San Francisco Planning

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# PUBLIC NOTICE

# AVAILABILITY OF ADDENDUM TO ENVIRONMENTAL IMPACT REPORT

**PROJECT INFORMATION**

| | |
|---|---|
| *Date:* | July 12, 2024 |
| ***Project Title:*** | **Biosolids Digester Facilities Project Biogas Utilization System** |
| *Address:* | Southeast Water Pollution Control Plant 750 Phelps Street, San Francisco CA |
| ***Case No.:*** | **2015-000644ENV-03** |
| *Block/Lot No.:* | 5262/009; 5281/001 |
| *Zoning District(s):* | P (Public Facilities); M-1 (Light Industrial); M-2 (Industrial) |
| *Neighborhood:* | Bayview Hunters Point |

Project Sponsor:
San Francisco Public Utilities Commission
Karen Frye (415) 554-1652
kfrye@sfwater.org

Environmental Case Coordinator:
San Francisco Planning Department
Julie Moore (628) 652-7566
Julie.Moore@sfgov.org

The San Francisco Planning Department has prepared an addendum to an environmental impact report in connection with this project. The report is available for public review on the Planning Department's environmental review documents web page (http://www.sfplanning.org/sfceqadocs). Paper copies are available upon request to the environmental case coordinator listed above.

On March 8, 2018, the San Francisco Planning Commission certified the Final Environmental Impact Report (FEIR) for the Biosolids Digester Facilities Project (approved project) at the Southeast Water Pollution Control Plant (Southeast Plant), located in the southeast part of San Francisco. Originally built in 1952 with major upgrades in 1982 and 1996, the Southeast Plant is the City's largest wastewater treatment facility, treating approximately 80 percent of San Francisco's sewage and stormwater flows. The approved project includes the construction and operation of a new solids treatment process, odor control, energy recovery, and associated facilities to replace outdated existing facilities with more reliable, efficient, and modern technologies. Biosolids are the recyclable solid materials removed from the wastewater during the wastewater treatment process and digesters are the major facilities used in the solids treatment process.

As discussed in the FEIR, a key objective of the approved project is the beneficial reuse of 100 percent of the digester gas generated by the Southeast Plant. To achieve this, the approved project included an energy recovery/cogeneration facility in which boilers and a turbine generator would burn the digester gas (or

biogas) in turbines to convert it to heat, steam, and electricity that would then be used to operate the new biosolids facilities (called the "energy recovery system" in the FEIR). However, the SFPUC is now proposing to revise the approved project to convert the digester gas into pipeline-quality, renewable natural gas for injection into PG&E's existing natural gas pipeline, referred to as the "biogas utilization system." Consequently, the energy recovery system components would be removed from the approved project. This alternative end use of the digester gas would result in a smaller footprint of new facilities to be constructed within the approved project site and simplify Southeast Plant operations.

The San Francisco Planning Department has concluded that the conclusions reached in the EIR certified on March 8, 2018 remain valid. The proposed revisions to the project would not cause new significant impacts not identified in the EIR or substantially increase the severity of impacts identified in the EIR, and no new mitigation measures would be necessary to reduce significant impacts.

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# ADDENDUM 1 TO ENVIRONMENTAL IMPACT REPORT

| | |
|---|---|
| *Date of Publication of Addendum:* | July 12, 2024 |
| *Date of Certification of Final EIR:* | March 8, 2018 |
| *EIR Case No.:* | **2015-000644ENV** |
| *Project Title:* | Biosolids Digester Facilities Project |
| *Project Modification:* | Biogas Utilization System |
| *Modified Project Case No.* | **2015-000644ENV-03** |
| *Location:* | Southeast Water Pollution Control Plant<br>750 Phelps Street, San Francisco, CA |
| *Project Sponsor:* | San Francisco Public Utilities Commission<br>Karen Frye, (415) 554-1652, kfrye@sfwater.org |
| *Lead Agency:* | San Francisco Planning Department |
| *Staff Contact:* | Julie Moore, (628) 652-7566, Julie.Moore@sfgov.org |

