administrative offices, education and research offices, and team workrooms.

- Utility relocation and expansion

- Development of 96-hour water, waste, and power storage/supply to meet regulatory requirements by 2030.

The exact composition of the space program across the new and existing buildings is still being developed; however, the overall program will be designed for the most cost-efficient approach for constructability and operation.

Project Site

The proposed site for the new hospital is the site currently occupied by the Langley Porter Psychiatric Hospital and Clinics (LPPH&C), at the corner of Parnassus Avenue and Medical Center Way. Four buildings (Langley Porter Psychiatric Institute (LPPI), LPPI Butler, LPPI Outpatient Center, and LPPI Paint Shop) would be demolished as part of this project.

Approval Request and Project Schedule

Preliminary plans funding of $181.8 million would enable UCSF to refine and confirm the scope of work, refine the budget, complete environmental analyses, and advance the project through design development. Approval of budget, external financing, and design following action pursuant to the California Environmental Quality Act will be sought at a future meeting.

The master planning and functional and space programming process for the New Hospital program began in March 2019 and is anticipated to conclude in March 2020. Design is scheduled to begin in 2020. Demolition of the LPPH&C buildings is proposed to start in 2022 and subsequent construction is planned to begin in 2023, with the first patient expected to be seen in 2030. Select renovations to Moffitt and Long buildings would likely occur at the same time as the New Hospital construction, with major renovations upon completion of the new building.

Project Delivery

UCSF intends to complete the New Hospital at Parnassus Heights Program using the Integrated Form of Agreement (IFOA) which is an approved Integrated Project Delivery method. The design and construction planning will be performed by an integrated team including UCSF, the architect, general contractor, and key trades working collaboratively on

site in a "big room" environment, also referred to as the Integrated Center for Design & Construction (ICDC), to optimize Program quality within a cost target set by UCSF. The IFOA process optimizes the use of Lean tools and process. In addition to minimizing risk, the IFOA method provides control over design, quality, and managing patient, staff, visitor, and community requests.

Financial Feasibility

The preliminary plans funding is $181.8 million and will be funded from hospital reserves. As of June 30, 2019, UCSF Health has a 5.7 percent operating margin, 9.8x debt service coverage, and 96 days' cash on hand (metrics exclude the non-cash portion of the Pension and Other Post-Employment Benefits). Over a ten-year projection period, days' cash on hand is projected to be greater than or equal to 60 days, which meets the requirements of the University's Debt Policy.

Long Range Development Plan

Since the adoption of the San Francisco campus's current Long Range Development Plan in November 2014 (2014 LRDP), UCSF has been actively engaged in a planning effort to re-envision and revitalize the Parnassus Heights campus site as a whole, to create a place that fosters collaboration among education, research, and patient care activities in ways that continue to promote excellence and advance human health. UCSF's investment in Parnassus Heights has not kept pace with its aging central plant or changes in programmatic need, resulting in infrastructure, buildings, and interior spaces that require significant renewal and investment. The planning process resulted in the development of the Comprehensive Parnassus Heights Plan (CPHP), which provides a long-term development framework for the revitalization of the Parnassus Heights physical environment, with the intention of strengthening the vitality of the campus and the entire neighborhood.

The 2014 LRDP acknowledges the existing limit on the amount of non-residential built space at the Parnassus Heights campus site of 3.55 million gsf, commonly referred to as the "space ceiling." The space ceiling policy was included in an action approved by the Regents in May 1976, in response to neighborhood concerns about development of the Parnassus Heights campus site. The 1976 action imposed limits on the Parnassus Heights campus site, including permanent campus boundaries, designation of the Mount Sutro Open Space Reserve as permanent open space, and limits on physical expansion in surrounding areas. The 1976 action was amended in November 2014 to modify the way space and population are monitored at the Parnassus Heights campus site by excluding all housing within the Parnassus Heights campus site boundaries from the calculation in the space ceiling, and to tie the average daily population goal for the Parnassus Heights campus site to population projections contained in the 2014 LRDP Environmental Impact Report (EIR), as may be updated from time to time.

Based on the CPHP recommendations, the San Francisco campus is evaluating a potential increase of the space ceiling by approximately 1.5 million gsf for a total of 5.05 million gsf, to allow for the New Hospital at Parnassus Heights and to meet additional space needs on campus to fulfill the goals of the CPHP. Pursuant to a new community process that is

underway, UCSF will bring its proposed increase in the space ceiling to the Regents using a proposed LRDP Amendment and EIR for consideration at a future date. The Draft Environmental Impact Report for the CPHP, which incorporates the planning for the New Hospital, is expected to be released for public review and comment in May 2020.

KEY TO ACRONYMS

CPHP	Comprehensive Parnassus Heights Plan
EIR	Environmental Impact Report
GSF	Gross-Square-Foot
IPD	Integrated Project Delivery
LRDP	Long Range Development Plan
LPPH&C	Langley Porter Psychiatric Hospital and Clinics
LPPI	Langley Porter Psychiatric Institute
OPC	Outpatient Patient Center
Program	New Hospital at UCSF Helen Diller Medical Center at Parnassus Heights Program

ATTACHMENTS

Attachment 1	Preliminary Plans Budget
Attachment 2	Project Location Map
Attachment 3	Project Drivers
Attachment 4	Alternatives Considered

ATTACHMENT 1

NEW HOSPITAL AT UCSF HELEN DILLER MEDICAL CENTER AT PARNASSUS HEIGHTS

PRELIMINARY PLANS BUDGET

Category	**Total**	**% of Total**
Building [1]	$71,000,000	39.1%
A/E Fees [2]	$74,200,000	40.8%
Campus Administration [3]	$12,500,000	6.9%
Surveys, Tests, Plans [4]	$600,000	0.3%
Special Items [5]	$23,500,000	12.9%
Total	**$181,800,000**	100.0%

Under the Integrated Form of Agreement, the University's staff, design consultants, general contractor and major subcontractors begin the collaborative design process in schematic design to ensure all parties have the opportunity to influence the coordination and planning of the new hospital to increase project outcome certainty and lower risk.

Due to the site constraints, complexity of the space program renovations in Moffitt and Long hospitals, and the utility infrastructure challenges, early collaboration by all major parties in the identification and advancement of parallel design solutions will be critical to the project's budget and schedule.

At the end of design development, all project parties will have validated and contractually agreed to the scope, schedule, and budget of the project. The allocation of preconstruction, coordination, and design dollars is spent earlier in the integrated project approach vs. traditional design and does not increase the approved target budget.

[1] Building construction includes General Contractor, and major subcontractor pre-construction design assist services, Facilities Management consulting.

[2] A/E Fees include the executive architect, MEP and structural engineers basic services fees; and external project management and inspector of record services during design.

[3] Campus Administration includes: project management, contract administration, IT staff, Designated Campus Fire Marshall.

[4] Surveys, Tests, Plans include site surveys, plans & specs printing, and RFQ advertisement.

[5] Special Items include: pre-design studies, project EIR, local utility design fees, special consultants including medical equipment, furniture, physicist, hazardous material and environmental testing, OSHPD initial review fees, and EH&S reviews during design

ATTACHMENT 2

PROGRAM LOCATION MAP

New Hospital planned for LPPI site

ATTACHMENT 3

NEW HOSPITAL AT UCSF HELEN DILLER MEDICAL CENTER AT PARNASSUS HEIGHTS

PROJECT DRIVERS

Drivers for a larger hospital than what had been envisioned in the 2014 LRDP include addressing seismic improvements, inadequacies of existing facilities, population growth, demographic changes, and growth in complexity of inpatient services.

- Moffitt Hospital was built in 1955 during a different era of medical practices and philosophies. UCSF physicians and staff are currently working in facilities that are outdated, inflexible, undersized, and functionally and clinically obsolete. Many patient rooms and bathrooms are shared and do not provide the privacy and dignity expected by patients, thus not providing an optimal experience for patients and their families. State seismic law (SB 1953) requires Moffitt Hospital to be structurally retrofitted or decommissioned as an inpatient facility by 2030.

- The Parnassus Heights campus site is the center for the vast majority of UCSF's adult clinical care and the home to all five UCSF professional degree programs. The healthcare landscape is incredibly competitive for providers, staff, and patients. It is essential that UCSF has a world-class medical center on this site to support the convergence of UCSF's clinical care, research, and education missions as it moves into the future. Investment in the future is critical to the survival and continued growth of UCSF Health. UCSF must maintain a competitive edge among other healthcare organizations with newer facilities and more capital investment.

- The Bay Area population has grown steadily over the last ten years (one percent per year), with growth expected to continue at a similar pace over the next five years. The number of patients treated at the Parnassus Heights campus site has increased sharply, due to UCSF's increasing role as an important healthcare provider in San Francisco, the Bay Area, and northern and central California.

- Between 1976 and 2018, the average daily outpatient population at Parnassus Heights increased by almost 100 percent, while the inpatient population increased by 255 percent – a rate of patient growth that outpaced the rate of population growth in San Francisco and the Bay Area. The growth in the number of patients treated by UCSF since the 1970s is due to several factors including overall population growth in San Francisco and the Bay Area; a decline in the number of acute care hospitals serving San Francisco, resulting in UCSF steadily increasing the percentage of the City's overall hospital discharges (from 22 percent in 2001 to 34 percent in 2017); UCSF's increasing role as a regional patient referral center; and the establishment of UCSF's highly regarded liver, kidney, and heart and lung transplant programs.

- Services such as neurosurgery and vascular surgery are expected to see significant increases as the population grows and the percentage of residents of Medicare age increases. The total demand for services that UCSF is targeting is growing due to aging of the population and changes in technology and new treatments. For example, the focus on treating higher-acuity cases in key service lines will lead to an approximately 66 percent increase in the demand for neuroscience services, a 49 percent increase in the demand for heart and vascular services, and a 43 percent increase in the demand for orthopedic services.

- Demographic changes over the next ten years, including an increase in national Medicare enrollment, is expected to increase the acuity and length of stay of patients seen.

- As the percentage of less complex cases who can transition to outpatient settings increases, the medical complexity of patients coming to the hospital is expected to increase, which will mean longer length of stay for each admission and greater bed need.

- Regional network partners and affiliates rely on UCSF to support their complex patients and demand for patient transfers to UCSF continues to grow. In 2017, only 59 percent of medically necessary transfer requests to UCSF were accommodated. A large portion of the requested transfers did not come to UCSF because of a lack of capacity.

- UCSF must retain and recruit top-tier clinicians, staff, researchers, and students by creating an environment where teaching, research, and patient care intersect to deliver the highest level of care and innovation, integrating the patient experience with advancements in clinical quality.

ATTACHMENT 4

NEW HOSPITAL AT UCSF HELEN DILLER MEDICAL CENTER AT PARNASSUS HEIGHTS

ALTERNATIVES CONSIDERED

Other scenarios for meeting the demand for inpatient services at UCSF were considered, two of which are described below; however, these examples would only address a portion of the drivers for the proposed project.

Seismic Retrofit of Moffitt Hospital

Moffitt Hospital was built in 1955 during a different era of medical practices and philosophies. UCSF physicians and staff are currently working in facilities that are outdated, inflexible, undersized, and functionally and clinically obsolete. Structurally retrofitting Moffitt Hospital would allow the facility to continue as an inpatient facility beyond 2030; however, these improvements would not provide an increase in the number of inpatient beds or allow for expansion of emergency, surgical, interventional radiology, or imaging services. The floor to ceiling heights and building layout, for example, limit the amount of renovation that could be accomplished and prevent transformation of the facility into a modern hospital of the future.

The planning and space programming for the New Hospital Program is being developed in the context of the functional needs across the UCSF Helen Diller Medical Center at Parnassus Heights, including Long and Moffitt hospitals. Through this effort, the appropriate functional uses among the three facilities and the requisite renovations to the existing spaces would be identified.

Construction of Phase 2 Medical Center at Mission Bay

The Parnassus Heights campus is the center for the vast majority of adult clinical care and home to all five professional degree programs, necessitating a state-of-the-art hospital to ensure future success in all aspects of UCSF's missions. It is essential that UCSF invest in a world-class medical center at Parnassus Heights to support the convergence of UCSF's clinical care, research, and education missions.

Relocating inpatient beds from Parnassus Heights to Mission Bay would adversely affect the clinical enterprise remaining at Parnassus Heights and eliminate the ability to leverage the functional needs across multiple facilities to maximize the efficient use of the two existing hospitals.

The proposed New Hospital at UCSF Helen Diller Medical Center at Parnassus Heights Program would increase the number of inpatient beds at Parnassus to address the growing demand for services; allow for expansion of emergency, surgical, interventional radiology, and imaging services; create an environment where teaching, research, and patient care intersect to deliver the

highest level of care and innovation; and provide a world-class hospital to continue providing premier care to patients.

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Office of the President

TO MEMBERS OF THE FINANCE AND CAPITAL STRATEGIES COMMITTEE:

ACTION ITEM – CONSENT

For Meeting of March 18, 2020

PRELIMINARY PLANS FUNDING, MISSION BAY EAST CAMPUS PHASE 2 (BLOCK 34) CLINICAL BUILDING, SAN FRANCISCO CAMPUS

EXECUTIVE SUMMARY

The San Francisco campus proposes to construct a new, approximately 190,000-gross-square-foot clinical building on the East Campus Phase 2 parcel (Block 34) at the Mission Bay campus site. In support of UCSF Health's Strategic Plan to increase its market presence, the proposed clinical building would provide an ambulatory surgery center and adult primary and secondary multi-specialty clinics. Other clinical services are also being evaluated as the campus looks to maximize the opportunity to provide clinical space adjacent to like-disciplined clinical and research programs.

The Regents are being asked to approve preliminary plans funding in the amount of $25.5 million to be funded with hospital reserves. The proposed funding would allow the campus to engage with an executive architect and construction professional to refine program and scope, complete environmental analysis, and advance the proposed project through design development. Approval of full budget, external financing, and design following action pursuant to the California Environmental Quality Act would be requested for the project at a future meeting, anticipated for 2021. A separate item for approval of preliminary plans and working drawings funding for the parking garage to be constructed on the Block 34 site also is being proposed at this meeting.

RECOMMENDATION

The President of the University recommends that the Finance and Capital Strategies Committee recommend to the Regents that the 2019-20 Budget for Capital Improvements and the Capital Improvement Program be amended to include the following project:

> San Francisco: Mission Bay East Campus Phase 2 Clinical Building – preliminary plans – $25.5 million funded from hospital reserves.

BACKGROUND

UCSF Health's Strategic Plan, Vision 2025, calls for it to fulfill the health system's unique role in its broader network as the Bay Area's leading complex care provider and destination for tertiary and quaternary care. Specifically, the plan calls for the health system to increase its market share from 11 percent to 16 percent over the next five years. Further growth is limited by both ambulatory and inpatient capacity. The proposed clinical building would allow UCSF to create capacity in an ambulatory setting for both primary and specialty care as well as ambulatory surgery, and this would subsequently free up capacity in UCSF's inpatient facilities.

The development of the Mission Bay campus site has been critical to the success of UCSF's academic and clinical programs. The campus has identified key strategies for projects at Mission Bay and the proposed clinical building and parking garage would be essential to advancing UCSF's strategy to grow outpatient clinical programs and support the adult hospital services and cancer services.

Project Drivers for the Clinical Building

Provide an Ambulatory Surgery Center (ASC)
The capacity of the operating rooms at Mission Bay and Parnassus Heights cannot meet the demand from both inpatient and outpatient surgical services. Outpatient surgical volume has grown at a rate of 7.5 percent per year over the last five years and continued growth is expected. A new ASC at Mission Bay would increase capacity for inpatient surgical services at Parnassus Heights and the Mission Bay Hospital by directing outpatient surgical services to the ASC. Additionally, locating an ASC at Mission Bay would provide consolidation of cancer services at a single facility.

Expand Access to Adult Primary and Secondary Multi-Specialty Clinics
Additional clinic space is needed to address unmet demand across primary care specialties and to meet long-term population health goals. UCSF's faculty practice and ambulatory services have grown between seven percent and 12 percent for the last five years; current new patient referrals far exceed existing capacity. Within the next 24 months, examination room utilization will rise above industry benchmarks and limit ability to serve more patients.

New clinics would support inpatient adult care being provided at Mission Bay. Also, the creation of an adult urgent care clinic would provide services that are lacking in the area and support the Mission Bay Hospital's emergency room by allowing it to direct adult patients to the urgent care clinic. The urgent care clinic will also support cancer services by providing much-needed capacity for the urgent care needs of cancer patients.

PROJECT DESCRIPTION

This project proposes construction of an approximately 190,000-gross-square-foot[1] (gsf) clinical building. Initial programming elements include:

- Ambulatory Surgery Center (approximately 39,000 gsf) – ten operating rooms, two procedure rooms, and 34 recovery bays.

- Clinics (approximately 52,000 gsf) – adult primary and secondary multi-specialty clinics.

- Approximately 99,000 gsf of space has not been programmed yet and is currently designated as additional clinical services, office and administrative support space, and space for future expansion.

The space program would be refined through detailed programming and early design efforts. The East Campus Phase 2 (Block 34) site is one of the last opportunities for construction of clinical space at the Mission Bay campus, with the exception of the Mission Bay Hospital Phase 2 site. Therefore, UCSF proposes to design and construct a building that maximizes its entitlement for the site and the opportunity to provide clinical space adjacent to like-disciplined clinical and research programs. The campus evaluated the process that would be required to seek an increase in the amount of space that could be developed on the site and determined not to pursue an entitlement increase at this time. Authority to make the change is not solely within UCSF's lead agency control and would require negotiations with the City of San Francisco and the Office of Community Investment and Infrastructure (the successor agency to the San Francisco Redevelopment Agency), a complicated process that could significantly delay construction of the building. Opportunities for designing the building for future expansion are being explored within the design phase, in case it becomes possible to increase the entitlement for the site in the future.

Project Site

The proposed clinical building would be located on the UCSF Mission Bay East Campus (which contains both Blocks 33 and 34). The 3.8-acre East Campus is bounded by Third Street to the west, 16th Street to the north, Illinois Street to the east and Mariposa Street to the south. Under the 2014 Long Range Development Plan, the East Campus was projected to accommodate 500,000 gross square feet of development in two buildings and 500 structured parking spaces. The approved Wayne and Gladys Valley Center for Vision and Valley Tower building is currently under construction on the northern portion of the site. The proposed clinical building and the parking garage would be located on the southern portion.

Project Delivery

[1] Total buildable area is limited by the terms the agreement established at the acquisition of this parcel. The 190,000-gsf entitlement would include any programmable space designed into the separate Parking Garage project being presented at this meeting.

The projects would be delivered using the Construction Manager at Risk form of Integrated Project Delivery (IPD) model, emphasizing the same principles used to achieve the successful results of the UCSF Medical Center at Mission Bay project and the Precision Cancer Medical Building project. The design would be performed by an integrated team including UCSF, the architect, contractor, and key subcontractors working collaboratively on site in a "big room" environment to optimize project quality within a cost target set by UCSF. The IPD process optimizes the use of Lean tools, processes, and 3-D modeling. In addition to minimizing risk, the IPD method provides the greatest control over design, quality, and managing patient, staff, visitor, and community requests.

UCSF plans to use the same integrated team for design and construction of both the clinical building and the parking garage and to bid the projects as a single contract to take advantage of economies of scale and efficiencies related to having one contractor on site.

Financial Feasibility

The preliminary plans funding is $25.5 million and will be funded from hospital reserves. As of June 30, 2019, the San Francisco medical center has a 5.7 percent operating margin, 9.8x debt service coverage, and 96 days' cash on hand (metrics exclude the non-cash portion of Pension and Other Post-Employment Benefits). Over a ten-year projection period, days' cash on hand is projected to be to be greater than or equal to 60 days, which meets the requirements of the University's Debt Policy.

Approval Request and Project Schedule

The campus presented the proposed project to the Health Services Committee at its December 2019 meeting. The project was included on the January 2020 agenda as an information item for the Finance and Capital Strategies Committee.

Preliminary plans funding of $25.5 million would enable UCSF to refine and confirm the scope of work, refine the budget, complete the environmental analyses, and advance the project through design development. Approval of budget, external financing, and design following action pursuant to the California Environmental Quality Act is planned for 2021. Following these approvals, it is estimated that construction would commence in fall 2021 with the first patient targeted for 2023-24. (Attachment 3 includes a timeline for both the clinical building and the parking garage.)

KEY TO ACRONYMS

ASC	Ambulatory Surgery Center
GSF	Gross-Square-Feet
IPD	Integrated Project Delivery

ATTACHMENTS

Attachment 1:	Preliminary Plans Budget
Attachment 2:	Project Site Maps
Attachment 3:	Project Timeline for Clinical Building and Parking Garage

ATTACHMENT 1

MISSION BAY EAST CAMPUS PHASE 2 CLINICAL BUILDING
PRELIMINARY PLANS BUDGET

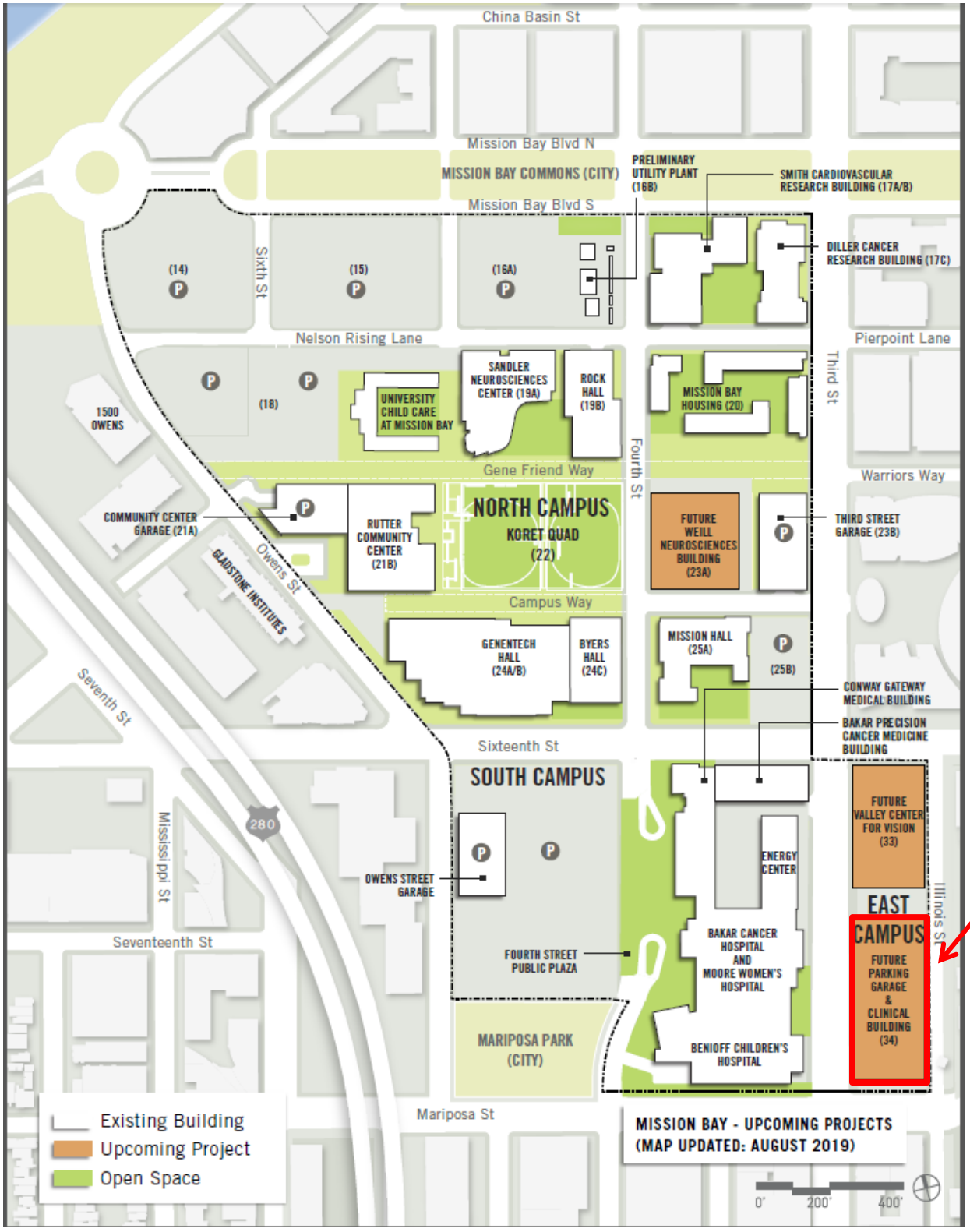
Category	**Total**	**% of Total**
Building [1]	$7,800,000	30.6%
A/E Fees [2]	$13,200,000	51.8%
Campus Administration [3]	$3,000,000	11.7%
Surveys, Tests, Plans [4]	$300,000	1.2%
Special Items [5]	$1,200,000	4.7%
Total	**$25,500,000**	100.0%

Although not a hospital project, the proposed clinical building has a complex program that includes ambulatory surgery. The Integrated Project Delivery model requires early involvement of the General Contractor and Design-Assist/Design-Build Subcontractors at the preliminary design phase for coordination that reduces the risk during construction for cost overruns and schedule delays (pre-construction services). The A/E consultants work collaboratively with these subs providing pre-construction services during the preliminary plans and working drawings phases and this enhanced effort in this process is reflected in the budget.

[1] Building construction includes General Contractor and trades pre-construction design assist services, Facilities Management consulting, lease of existing Integrated Construction and Design Center trailer at Mission Bay)
[2] A/E Fees include the executive architect / engineer's basic services contract fee.
[3] Campus Administration includes: project management and contract administration.
[4] Surveys, Tests, Plans include: hazardous materials survey and testing.
[5] Special Items include: pre-design studies, specialty consultants, environmental review, and CEQA approval.

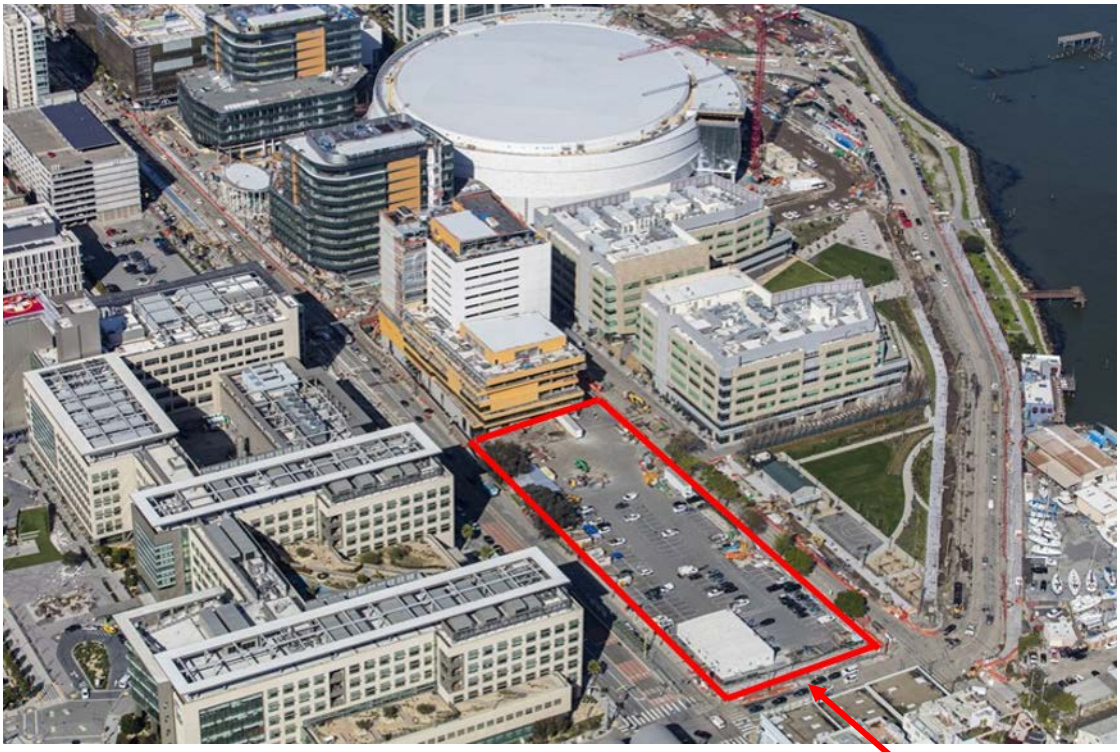
ATTACHMENT 2

Project Site Map



Project Site

Project Site Map

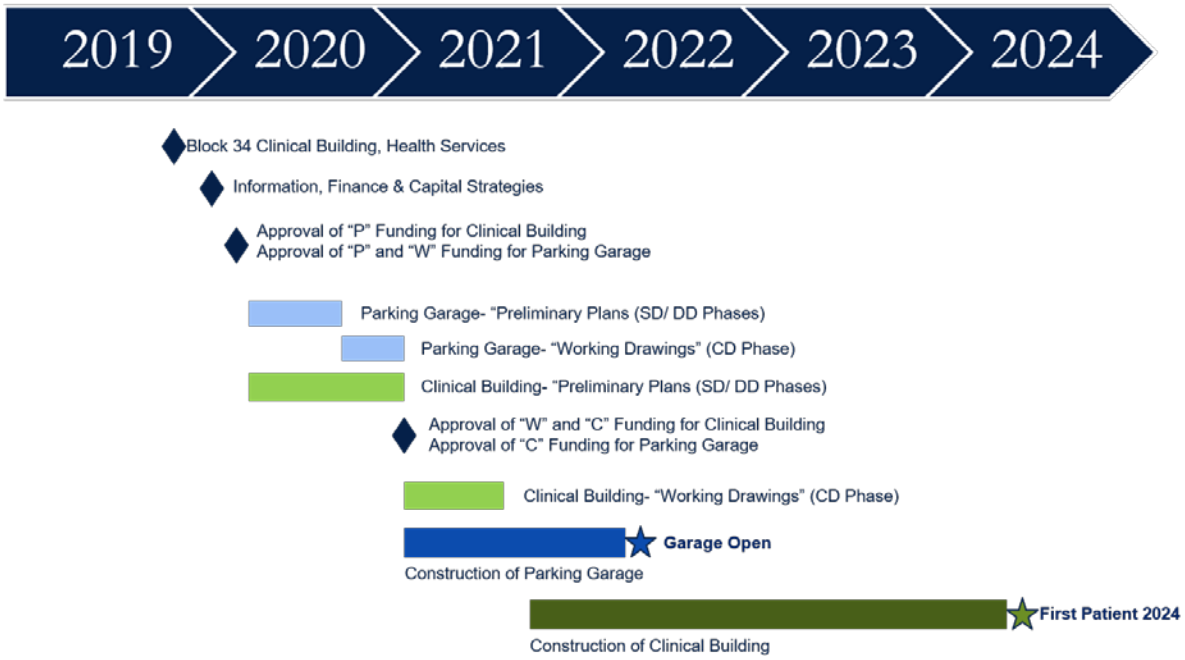


Mission Bay, Mariposa Street and Third Street

Mission Bay East Campus
Phase 2 (Block 34)
Parking Garage and Clinical
Building Site

ATTACHMENT 3

PROJECT TIMELINE
CLINICAL BUILDING AND PARKING GARAGE



FACT SHEET: STANFORD UNIVERSITY MEDICAL CENTER

DEVELOPMENT AGREEMENT

Prepared: June 2010

Development Agreements are negotiated contracts between a project proponent/applicant and the City. A Development Agreement is typically sought to ensure that local regulations pertaining to the project will not change over time. In exchange, local governments negotiate an acceptable "community benefit package."

On June 15, 2009, Stanford submitted a Development Agreement proposal to the City. The City prepared a counter proposal and will continue to negotiate the terms with Stanford. The Development Agreement cannot be approved until after certification of the Final Environmental Impact Report.

Previous City Council Meetings for Discussion of Community Benefits and Development Agreement:

November 26, 2007

March 14, 2009

March 30, 2009

December 7, 2009

April 6, 2010

Reports for these meetings can be found on the SUMC Project website, www.cityofpaloalto.org/sumc

THE SUMC PROJECT SPONSORS (STANFORD) HAVE PROPOSED THE FOLLOWING DEAL TERMS:

- Establishment of two new programs for the exclusive benefit of Palo Alto residents: a $3 million fund to assist qualified low-income residents and a $4 million fund to subsidize community health programs within Palo Alto.
- Construction spending and associated use taxes of $8.3 million and provisions to obtain a use tax direct payment permit that will generate approximately $26,000 annually.
- Purchase of Caltrain GO Passes for all SUMC employees at an estimated annual cost of $1.3 million. (Currently only Stanford University employees are provided this benefit.)
- Expansion of the Marguerite shuttle service by purchasing additional shuttles in the amount of $2 million and by funding additional annual operating costs of $450,000.
- Funding a range of improvements to encourage use of transit and enhance pedestrian and bicycle connections between the hospitals and downtown: $2.25 million for pedestrian and bicycle connections around the Intermodal Transit Center; $400,000 for right of way improvements along Quarry Road; and $700,000 for a pedestrian connection between the Medical Center and Shopping Center (Stanford Barn area).
- Payment of housing in-lieu fees in the amount of $23.1 million, which is what an equivalent commercial project would pay.

For more information please go to *www.cityofpaloalto.org/sumc*, or contact Steven Turner at *steven.turner@cityofpaloalto.org*

As part of preliminary negotiations, the City Staff has developed the following guiding principles for discussions:

1. Minimize the Fiscal Impacts to the City.
2. Require Project Mitigation.
3. Preserve Community Health Care.
4. Enhance City Infrastructure.

SUPPLEMENTAL DEVELOPMENT AGREEMENT TERMS PREPARED BY THE CITY ARE AS FOLLOWS:

HEALTH CARE

- Extend financial assistance subsidy to qualifying residents ($3 million) from 10 years to life of Development Agreement.
- Extend community health programs payment ($4 million) from 10 years to life of Development Agreement.
- Continue appropriate hospital privileges for community practitioners.
- Continue SUMC's current community health/wellness/disease prevention programs.
- Fund co-located Emergency Operations Center (EOC) facility in new buildings within Palo Alto.
- Explore innovative health care initiative/partnership in area of broadband/fiber to the premises.

FISCAL

- Ensure project is at least cost neutral by guaranteeing revenue projections to offset expenditures, funding extra public safety Full-time Equivalents (FTE's) and fully funding mitigations.
- Payment to City in lieu of property tax.

TRANSPORTATION

- Explore re-defining TDM program (Caltrain GO Pass) and re-directing funds toward expanded shuttle program and other Citywide infrastructure improvements.

PEDESTRIAN AND BICYCLE LINKAGES BENEFIT

- These items are covered as SUMC Project mitigations and explained in more detail throughout the EIR document.

HOUSING BENEFIT

- The Hospital District would include additional measures to address the impact on the City's jobs to employed resident's ratio, as identified in Section 3.13 Population and Housing in the EIR.

SCHOOL FEES BENEFIT (PALO ALTO UNIFIED SCHOOL DISTRICT - PAUSD)

- Work with the PAUSD and the City to minimize impacts to schools.

ECONOMIC AND COMMUNITY VITALITY

- Contribute $30 million to help fund needed Citywide infrastructure such as a Public Safety Building, EOC, roadways, and expanded shuttle programs.

Appendix I-Robertson

APPENDIX F: 1976 REGENTS' RESOLUTION

"DESIGNATION OF OPEN SPACE RESERVE, ALTERATION OF CAMPUS BOUNDARIES, COMMITMENT OF HOUSES TO RESIDENTIAL USE, AUTHORIZATION TO NEGOTIATE SALE OF PROPERTIES AND COMMITMENT OF TRANSPORTATION STUDIES."

The following recommendations were approved by the Board of Regents on May 21, 1976:

1. That the reserve on Mount Sutro, which was designated as open space for a twenty-five year period by The Regents in October, 1975, be increased from fifty-two to approximately fifty-eight acres, and that the designation be made permanent.

2. That the boundaries of the San Francisco campus be altered to exclude properties on the west side of Third Avenue from 1309-11 Third Avenue to and including 1379 Third Avenue, and that the new boundaries be made permanent. The total structures within the campus boundaries shall not exceed 3.55 million gross square feet (not including space committed to residential use on Third, Fourth, Fifth and Parnassus Avenues and Kirkham and Irving Streets) and this limit shall be permanent. These restrictions prohibit expansion by UCSF by purchase or condemnation or gift of any property or lease of private residential property not only contiguous with the new campus boundaries, but anywhere within the surrounding area bounded by Golden Gate Park, Oak Street, Ninth Avenue, Clayton and Clarendon. This does not prohibit the use of commercial properties or the affiliation with other public agencies within the area described.

3. That the Regents redefine their commitment, made as part of the October, 1975, approval of the Long Range Development Plan, to return certain existing houses to residential use as alternative campus space and funds for rehabilitation and relocation become available for the activities now housed therein, and that as part of this commitment: The ten houses on Third Avenue, outside the campus boundaries revised as recommended in 2. above, be sold subject to the provisions set forth in 4. below; the thirty-four houses on Third, Fifth, and Parnassus Avenues and on Irving and Kirkham Streets be rehabilitated as required and leased for residential purposes, with priority given to University students, faculty, and staff; and the seven houses on Fourth Avenue remaining after clearance of the site for the School of Dentistry Building project be retained for non-residential campus use.

4. That the Treasurer be authorized to negotiate the sale of the lots and structures, and other improvements thereon, located at 1309-11, 1319, 1325, 1337, 1343, 1355, 1361-63, 1367-69, 1373, and 1379 Third Avenue; the lot between 1355 and 1343 Third Avenue; and the lot between 1309-11 and 1319 Third Avenue, subject to the provisions listed in 4(a) through 4(e) below and that the results of said negotiations be presented to The Regents for final approval and authority to sell based on offers acceptable to The Regents:

    (a) The offer for sale of the two vacant lots shall commence within six months and the offer for sale of all remaining properties shall commence within thirty-six months, except that no relocation of University activities or tenants or conversion of houses for residential uses shall

be initiated until funds for such purpose are on hand as specified in 4(b) below and until space into which activities or tenants can be relocated is available;

(b) A special fund shall be established to fund projects within the Capital Improvement Program for the purpose of, first, providing accommodation for activities displaced by sale of houses, second, providing accommodation for campus activities displaced by conversion of the structures retained for residential use, and, third, converting and rehabilitating the structures retained for residential use, said fund to be funded from proceeds of the sale of the properties, except as noted in 4(c) below, and, if funds are not on hand from the sale of properties, from an advance, as needed, of not to exceed $50,000 from the University Opportunity Fund, such advance to be on a revolving basis and to be repaid with proceeds, as received, from subsequent sale of properties, it being understood that, at the completion of the sale of the properties, any part of the advance not repaid shall be converted to an appropriation;

(c) The portions of the proceeds of the sales of the lots between 1309-11 and 1319, and between 1343 and 1355 Third Avenue, attributable to the eighteen parking spaces currently located thereon, shall be deposited in the Net Revenue Account of the University of California Parking System;

(d) Funds not to exceed $10,000 shall be allocated by the President obtain an appraisal of market value of the properties for use as residences; and

(e) All properties shall be sold in the then existing condition, it being made clear to the buyer that he or she may be required to conform to all applicable State and City and County of San Francisco codes in converting the structures to residential use;

5. That funds not to exceed $25,000 be allocated to the San Francisco campus from the University Opportunity Fund for the purpose of retaining an independent consultant firm to develop additional plans for the alleviation of transportation problems such as traffic, parking congestion, and availability of public transit, it being the intent that such plans be implemented to the extend feasible within resources normally available to the campus for such purposes or within additional State appropriations that might be made available for such purposes;

6. That the Long Range Development Plan for the San Francisco campus, as approved by The Regents in October, 1975, be amended to reflect the described changes in designation of open space, boundaries, and use of housing;

7. That The Regents recognize the principle that the San Francisco campus will be administered so that the annual average of the daily campus population at the Parnassus site will remain substantially in accordance with the projections set forth in the Environmental Impact Report related to the Long Range Development Plan for the campus, approved by The Regents in October 1975.

Exhibit "B"

Appendix I-Robertson

ResearchGate

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"Bringing DNA Into the Neighborhood" in San Francisco: A Personal Recollection

Article *in* Journal of Urban History · March 2016

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"BRINGING DNA INTO THE NEIGHBORHOOD" IN SAN FRANCISCO: A PERSONAL RECOLLECTION

Guenter B. Risse

"Not in My Back Yard" wars have existed almost as long as the notion of private property. Community groups respond that they must fight to protect the quality of life because they cannot count on public officials to do it for them.[1]

ABSTRACT

Based primarily on personal experiences, this essay aims to illustrate the troublesome relationship between the University of California, San Francisco, and its adjoining neighborhoods from the 1960s to the present. Like other University of California campuses, UCSF was not required to conform to local land uses and zoning laws. Only its periodic and mandatory Long Range Development Plans provided clues about future research initiatives and expansion plans. The story, punctuated by indifference to neighborhood concerns, depicts the protracted legal wrangling between a world-renowned medical institution and local civic organizations fearful of its impact on the environment, residential life, and real estate. The featured focus of these disputes centered around UCSF's hasty purchase in 1984 of a large facility located in the Laurel Heights neighborhood of San Francisco to alleviate crowding at the main campus on Parnassus Heights. Confusion, misunderstanding, and outright distrust concerning UCSF's planning for the new research location ensued. In fact, fear of potential chemical emissions and radioactive contamination prompted stiff local resistance. Eventually, after a decade of litigation, the protracted case forced UCSF to redefine and restrict its mission at Laurel Heights. The essay argues that the Medical Center's subsequent leadership learned an important lesson from this costly lawsuit. In its subsequent efforts to expand locally, UCSF created mechanisms designed to prevent opposition and litigation by systematically engaging with San Francisco communities and their leaders. By the early 21st century, such partnerships and alliances paved the way for a successful institutional expansion, thus consolidating UCSF's role as a leader in biomedical research, teaching and practice.

When I arrived in mid 1985 to assume the chairmanship of the History of Health Sciences Department, institutional space at the University of California,

[1] Allyn Stone, "How Citizens Resist Planners-How Neighborhoods Resist Bay Area Planners," *SF Chron*, Nov 17, 1987.

San Francisco (UCSF) was at a very high premium. Our small unit consisted of just five small rooms located on the fourth floor of the UC Hospital, a building completed in 1917 and eventually converted into offices, laboratories and clinics. Now seismically unsafe, it had already been twice slated for closure and eventual demolition. Large warning signs with recommended escape routes placed near the elevators confirmed the potentially hazardous conditions of my future workplace. But we were not alone. To the dismay of local fire marshals, laboratory equipment and bulky refrigerators crowded the hallways. People wandered along the corridors searching for empty spaces in offices, bathrooms, and even hidden closets, ready to pounce and claim them for their program or department. Adjacent to our departmental offices, a communal classroom used for meetings and seminars was slated for other purposes. According to my new colleagues, the space problem appeared to be intractable, yet I knew that UCSF was California's most prominent medical center, an institution with a worldwide reputation for cutting edge biomedical research. What was going on?

Background

Originally a proprietary medical school founded in 1864 without clinical facilities, the institution had been bequeathed to the University of California in 1872, expanding after its relocation to donated land on the north face of Mt Sutro near Golden Gate Park and a few miles from the Pacific Ocean.[2] Its meteoric rise towards a world-class medical Goliath began in the 1960s with the return of basic medical science departments from the UC Berkeley campus. This transfer allowed for a generous infusion of federal grant monies, and after arrival of the jet-age it facilitated bicoastal academic interactions and research collaborations.[3] In truth, UCSF became a successful brand in the 1970s; incoming academics were told that their appointments constituted a license to compete and "hunt" for outside resources. The consequences of such rapid growth were visually obvious: hugging the northern slope of Mount Sutro was an awkwardly laid out building complex called "Parnassus Heights."[4]

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[2] Sutro's intended to use the site not only for the colleges of medicine, dentistry, pharmacy, veterinary medicine and law, but to build his own private library. Sutro's donation was not only the result of Beverly Cole's tactful persuasion, but is also an expression of gratitude for the successful medical education that his daughter had received at the UC Medical Department.

[3] For details, see *A History of UCSF*, http://www.ucsf.edu

[4] The designation originated with Adolph Sutro,(1830-1898) who adopted the ancient Greek meaning of Mt Parnassus as the home for literature and learning, planning to place his extensive private library at this site. Sutro was an engineer and "king" of the Comstock silver mine in Nevada before coming to San Francisco and purchasing thousands of acres west of Twin Peaks, including Mt. Parnassus, later named after him. He also was Mayor of San Francisco

The UCSF campus was located in the Sunset district, between the Inner Sunset, a "micro neighborhood" of shops and eateries, student housing and private dwellings to the west, and a southeastern upscale residential area, Parnassus Heights. By 1964, the hospitals and clinics formed a solid line of Manhattan style high-rise buildings, towering over the surrounding urban landscape like a symbol of medical power, arrogance and indifference. Deflecting the stiff ocean breezes, the structures created a bracing wind tunnel that greeted patients and staff circulating between the facilities. Historically known as "outside lands," the Sunset consisted of leveled and scrubby sand dunes, tamed with additional vegetation and divided by a rectangular urban grid of streets. Populated mostly with row houses after the 1906 earthquake, the partially gentrified and eternally foggy area featured a multiethnic middle class population.

After the initial shock of coming to terms with our restricted and dangerous academic space in the old University Hospital, an explanation for the congestion and marauding faculty sprees was not hard to obtain. All University of California campuses were required to issue periodic Long Range Development Plans (LRDP) for approval by the full Board of Regents. These official documents, designed for public comment and endorsement, provided a general land use plan based on future academic goals and administrative needs. The first plan, produced during Chancellor John B. C. M. Saunders tenure in the early 1960s, envisioned the purchase of several residential city blocks extending to the southeastern edge of Golden Gate Park. Destruction of private homes for a large parking garage and conversion of several houses into additional offices and clinics were part of the plan.[5]

As the news about the planned expansion reached the community, local groups like the Inner Sunset Action Committee and the Mt. Sutro Defense Committees staged NIMBY protests, vowing to protect real estate values and residential quality. As other state institutions, University of California campuses were not requested to conform to local land uses and zoning laws. Furthermore, their non-profit, tax-exempt status was often perceived as an unfair burden instead of an asset to nearby communities. Any potential development initiated by such a powerful neighbor immediately elicited

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between 1895-97 and donated 13 acres of land for the construction of the Affiliated Colleges of Medicine and Pharmacy (later UCSF) in July 1895.

[5] John B. de C.M. Saunders (1903-1991) was both Dean of the Medical School and Chancellor from 1956 to 1963. He presided over one of the institution's most critical development phases. See *A History of UCSF*, 1959-1989 Modernization and the Expansion of Scientific and Clinical Training, Updates to Campus Buildings, http://library.ucsf.edu/1959

apprehension, fostered suspicions and nurtured distrust.[6] Decades later, when considering the barriers to neighborhood involvement, the university freely admitted "biomedical research culture overshadows and depreciates the valuing of community engagement."[7]

By the early 1970s, institutional planning in the state became more complicated. Statutes from California's Environmental Act of 1970 now required environmental impact reports (EIR) for the erection of larger structures. UCSF planners responded with a revised LRDP announcing additional hospital remodeling and construction projects. Further down the hill, several houses gave way to a large, multistory parking garage. Alarmed, the neighborhood organizations expressed strong opposition, fearing additional "stealth" acquisitions through the use of eminent domain and private purchase.[8] Consequently, the Mt. Sutro Defense Committee in October 1974 initiated litigation against the UC Regents and the current UCSF Chancellor, Francis A. Sooy. [9] This neighborhood organization and the Inner Sunset Action Committee claimed that the university's current EIR failed to comply with the new mandates contained in the California Environmental Quality Act.[10]

San Francisco's Superior County and City Court heard the case in December 1975. This body ruled that all further construction be stopped until the university made further changes to their EIR. A state legislative threat to withhold funding for the entire University of California emerged. UCSF responded promptly, drafting an amended LRDP in April 1976. With inpatient services vacated, the old UC Hospital would be demolished, allowing the return of "visual connections" to the hill and forest behind the medical center. Moreover, the university agreed to restore a number of its purchased houses for residential use. A terraced landscaped plaza looking towards the neighborhood

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[6] Response to Height and Bulk Limits Proposed by San Francisco Planning Commission, Apr 1972. UCSF, LRDP Plan Task Force, Report of Task Force on Phase B, LRDP, Aug 1973. http://ucsf.edu/1976/LRDP

[7] UCSF Task Force in Community Partnerships, August 2005.

[8] References to the 1970s events are contained in Carol Dimmick, "Neighbors Charge UCSF Breaking Housing Promises," Sunset Beacon, Jul 1, 2001, http://www.sunsetbeacon.com/archives.

[9] In 1964, during the tenure of Francis A. Sooy (1915-1986), the Regents of the University of California awarded the campus administrative and financial independence. In 1970, The University of California San Francisco Medical Center was officially renamed UCSF.

[10] Inner Sunset Action Committee (ISAC), Institutional Expansion Element, Mt. Sutro Community Master Plan, Jan, 1975.

would soften the transition between the medical and residential zones.[11] After the plan found favor with the court, a ruling in August lifted the injunction. To prevent recurrent legal challenges, the UC Regents went further in October, agreeing to a legally-binding moratorium on UCSF's expansions at the Parnassus campus until 1985. A revised LRDP pegged the limits on gross building at 3,55 million square feet with a population of employees not to exceed 13,400. No further leases, purchases, condemnations and even gifted property for the Medical Center would be allowed. In addition, UCSF promised to reconvert all the previously purchased buildings into residential housing. To prevent any subterfuge, the additional 61 acres of mostly eucalyptus forest behind the complex were declared an open public space. The university had purchased this land in the 1950s from the old, much-disputed Sutro estate.[12] The woods hosted a small "aldea" of student housing units as well as the chancellor's mansion, both linked to the campus through a winding road.

Need for Expansion

Stymied in its quest to expand at the Parnassus site because of the 1976 agreement, UCSF had been forced to plan for its future development by adopting a multi-campus model; all additional locations would be sought in other San Francisco neighborhoods and linked by means of shuttle services. By the time of my arrival, the Medical Center campus had rented facilities at Laguna Honda School, Hunter's Point, and as far south near Oyster Point. Some administrative operations were transferred to other city neighborhoods, notably the Mission Center. With faculty pressures intensifying, a new LRDP in 1982 sought to accelerate the forced "balkanization," a source of considerable academic unease and even resistance. Concerned leaders claimed that the "genius of UCSF's success" as a world-class medical center was based on the close proximity of the "best and brightest" researchers and clinicians at the Parnassus site. By unanimous consent, this overcrowded campus would remain the center of all academic operations, secretly enhanced with small and not so subtle breeches of the 1976 accord. In fact, as already noted, the structurally unsafe UC Hospital was converted into laboratories and offices; an adjacent and new terraced School of Dentistry replaced the proposed public plaza in 1980.

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[11] Amended LRDP, May 1976. Archives and Special Collections, UCSF Library and Center for Knowledge Management.

[12] Details in Lorri Ungaretti, *Stories in the Sand: San Francisco's Sunset District, 1847-1984*, San Francisco: Balangero Bks, 2012.

Marooned in its jammed Parnassus location and despite minor expansions, a world-renowned research and teaching institution such as UCSF could not remain static. Attempts to renegotiate the expiring moratorium with the immediate neighborhood were deemed pointless. With space constraints reaching a crisis point, an opportunity for substantial expansion presented itself in 1984. Two miles north of the campus, in the Laurel Heights neighborhood of San Francisco, the Fireman's Fund Insurance Company was planning to move out of its headquarters, a 354,000 square-foot building. Surrounded by parking lots and ample vegetation, the massive fenced-in structure stood on a 10-acre hilly setting, originally one of the city's fashionable cemeteries removed in 1899. Completely surrounding the site, Laurel Heights had become an upscale residential neighborhood with its own fashionable commercial area organized around California Street, with direct access to the downtown area. Sensing relief, UCSF leaders inquired about leasing space for selective administrative units at the Fireman's building, discovering in the process that the entire complex could be available for purchase. In spite of both logistic and financial caveats—the asking price had ballooned from 35 to 55 million dollars--the Medical Center's academic chairs, guided by current Chancellor Krevans, jumped at the chance, hastily endorsing the acquisition, and the UC Regents purchased the property in December 1984.[13]

At first, the Regents and the Medical Center insisted that there was no need for a new EIR for the Laurel Heights campus since this was merely a relocation of approved Parnassus operations with negligible or no further planned expansions. In his first "get acquainted" session with residents from the neighborhood in February 1985, UCSF's chancellor reassured his audience that the university would use the building for "administrative functions and academic programs." No new hospital would be constructed at the site and some unused portions of the building would be leased to third parties.[14] The crowd seemed reassured and appeared to appreciate UCSF's efforts to become a good neighbor. Perhaps its national and international fame as a biomedical pioneer would enhance local prestige and stabilize the community.[15]

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[13] Julius Krevans (1924- 2015) was chancellor from 1986 to 1993.

[14] See Nancy Rockafellar, Interviews with Julius Krevans, M.D., UCSF Campus Oral History Project, 2005, Archives and Special Collections, UCSF Library and Center for Knowledge Management.

[15] J.L. Pimsleur, "Fireman's Fund Building: UCSF Tries to Soothe Jittery Neighborhood," *SF Chron February* 5, 1986.

Risks and Fears

A year later, however, following my arrival, this positive feeling ebbed. UCSF planners had already decided to move not only administrative offices to the new location but also several basic science research units from the School of Pharmacy. After becoming aware of UCSF's intentions and for legal reasons and public transparency, the UC Regents requested a new environmental impact report before approving the transfer. Thus, UCSF responded by circulating a draft EIR in April 1986. The document contained a detailed description of future wet laboratories with animal facilities to be installed in the Laurel Heights building, together with the use of potentially toxic chemicals, potential carcinogens, and radioactive isotopes, all to be vented from the building through newly installed chimneys.

By June, UCSF sponsored another public hearing intended to stem a growing objection about its plans. "Most of the people I have talked to are bordering on hysteria," commented one resident. The president of the Laurel Heights Neighborhood Improvement Association denounced the Chancellor's previous explanations as lies, calling the inclusion of research laboratories a breach of previous pledges and totally inappropriate for the district, in fact a threat to its quaint residential nature. Others ranted about the potential environmental dangers: the terms "toxic," "radioactive" and "cancer" became rallying code words designed to mobilize an increasingly panicked neighborhood. Someone accused the university for "bringing DNA into the neighborhood."[16] UCSF administrators vainly countered that the institution had ample safety precautions in place for similar laboratories on the Parnassus campus and an excellent track record to prove their effectiveness.[17] No matter, some protesting residents promised to form a human chain around the entire complex to block access for future researchers. Two weeks later, three SF Supervisors joined the chorus of opponents, demanding a delay in the university expansion, but current Mayor Feinstein sided with the university.[18] Taken by surprise by the increasingly negative tone, UCSF representatives promised some mitigation measures and published its final report in June. A month later, the Regents certified the EIR and approved the entire project, including the transfer of laboratories.

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[16] David Perlman, "On the Cultural Edge: 125 Years of Medical and Research Breakthroughs at UCSF," SF Chron, Oct 8, 1989. UCSF was also accused of creating the AIDS virus.

[17] Reginald Smith, "Controversy Over UCSF Laboratory Plans," SF Chron Jun 12, 1986.

[18] SF Chron, Jun 28, 1986

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At this point an editorial in the *SF Chronicle* tried to dissect the widespread public fears of the unknown "involving the mysteries of science, including radioactivity and chemicals of all kinds" considered potential hazards. The newspaper insisted that the research was being conducted by some of the leading scientists in the country under strict controlled conditions with an aim to develop new drugs for the treatment of major diseases such as cancer and heart disease. The paper tried to reassure anxious residents that there would not be any "toxic waste dump."[19] Back at UCSF, the leadership was puzzled and offended by the opposition. Since I was a member of the Dean's Advisory Committee by virtue of my departmental chair position, I heard the refrain at weekly meetings: how could well-educated San Franciscans not understand and respect the basics of scientific research and safe employment of radioactive isotopes?

No matter. In August 1986 the LH Neighborhood Improvement Association filed a lawsuit against UCSF and the UC Regents in San Francisco Superior Court challenging the current EIR, particularly the conditions for operating research laboratories. A temporary restraining order issued by the Court two days later, stopped cold all further UCSF efforts to transfer research facilities to its recently acquired facility. Prominent faculty members, among them two Nobel Prize winners, were dismayed and even outraged by the actions of the Laurel Heights neighborhood. Why would these people distrust their words and good intentions? The Superior Court seemed to agree: it soon denied the LH Neighborhood's request, indicating that the detailed EIR had fully complied with the California Environmental Quality Act.

Legal Battles

Far from admitting defeat, attorneys for the LH neighborhood decided to take their case to the state Court of Appeals. In July 1987, this body overturned the earlier Superior Court ruling, finding that the scope of UCSF's "project" had indeed been inadequately explained in the EIR, particularly regarding the cumulative effects of the laboratory operations to be transferred to the Laurel Height site as well as inadequate mitigation of presumed chemical hazards. Informed of the Appellate Court's decision to strike down the EID, the Regents reacted by requesting in August of that year that the California Supreme Court review the entire case and finally allow the proposed pharmaceutical research at Laurel Heights.[20] At this point, the quarrel had

[19] Editorial, "Nothing to Fear, But…," SF Chron Jun 29, 1986.
[20] *SF Chron* Feb 5 and 9, 1988.

escalated into a bitter contest of wills that featured stubborn leaders on both sides of the divide. The community crusade, led *pro bono* by Kathryn Devincenzi, attorney for the L H Improvement Association, had energized a militant elite from the neighborhood. Opposition to UCSF, an internationally respected academic institution, had become "visceral."[21] On another front, UCSF and the California Department of Health Sciences embarked on a study of the Parnassus neighborhood for any signs of contamination with toxic or radioactive materials. This investigation in June 1988 was mandatory for the renewal of the university's institutional license for the use of such substances in research and medical care, but it now acquired much greater significance in view of the litigation over similar uses at Laurel Heights.[22] Would its findings confirm the prevailing suspicions voiced by Laurel Heights neighbors?

In December 1988, California's Supreme Court agreed with elements of UCSF's revised 1986 EIR, finding that research activities at the Laurel Heights location would not pose undue risks to occupants of the facility as well as the community. Nevertheless, some additional hazards linked to the research operations, especially the use and long term disposal of radioactive materials such isotopes, had not been included. Under such circumstances, the Court ordered both UC Regents and UCSF to prepare a new EIR or consider alternatives uses for the entire facility. In the meantime, the previous ban on laboratory transfers to the Laurel Heights campus remained in place. [23]

Somewhat encouraged, UCSF officials, led by Senior Vice Chancellor Bruce W. Spaulding, began preparing another EIR draft for Laurel Heights in 1989, taking a fresh look at the proposed uses of that facility. In July, the California Health Department reauthorized the use of radioactive isotopes on the Parnassus campus, vindicating the Medical Center's claims of conducting its research safely and without harm to the surrounding neighborhood.[24] UCSF was coincidently celebrating its 125th anniversary, proudly enumerating its cutting edge biomedical accomplishments and their applications to diagnosis and treatment.[25]

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[21] Editorial, "Tempest Over UCSF Lab," SF Chron, Feb 5, 1988.

[22] SF Chron, Jun 4, 1988.

[23] *SF Chronicle*, Dec 2, 1988. See also Laurel Heights Improvement Association of San Francisco v. Regents of the University of California. http://ceres.ca.gov/ceqa/cases/1988/laurel_12188

[24] SF Chron, Jul 4, 1989.

[25] David Perlman, "On the Cutting Edge: 125 Years of Medical and Research Breakthroughs at UCSF, *SF Chron*, Oct 8, 1989.

Unfortunately, at 5PM on October 17, the Loma Prieta earthquake shook the entire Bay Area, causing significant damage to several buildings on the Parnassus campus. The temblor found me working in my seismically unsafe office, and as I sat paralyzed on my chair dodging falling books, visions of sailing four stories down to the street prompted an escape through the well-marked exit route. Ironically, the widespread havoc completely exempted the old hospital, proving once again the freakish nature of earthquakes. Yet, the destruction spurred new efforts to persuade the Laurel Heights neighborhood to drop its opposition to the laboratories.

At another contentious public meeting in December, a crowd of nearly 300 people spoke forcefully against the laboratory transfer. More than 700 signed a petitions, demanding that the UC Regents reject any new EIR than included research facilities. This action took place even after the prominent UCSF AIDS researcher, Paul Volberding, sought to impress on opponents the importance of pursuing additional laboratory work for improving the treatment of thousands worldwide suffering from the disease. The faculty member condemned Laurel Heights' bickering about harmless emissions "frivolous" in the face of a ravaging pandemic.[26]

By this time my own impression of the Laurel Heights facility was decidedly negative. Provided with an ample and well-appointed auditorium, UCSF now routinely scheduled meetings and symposia at this venue, giving me opportunities to roam around the rest of this mammoth red brick and tinted glass structure. A veritable maze of long corridors—empty, pastel-colored walls with uniform light brown carpeted floors--sliced through the building, dotted with a myriad of solid, numbered doors that were always closed. Entering such a disorienting, almost Kafkaesque scene, I struggled to imagine how such a spatial arrangement could ever be converted into research laboratories, with all their purposeful clutter, glassware, and animal cages. More importantly, the current staff members working there felt quite isolated and marginalized, seldom leaving the building—it had its own cafeteria—except to climb into shuttles and return to the Parnassus campus. My fervent wish was that some new corporation in search of a prestigious address for its headquarters would make a purchase offer and thus end what was fast becoming UCSF's worst legal nightmare.

Undaunted by the opposition, UCSF' issued a new plan although this EIR retreated from earlier demands for research space, suggesting instead a mix of laboratory (80%) and office –based administrative (20%) space. After another round of public circulation and comment—much of it negative--the draft was

[26] Elaine Herscher, "UCSF Neighbors Oppose AIDS Research Facility," SF Chron, Dec 5, 1989.

finalized and submitted to the Regents for certification in May 1990.[27] Soon, however, the Medical Center was back in SF Superior Court, since the neighborhood association now also challenged the 1990 EIR and wished to block the relocation. This time, however, UCSF emerged triumphant from the lawsuit. In November, the presiding judge ruled in favor of the university. While criticizing its officials for "a regrettable lack of candor" at the first community meeting—the blanket term " academic uses" should have revealed the use of laboratories-- Justice Harry Brauer declared that the university "performs a service for mankind that is of the highest value and great urgency." He rejected the notion of a UCSF conspiracy or deliberate concealment in its dealing with the Laurel Heights community. Moreover, the environmental health risks were minimal; the neighborhood demands were judged to be unreasonable since these contentious laboratories had operated for decades at the Parnassus site without harmful consequences.[28]

Although their challenge had been rejected, the Laurel Heights Association went back to the state Court of Appeals. In May 1992, this Court ordered UCSF to recirculate its EIR for additional review and comment on new studies on air and noise quality. As before, weary UCSF leaders decided once more to appeal the decision to the State Supreme Court for review. In the meantime, part of the building remained unoccupied for fear of a permanent injunction while UCSF, beset with heavy mortgage payments and litigation costs in the millions of dollars, began to waver in its resolve to pursue further litigation. The protracted Laurel Heights fiasco was ill timed: it occurred when all medical centers struggled with the mandates of managed care. The latest EIR had taken 17 months to prepare and cost the university more than a million dollars.[29] Faculty voices suggested an institutional move out of San Francisco.[30] "It often seems easier to pack up and get out of town than it does to endure the nasty, lengthy and expensive struggle to keep operating in a quarrelsome city," commented one newspaper. However, the loss of the LH campus for research would constitute "a serious blow to the city and a serious setback to one of the world's greatest medical centers."[31] Current SF Mayor Frank Jordan

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[27] SF Chron, May 19, 1990.

[28] George Markell, "UCSF Pharmacy School OKd in Laurel Heights; Neighborhood Association Loses Long Battle," SF Chron, Nov 27, 1990.

[29] SF Chron, May 14, 1992.

[30] SF Chron, Feb 28, 1992.

[31] Editorial, "City Must Keep UCSF Campus," SF Chron, Mar 2, 1992.

reacted, writing a letter to the UCSF leadership, in which he suggested the possibility of obtaining additional space near the Parnassus campus.

Strategic Retreat

The effects of the protracted legal battles over a white elephant also took their toll on the Medical Center's leadership. Chancellor Krevans who had stubbornly fought to defend what he considered his key achievement, the acquisition of Laurel Heights, retired in May 1993, replaced by the Medical School's dean, Joseph B. Martin. According to Krevans, the space problem was ironically a result of UCSF's success in research and training.[32] Under Martin, the new leadership eagerly sought to find a solution to their lingering space problems and legal battles. Its public image tarnished and threatened by neighbors, UCSF's future in San Francisco was truly in jeopardy.[33] Trapped on the overcrowded Parnassus campus and with no early solution for the space crisis in sight, UCSF's research engines sputtered. "Everybody is depressed by the attitude of the community," explained one prominent departing scientist.[34] Defections of prominent biomedical researchers and their laboratory teams to Stanford and Harvard cost the University millions in lost grant money and more in reputation.

Not surprisingly, the Laurel Heights stalemate also severely impacted UCSF's Parnassus campus, where additional projects had come to fruition in anticipation of the planned removal of School of Pharmacy laboratories. Following the completion of a new library—long in planning and formally dedicated in March 1991—and a vision center, the Parnassus campus came to exceed the agreed 1976 spatial parameters by 140,000 square feet, a breach that invited further legal skirmishes with the Sunset neighborhood. In fact, Mayor Jordan's space recommendation for 200,000 additional square feet had already set off alarm bells with the Haight Ashbury Neighborhood Council, threatening the uneasy truce negotiated in 1976. Nearby residents decried UCSF's traditional lack of good faith and its "purposeful effort to mislead the public."[35]

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[32] D. Perlman, A. Barnum,"Space Crisis Costs UCSF Jobs, Loss of Scientists, Grants Threatens School's Reputation," SF Chron, May 7, 1993.

[33] See Martin's chapter on UCSF in his autobiography: *Joseph B. Martin, Alfalfa to Ivy: Memoirs of a Harvard Dean*, Edmonton, Canada: University of Alberta Press, 2011.

[34] Ibid.

[35] Sabin Russell, "UCSF Admits it Exceeded Agreement on Size," SF Chron, Sep 15, 1992.

In December 1993, the California Supreme Court ruled in favor of UCSF but the victory was hallow: the case was once more returned to the Court of Appeals for further disposition regarding the adequacy of the EIR. It was essential for the Medical Center to stop the legal wrangling and move on. The objectionable 1990 EIR was therefore withdrawn. Working with a community advisory group. Martin and his associates began drafting a new EIR for Laurel Heights in 1995 that differed substantially from previous plans.[36] Since the use of research laboratories and their potentially harmful effluvia had been at the core of the protracted legal dispute, the new document sought to exclude them completely, pledging to utilize the entire Laurel Heights space solely for administration and office-based instruction and research: "UCSF is committed to developing a plan that benefits the campus and is compatible with the Laurel Heights neighborhood," read the document.[37]

Prominently among the "anchor programs" were the Institute for Health and Aging and Institute for Health Policy Studies, a proposed Center for Social and Behavioral Sciences, supplemented with graduate programs in health psychology and medical anthropology previously housed in the Laguna Honda School. Together, they would occupy half of the building, with another 37% earmarked for administration. Full occupancy of the building would occur by 2000. The retreat had its intended effect: the new EIR was not challenged by the Laurel Heights Improvement Association and thus incorporated into UCSF's 1996 LRDP. The document also reiterated that the Medical Center "has no plans to expand the Laurel Heights building beyond the existing envelope or acquire additional buildings in the surrounding neighborhood," an oblique reference to the earlier wars at the Parnassus site.[38]

Unfortunately, UCSF's peace with the Laurel Heights community eventually claimed one academic victim: the Department of the History of Health Sciences. It origins went back to 1927, second in the nation, established to convey to UC Regents that its humanizing role would sufficiently enrich the Parnassus campus and thus prevent its removal across the Bay to Berkeley. Pivoting from inspirational handmaiden to thoughtful critic, medical history sought to offer context and reemphasize the humanity of the patient-physician

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[36] Consult Nancy Rockafellar, Interviews With UCSF Administrators, Hailie T. Debas, Rudi Schmid and Lloyd H. Smith, UCSF Campus Oral History Project, 2005, Archives and Special Collections, UCSF Library and Center for Knowledge Management.

[37] See "New Plan for UCSF Laurel Heights," *The Richmond Review*, vol. 7, No 7,(April 1995, p. 10.

[38] UCSF, History of Laurel Heights Projects, Environmental review and Litigation, in Introduction, Revised Laurel Heights Plan, EIR, Sep 1995.

relationship.[39] To fulfill UCSF's 1996 LRDP, this unit was incorporated with previous programs in medical anthropology and social medicine to create a single composite, interdisciplinary entity. Consequently, the former academic unit was forced to relinquish its small perch in the UC Hospital at the Parnassus campus and move to the Laurel Heights site in 1999, far from its own "laboratory," the Archives and Special Collections at new UCSF Library and Center of Knowledge Management at the Parnassus site. As the only representative of the humanities, its exile to Laurel Heights meant losing direct contact with medical students and clinical faculty, while forcing faculty members to use shuttles for carrying out research at the Parnassus campus library. I spent my last year in UCSF's "Siberia," feeling just as marginalized and isolated as the administration staff that had first occupied the monumental facility.

While UCSF was winding down its long legal war with the Laurel Heights Improvement Association, the 1996 LRDP also argued emphatically for "decompression," defined as "relieving existing overcrowded conditions through the provision of additional space." The current need was estimated to be at least 2.65 million square feet to supplement the main Parnassus and Laurel Heights campuses. In 1987 Chancellor Krevans' Faculty Committee on the Future of UCSF had already advocated for the acquisition of a 50-100 acre parcel of land elsewhere, but the distractions of the Laurel Heights litigation had postponed such plans. Now, in 1993, convened by Chancellor Martin, a new faculty and administrative body, the Planning Committee for the 21st Century, went to work on this project. With lessons from the Laurel Heights debacle fresh in their minds, the Committee decided to include the community in its selection of a new campus.

For this purpose, UCSF first held numerous town hall meetings around San Francisco during the winter and spring of 1993-94 to gather suggestions for possible sites. In turn, the institution's Community Advisory group contacted thirty-five neighborhood, labor, ethnic, and business leaders interested in UCSF's expansion plans to provide criteria for selecting new campus sites and evaluating the draft LRDP for the next4-6 years. Additional workshops in eight different locations around the Bay Area followed. A special issue of *UCSF Newsbreak* explained the university's needs and requested comments and suggestions from its readers. A pamphlet with information about the Medical Center titled "To Our Neighbors" was distributed to 170,000 San Francisco households. In the end, three locations made the final list: two of them, in Brisbane and Alameda, were developing business parks eager to attract a

[39] Guenter B. Risse, "Teaching History: Medicine's Expanding Universe," unpublished lecture, Archives and Special Collections, UCSF Library and Center for Knowledge Management.

prestigious academic institution wishing to translate laboratory discoveries into next generation therapies while bolstering their prestige and bottom line.[40]

Promised Land

The third site for a future UCSF campus was located in the heart of the city of San Francisco. Mission Bay was a protected cove south of the Bay Bridge and the China Basin channel. Originally a San Francisco Bay salt marsh, the site—around 300 acres--had been gradually filled by the tides. Dock pilings and causeways as well as debris from razed buildings, including those destroyed during the 1906 earthquake supplied the rest. Part of these tidelands had been occupied by polluting slaughterhouses—the notorious 19th century local "Butchertown"—as well as shipbuilding, lumber yards and repair shops. Most of the space became a Southern Pacific Railway yard abandoned since the 1970s following the decline of cargo shipping from the local port.[41] Following the merger with the Santa Fe Railway in 1983, Southern Pacific created a separate entity, the Catellus Development Corporation, charged with rehabilitating and developing what locals referred to as an "industrial wasteland." The company, however, was unsuccessful in obtaining city approval for its plans until 1991, but the financial recession delayed any planning for a few more years.

In 1993, however, the developers offered UCSF space for a 20-acre campus sufficient for a hospital, research laboratories, and administrative facilities, keeping the Mission Bay option alive.[42] With new leadership two years later, Catellus and members of the local business community once more approached the Medical Center. A move to areas outside the city would lead to heavy financial losses and jobs in the city. Subsequent negotiations, therefore, involved Senior Vice Chancellor Bruce Spaulding and the current San Francisco mayor, Willie Brown, who had been a legal advisor for Catellus.[43] Most

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[40] By 1994-95, UCSF estimated that with a budget of 1.13 billion dollars and 25,000 jobs, it contributed 1.2 billion dollars to the Bay Area economy. UCSF, LRDP 1996.

[41] Nancy Olmsted, "Walking on Water: A History of Mission Bay," UCSF News, Nov 26, 2007. http://ucsf.edu/news 2007

[42] Editorial, A UCSF Home in Mission Bay," SF Chron, Feb 10, 1993

[43] Willie L. Brown (1934-) was one of the most powerful politicians in California. After representing San Francisco for 30 years in the California State Assembly—the last 15 years as Speaker—he became Mayor of the city between 1996-2004.

importantly, the Bay Area Life Sciences Alliance, a group of investment bankers and biotechnology leaders with links to UCSF, pledged its participation.[44]

In 1997, working closely with Mayor Brown and San Francisco's Redevelopment Agency, Catellus offered to donate nearly 30 acres of land at the center of the Mission Bay zone to UCSF. The new campus was intended to be at the center of a future neighborhood. The area would be provided with new streets, high-rise housing, office and laboratory buildings, together with stores facing a revamped San Francisco Bay shoreline doted with parks and walking paths. The City of San Francisco, for its part, granted 13 acres for a right-of-way grid of streets. As planned, the Mission Bay project was considered one of the largest in city history. Contingent upon the successful conclusion of the deal, UCSF agreed to the offer in March 1997. Two months later, the UC Regents accepted the land donation and approved the creation of a Mission Bay campus. Hampered by the subsequent financial depression, progress for Phase 1 of the project slowed in the late 1990s, but by the early years of the 21st century, the campus flourished. Under the leadership of Nobel Laureate Chancellor J. Michael Bishop, Mission Bay evolved into impressive complex of tall glass buildings, featuring several research laboratories and medical offices, with three hospitals and condominium housing in various stages of construction.[45]

In August 2005, a UCSF Task Force on Community Partnerships presented his report to the Executive Vice Chancellor, illustrating the Medical Center's growing civil engagement with the San Francisco's neighborhoods. Over sixty programs involving 28 departments and units on various campuses ranged from research endeavors to clinical training and science education. The current status represented a remarkable evolution over the past decades. The document stressed the importance of linking the "intellectual capital" reflected by the institutional scholarship and expertise with competent and activist local institutions "favorably disposed" to collaborate. A year later, a retrospective admitted, "one of the more important lessons that UCSF has learned over the past decade is to involve the community early on when planning for major construction projects."[46] Fostering a respectful relationship,

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[44] Tom Abate, "Business Leaders Were Key to Overcoming Obstacles to Biotec Mecca," *SF Chron*, Mar 1, 1999. For general background, Chester W. Hartman and Sarah Camochan, *City For Sale: The Transformation of San Francisco*, Berkeley: University of California Press, 2012.

[45] Mission Bay Community Task Force, Project Summary Report and Planning Principles, http://www.ucsf.edu/sites

[46] Lisa Cisneros, "UCSF in the Community: An Obligation and Opportunity," UCSF News, May 26, 2008. http://www.chc.ucsf.edu/archives

facilitating an ongoing dialogue and reaching a compromise to address neighbors; concerns would prevent opposition and litigation. "The expansion at Mission Bay represents a marked improvement over the neighborly disputes that erupted over planning for facilities at its Parnassus and Laurel Heights campuses."[47]

To that effect, the University's Community Advisory Group (CAG) convened two a series of meetings and workshops between March 2007 and January 2008. Those attending were members of San Francisco's Planning Department, as well as representatives from neighborhoods surrounding the Mission Bay campus, notably South of Market, Potrero Hill, Port of San Francisco and Dogpatch. The purpose was to identify emerging issues related to future developments beyond the site. Since its inception, residents in surrounding communities had expressed concerns about the pace and scope of UCSF's decisions concerning additional real estate acquisitions and developments impacting the entire area.[48] To this day the Dogpatch Neighborhood Association continues to be particularly anxious. Located on the waterfront area south of Mission Bay, Dogpatch—named for the wild dogs that once roamed around the area's slaughterhouses in search of food—features a designated historical district with the oldest remaining Victorian cottages in the city undamaged by the earthquake and fire of 1906. Previously industrial, Dogpatch is planning its own gentrification but fears that, like Mission Bay, it will lose its "soul."[49]

Lessons Learned

CAG remains the primary link to the neighborhoods surrounding both the Parnassus and Mission Bay campuses. Its stated mission is to create "a more respectful and healthier model of community engagement" by "fostering a spirit of honest communication, mutual understanding and creative collaboration"[50] Echoes of the former Parnassus neighborhood wars flared up in 2009 when UCSF applied for a grant from FEMA to fell most of the current trees

[47] Appropriately, the chair of the Task Force was the chair of the Department of Family and Community Medicine.

[48] Mission Bay Community Task Force, Project Summary Report and Planning Principles, Mar 2008. See http://www.ucsf.edu/sites

[49] "San Francisco's Dogpatch Pier District Braces For Renewal," Fox News, Feb 6, 2012. See http://foxnews.com/us/2012

[50] UCSF Task Force on Community Partnerships, Report to the Executive Vice-Chancellor, August 2005. See also http://community.ucsf.edu

in the Sutro forest, apparently for "safety" reasons. Planted by landowner Adolph Sutro in the 1880s, this site of eucalyptus, cypress and acacias had already been cleared in the 1930s and logged again during WWII. With a thick underbrush cover of ivy, grass, and flaking from 120 feet tall gum eucalyptus trees, the forest possessed all the ingredients for being a dangerous firetrap. Opposition by so-called "Sutro Stewards" was immediate and vocal, prompting university officials to withdraw their application.[51]

Reflecting the new modus operandi, a new draft LRDP for UCSF's Parnassus campus was discussed during two community workshops in October 2012 and February 2013. To address the still festering "credibility gap," announcements were placed in local newspapers, the *Sunset Beacon* with a circulation of 25,000, together with a postcard mailing to some 2,800 residents. In addition, e-mails were sent to the Parnassus and Sutro list servers. Similar information was also included in the Inner Sunset Neighborhood blog and UCSF website. The open meetings were well attended and the University representatives stressed that UCSF would consider "all comments and questions." Although some attendees commented that the meeting was "well intended", others kept bringing up the "same subjects" and "don't understand compromise." Reacting to skepticism, UCSF officials reminded the audience that their institution had faithfully followed the 1976 moratorium and would only exceed the space ceiling by a mere 5% while San Francisco' population had grown by 19%.[52] More importantly, however, while the truce had prevented rampant Medical Center expansion, this understanding also hindered local commercial development. The neighbors' final message was familiar: "don't do anything until the community agrees to your proposals."[53]

A UCSF draft of a new EIR in 2013 included the previous tree-cutting plan, followed by replacement with natural plants. Once more neighborhood hearings in November were tense and contentious. Some pronounced the pristine grove of "old growth" trees; others termed it a unique "temperate cloud" forest. Predictably, many questioned UCSF's intentions: fire reduction was a red herring; "they"—meaning Medical Center officials-- may have ulterior

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[51] Information about the Mt. Sutro Open Space Community can be obtained at http://sutrostewards.org

[52] Space for a new stem-cell research building planned in 2008 and officially opened in Feb 2011 housing 125 laboratories was offset with the demolition of the old University Hospital and Medical Science building. Architects selected a design that would "not be too obtrusive or ominous to the local area." Keith Giordano, "First New Research Building Since the 60's to be built at UCSF," Sunset Beacon, Aug 8, 2008. http://sunsetbeacon.com/archives/2008

[53] UCSF LRDP Parnassus, Community Workshop 2, Jan 28, 2013.

motives. Despite all the efforts to reach out to the surrounding communities, the old animosities between UCSF and its neighbors continues to flare up, a testimony to the earlier expressed notion concerning he difficulties in reaching a proper "alignment" with community interests.

A final addendum: in January 2013, UCSF requested proposals for redeveloping the Lauren Heights campus, pledging to withdraw all faculty and employees to its other sites. Their departure promised an eventual sale. Neighbors reacted with a mix of excitement and dread at the prospects of demolishing the existing property and dividing the jinxed acres into regular city blocks for condominiums.[54] At last, decades of distrust and legal controversy appear to be ending, and the Laurel Heights Improvement Association will undoubtedly claim a final victory over one of the most powerful institutions in San Francisco.

[54] Many Laurel Heights residents still fret about living near the former graveyard. There were stories that people working after hours in the Fireman's building heard or encountered restless ghosts rushing through the corridors.

View publication stats

4.2 EXISTING PLANNING AGREEMENTS

There are several existing planning agreements in place that affect and inform this LRDP as it pertains to the Parnassus Heights campus site. These include the *Designation of Open Space Reserve, Alteration of Campus Boundaries, Commitment of Houses to Residential Use, Authorization to Negotiate Sale of Properties and Commitment to Transportation Studies, San Francisco,* also referred to as the *1976 Regents' Resolution,* and agreements made with the community regarding Aldea Housing, described below. (A more general list of references is provided in **Appendix F**.)

4.2.1 THE 1976 REGENTS' RESOLUTION

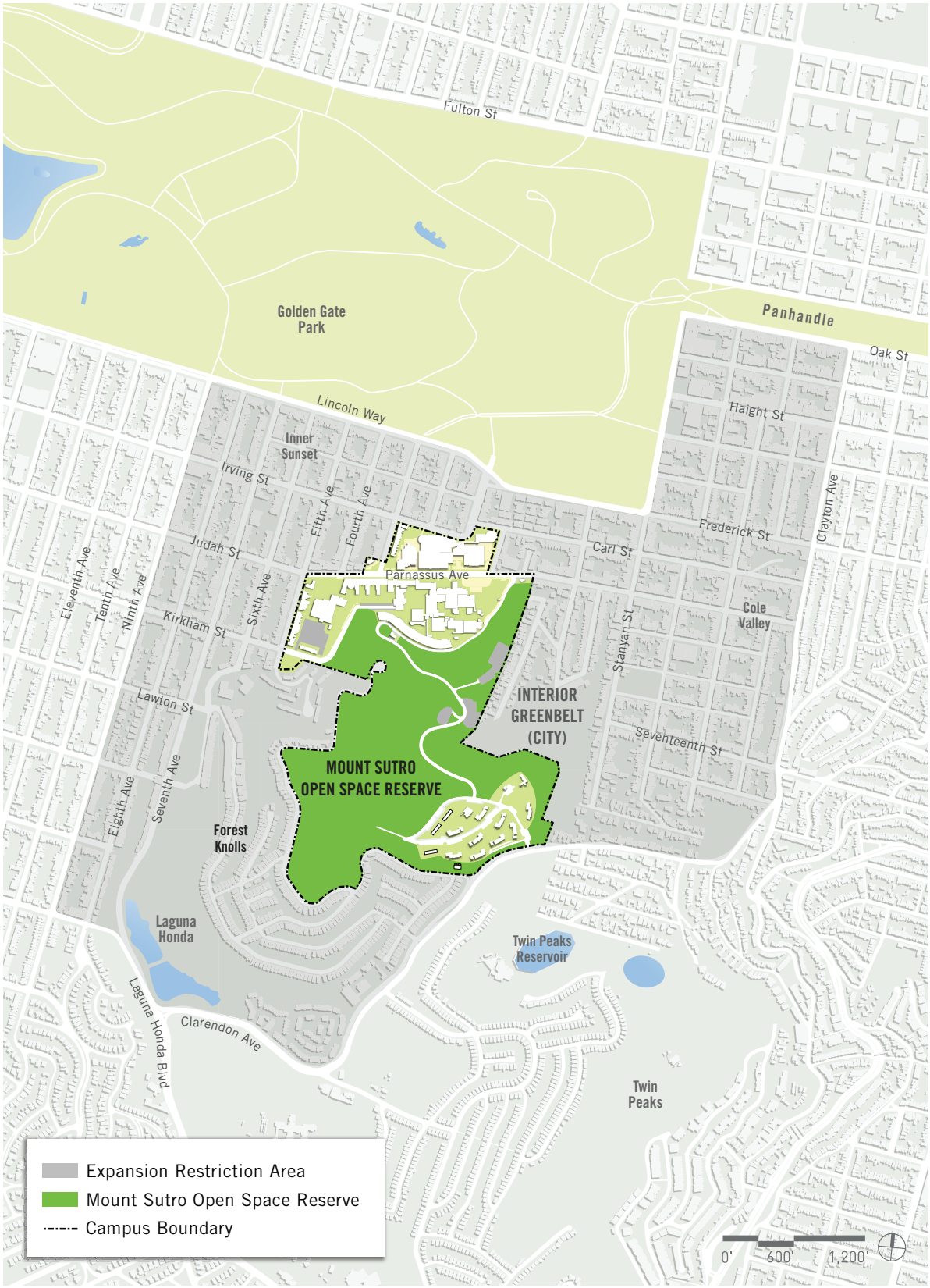
In response to neighborhood concerns about development of the Parnassus Heights campus site, the Board of Regents of the University of California adopted a number of recommendations to limit growth in a resolution adopted in 1976 (*1976 Regents' Resolution*). Elements of these recommendations are described in the matrix below, along with a brief status report.

1976 REGENTS' RESOLUTION: RELEVANT ELEMENTS AND STATUS UPDATES

	Element of Resolution (Paraphrased):	Status (as of 2014):
1.	The Mount Sutro Open Space Reserve to be designated as permanent open space, increased from 52 to 58 acres, and kept free of any permanent structures or facilities except footpaths and appropriate landscape construction intended to enhance its use as a natural area.	UCSF designated 58 acres as permanent open space in the *1976 LRDP* and subsequently increased the size of the Reserve to 61 acres.
2.	The boundaries of the campus site to be altered to exclude properties on the west side of Third Avenue, the new boundaries to be made permanent, and UCSF to be prohibited from physical expansion either by purchase, condemnation, or gift of any property or lease of private residential property anywhere within the surrounding area bounded by Golden Gate Park, Oak Street, Ninth Avenue, Clayton Street, and Clarendon Avenue (**Figure 6**).	As part of the *1976 LRDP*, UCSF altered the campus boundaries accordingly and made them permanent, and has not acquired any property, including residential property, in the restricted area.
3.	The total amount of structured space within the campus boundaries is not to exceed 3.55 million gsf, excluding space committed to residential use on Third, Fourth, Fifth, and Parnassus avenues and Kirkham and Irving streets. (When the *1996 LRDP* was adopted, the amount of space subject to the space ceiling was 3.65 million gsf, about 3.4 percent over the limit.)	UCSF tracks the amount of space subject to the space ceiling of 3.55 million gsf. In the *1976 LRDP* and all subsequent LRDPs, UCSF has proposed to reduce the space ceiling overage by demolishing certain structures over time. While some of these buildings have been demolished, UCSF has also built new space, resulting in a total of 3.845 million gsf [a] and a net overage of approximately 294,800 gsf (or about 8.3 percent) in 2014.
4.	Houses being used as office space on Third, Fifth, and Parnassus avenues and on Irving and Kirkham streets to be converted back to residential use with occupancy priority given to UCSF.	UCSF has completed all of these conversions or demolished the buildings.
5.	Twelve lots with 10 structures located on Third Avenue to be sold, subject to specific timing, funding, and other conditions.	UCSF has sold these properties based on these conditions.
6.	Funds to be allocated to retain a consultant firm to develop additional plans for the alleviation of transportation problems such as traffic, parking congestion, and insufficient availability of public transit.	UCSF coordinated with other transportation entities and implemented a comprehensive plan to address these issues and as of 2014 has one of the best Transportation Demand Management programs in the nation, with only 35 percent of those who commute to and from the campus driving alone.
7.	The annual average daily population of the campus site, including employees, students, patients, and visitors, to remain substantially in accordance with the amount (13,400) projected in the *1976 LRDP* Environmental Impact Report.	In the *1996 LRDP*, UCSF set a new goal of limiting daily population to 16,000. In 2013, the population was estimated at approximately 18,000, exceeding both the *1976 Regents' Resolution* and *1996 LRDP* targets.

[a] Space subject to the Parnassus Heights space ceiling includes some structured parking.

Figure 6: Parnassus Heights Planning Agreements



The 2014 LRDP proposes to update the *1976 Regents' Resolution* and call it the *Regents' Resolution Regarding the Parnassus Heights Campus Site*, as described in Section 4.5.

4.2.2 ALDEA AGREEMENTS

Aldea Housing is located in a wooded area on the southern slope of Mount Sutro. This complex consists of 12 wood-framed buildings, totaling 172 one- and two-bedroom units, largely for UCSF students, but also including postdoctoral scholars, clinical residents, and faculty. Most of the units are for people with families. Unlike other UCSF housing at Parnassus Heights, Aldea Housing is currently counted in the space ceiling imposed by the Regents. The *1996 LRDP* called for replacing the original 14 Aldea Housing buildings, constructed in 1960, with nine new, larger buildings. The new buildings were completed in 1998, and the five remaining original buildings were to be demolished by February 2000.

With the support of the Community Advisory Group (the CAG) and Parnassus Heights neighbors, these five original buildings were occupied for an additional five years until 2005, when new UCSF housing at Mission Bay became available to compensate for the loss of units at Aldea Housing. (This agreement was formalized in a letter from Chancellor Bishop to the CAG in January, 2000.) However, despite the additional housing at Mission Bay, the demand from UCSF populations for affordable housing still far exceeded the available supply in the City. UCSF worked with CAG members and other neighbors to gain consensus on a plan to renovate three of the buildings to include 42 junior one-bedroom apartments, and to demolish the other two buildings. A March 2009 letter of agreement established a 15-year period, through 2024, for the continuing occupation of these three buildings, giving UCSF time to identify additional opportunities elsewhere for new housing. According to the terms of the agreement, UCSF demolished the two Aldea Housing buildings in 2009 and constructed a 2,800-square-foot community center on one of the building pads. In addition, UCSF agreed to return the other empty building pad to the Mount Sutro Open Space Reserve; it is now the site of a plant nursery for the Reserve.

UCSF is aware of the current housing crisis in the City and the need to provide incentives for both the creation and retention of housing units. In light of the scarcity of affordable housing options, UCSF now proposes to retain these three buildings and continue using them as housing to help meet UCSF's housing goals. The 2014 LRDP proposes to amend the Aldea agreements to reflect this change, as described in Section 4.6. The LRDP does not propose to increase the amount of Aldea Housing beyond what already exists.

4.3 PARNASSUS HEIGHTS SITE-SPECIFIC OBJECTIVES

Under the LRDP, Parnassus Heights is to remain UCSF's home for classroom instruction, the four Schools, adult inpatient facilities, a variety of outpatient clinics, research, housing, and support. However, as called for in the *1976 Regents' Resolution* and *1996 LRDP*, the decompression of space at Parnassus Heights is proposed to continue through the periodic demolition of buildings and the relocation to other sites of programs that are not essential to this campus site. New construction would be limited to the need to comply with state seismic legislation and to better meet campus housing goals. UCSF plans to continue to make efforts to reduce its transportation-related impacts on the neighborhood, and Parnassus Avenue is the focus of proposed streetscape improvements to enhance the quality of campus life and the public realm.

Site-specific objectives for the Parnassus Heights campus site are:

A. Continue to promote excellence and leadership in health science education, maintaining the Parnassus Heights campus site as the central location for classroom instruction.
B. Ensure that adequate space is provided to foster collaboration and to facilitate interdependence and connectivity for the operational efficiency and effectiveness of instruction, clinical, research, and support uses in close physical proximity to each other.
C. Ensure that Long Hospital and the New Hospital Addition have adequate clinical and administrative support, and are aligned with the education, research, and specialized care programs that remain at this campus site.
D. Provide additional campus housing and improve campus life amenities, including outdoor space.
E. Strive to better achieve the remaining unfulfilled components of the *1976 Regents' Resolution* by reducing space, minimizing population growth, and improving transportation-related programs.
F. Preserve the Mount Sutro Open Space Reserve as permanent open space, and serve as the steward of the Reserve by maintaining and expanding the trail system and by ensuring the safety of visitors and neighboring structures.

Appendix I-Robertson

Exhibit "B"

WIKIPEDIA

Guenter B. Risse

{{short description|Argentina-born American medical historian]]

Guenter B. Risse (born 28 April 1932) is an American medical historian. He has written numerous books, including his most recent "Driven by Fear: Epidemics and Isolation in San Francisco's House of Pestilence." The American Association for the History of Medicine awarded him the 1988 William H. Welch Medal for his book *Hospital Life in Enlightenment Scotland* and its Lifetime Achievement Award in 2005. He is Professor Emeritus, Department of Anthropology, History and Social Medicine, at the University of California, San Francisco, and currently Affiliate Professor of Bioethics and Humanities at the University of Washington in Seattle.

Guenter B. Risse

Risse in 2010

Born	April 28, 1932 Buenos, Argentina
Alma mater	Colegio Nacional University of Buenos Aires School of Medicine University of Chicago
Scientific career	
Fields	History of medicine

Contents

- Education
- Career
- Bibliography
- References
- External links

Education

Risse is a native of Buenos Aires, Argentina, where he obtained his baccalaureate degree from the Colegio Nacional in 1951 prior to gaining admission to the University of Buenos Aires School of Medicine. Following graduation with a magna cum laude M.D. in 1958, he came to the US to complete an internship and training in internal medicine.[1]

In 1962, Risse returned to the classroom, following admission to the University of Chicago. Originally enrolled at the Oriental Institute, he studied ancient Egyptian culture and language under the direction of the distinguished Egyptologist John Wilson. A 1965 plan to participate in an excavation project in Saqqara near the suspected tomb of Imhotep, the ancient god of healing, was not approved by the Egypt Exploration Fund because the dig was restricted to trained archeologists.[2] Such an outcome and shifts in excavation plans following UNESCO's call to save Nubian monuments from the impending flooding caused by the new Aswan Dam, induced him to transfer to the History Department. Here he worked under Professors Allen G. Debus and Lester S. King, obtaining his Ph.D. in 1971. His dissertation dealt with eighteenth-century medical systems, notably the theories of the Scottish physician John Brown and their impact in Germany during the early 1800s.[3]

Career

Risse held academic appointments at the University of Chicago (1963–1967), University of Minnesota (1969–1971), University of Wisconsin–Madison (1972–1985), and University of California San Francisco, and Berkeley, (1985–2001).[4] As chair he developed the Department of the History of Medicine in University of Wisconsin–Madison during the early 1970s. In 1985 he reorganized the Department of the History of Health Sciences in San Francisco. He is a member of the American Association for the History of Medicine, History of Science Society, European Association for the History of Health and Medicine, also holding corresponding memberships in several European and Latin American societies; he was also elected to the now defunct International Academy of Medicine in 1977. A fellowship from the World Health Organization in 1979 allowed him to study the history of Latin America's health care systems. As part of this project, he established close relationships with the Sociedad Mexicana de Historia y Filosofia in the early 1980s.[5] In addition, Risse was a fellow at the Institute for Advanced Studies at the University of Edinburgh in 1986 and the Sir Logan Campbell Distinguished Visitor at the University of Auckland School of Medicine in 1994. He was active in the creation of the European Association for the History of Health and Medicine and co-sponsored the establishment of the International Network for the History of Hospitals. He is also a past president of the American Association for the History of Medicine (1988–1990).

Bibliography

- Editor and contributor, *Modern China and Traditional Chinese Medicine*, Springfield: C. Thomas, 1973.
- Editor and translator, *History of Physiology*, by K. E. Rothschuh, Huntington: R. E. Krieger, 1973 and 1981.
- Edited with R. L. Numbers, and J. W. Leavitt, *Medicine Without Doctors: Home Health Care in American History*, New York: Science History Publications, 1977.
- *Hospital Life in Enlightenment Scotland: Care and Teaching at the Royal Infirmary of Edinburgh*. New York: Cambridge University Press, 1986.
- Edited with Victoria A. Harden, *AIDS and the Historian: Proceedings of a Conference at the National Institutes of Health 20–21 March 1989*, Bethesda: N.I.H. Publications, 1991.
- Edited with Robert Jütte and John Woodward, *Culture, Knowledge and Healing: Historical Perspectives of Homeopathic Medicine in Europe and North America, Sheffield: European Ass. for the History of Medicine and Health Publ.*, 1998.
- *Mending Bodies—Saving Souls: A History of Hospitals*, New York: Oxford University Press, 1999.
- *New Medical Challenges During the Scottish Enlightenment*, Amsterdam: Rodopi, 2005. (Clio Medica 78)
- *Plague, Fear and Politics in San Francisco's Chinatown*, Baltimore: Johns Hopkins University Press, 2012.
- *Driven by Fear: Epidemics and Isolation in San Francisco's House of Pestilence,* University of Illinois Press; 1 edition (December 30, 2015).

References

1. Dr. Risse's poignant recollections of his early medical education and experiences in various hospitals in Buenos Aires and then in the United States are recounted in his preface to Guenter Risse, *Mending Bodies—Saving Souls: A History of Hospitals* (New York: Oxford University Press, 1999), pp. xiii-xviii.

Appendix I-Robertson

2. Walter Emery, Professor of Egyptology at University College London, conducted the excavations during the 1960s, publishing only a handful of preliminary reports before his death in 1971. To this day, Imhotep's tomb has not been found.
3. "The History of John Brown's Medical System in Germany during the Years 1790-1806," Ph.D. dissertation, Department of History, University of Chicago, 1971.
4. Dr. Risse's basic academic biographical facts, from his M.D. in Argentina in 1958 to his appointment to the San Francisco in 1985, are published in Guenter B. Risse, "Medico-Historical News and Activities," *Bulletin of the History of Medicine,* 59(1985): 247-49.
5. Guenter Risse, "The AAHM and Medical History in Latin America: An Update," *Bulletin of the History of Medicine* 55(1981): 113–115. Dr. Risse reported on this in "Medical History in Latin America," *Clio Medica* 15(1981): 233–45.

External links

- Official website (http://www.gbrisse.com)
- Academic homepage, Department of Bioethics and Humanities. University of Washington (http://depts.washington.edu/bhdept/facres/facres-index.html#Affiliate)
- Academic homepage, Department of Anthropology, History and Social Medicine, University of California, San Francisco (http://dahsm.ucsf.edu/)
- Full list of publications on Researchgate.net (https://www.researchgate.net/profile/Guenter_Risse)
- Full list of publications on USCF Academia.edu (https://ucsf.academia.edu/GuenterRisse)

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