## 1.0 Background

On March 8, 2018, the San Francisco Planning Commission certified the Final Environmental Impact Report (FEIR) for the Biosolids Digester Facilities Project (Biosolids or approved project) at the Southeast Water Pollution Control Plant (Southeast Plant), located in the southeast part of San Francisco (**Figure 1**).[1] Originally built in 1952 with major upgrades in 1982 and 1996, the Southeast Plant is the City's largest wastewater treatment facility, treating approximately 80 percent of San Francisco's sewage and stormwater flows. The approved project includes the construction and operation of a new solids treatment process, odor control, energy recovery, and associated facilities to replace outdated existing facilities with more reliable, efficient, and modern technologies. Biosolids are the recyclable solid materials removed from the wastewater during the wastewater treatment process and digesters are the major facilities used in the solids treatment process.

1 San Francisco Planning Department, *Biosolids Digester Facilities Project Final Environmental Impact Report*, Planning Department Case No. 2015-000644ENV, State Clearinghouse No. 2015062073 certified March 8, 2018. Available online at: http://tinyurl.com/BDFPFEIR.

## Figure 1 Project Location




Source: FEIR Figure 2-1

# 2.0 Approved Project Summary and Status

This section provides a brief overview of the project evaluated in the FEIR, the status of facilities construction, and minor modifications.

## 2.1 Components

The key components of the approved project include:

- Replacement and relocation of the solids processing treatment processes with new facilities
- Energy recovery facilities to reuse 100 percent of the digester gas generated by the proposed solids processing facilities to produce energy for heating and power uses at the Southeast Plant
- Odor control facilities to collect and treat odors from solids handling and energy recovery facilities
- Water systems and pump stations
- Support facilities such as buildings for operations and maintenance staff
- Various utility piping and electrical facilities
- Landscaping and architectural improvements

## 2.2 Status

Construction of the approved project began in early January 2020 and is in the fifth year of construction. All the buildings at the former Asphalt Plant and the Central Shops have been demolished; the majority of soil excavation and off hauling has been completed; foundations for most new facilities (including piles) have been installed; and the new biosolids digester facilities are partially constructed. The largest facilities, including the new solids pretreatment facility (Facility 600) and five new anaerobic digester tanks (Facility 610), along with the iron chloride storage tanks (Facility 913), and W2 pump station (Facility 921) have been erected with mostly internal work remaining such as, but not limited to, installing stairs and elevators, mechanical equipment, HVAC equipment, plumbing, equipment installation, and architectural finishes. The remaining buildings to be erected above ground level (the foundations, including excavation and piles are complete) are the smaller digestion cooling towers (Facility 604), thermal hydrolysis (Facility 605), solids odor control (Facility 606), steam generation (Facility 607), waste gas burners (Facility 613), and biosolids dewatering (Facility 615). Also continuing are excavation and installation of utility piping throughout the approved project area. As new facilities are completed there will be process testing, commissioning, and startup and integration with existing facilities.

The FEIR estimated project construction would take five years from February 2018 through January 2023, followed by two and a half years of performance testing, start-up, and commissioning. However, construction of the approved project did not start until about January 2020 and construction is expected to take 1.5 years longer than previously estimated, independent of the project revisions analyzed in this addendum.

Since FEIR certification, the SFPUC has proposed a number of minor changes to the approved project such as, additional dewatering wells; geotechnical potholes and test piles; a rerouted pipeline; additional

work, staging, and parking areas (and the removal of other staging areas); alternative effective air quality mitigation; removal of Maintenance Shops 1 and 2; reducing the size of the Odor Control Building; adding a new Steam Generation Facility; and, adding an Interim Sidestream Nutrient Removal Facility to reduce nutrients (mainly nitrogen) from treated effluent to improve effluent water quality. The Planning Department determined these were minor project modifications that would clearly not alter the FEIR conclusions and documented the determinations with memoranda to the case file. These previously reviewed minor project modifications, summarized in Section 4.0 below, were each approved by the SFPUC. As such, they are now considered to be part of the approved project and are discussed in this addendum where relevant.

## 3.0 Proposed Modifications to the Project

As discussed in the FEIR, a key objective of the approved project is the beneficial reuse of 100 percent of the digester gas generated by the Southeast Plant. To achieve this, the approved project included an energy recovery/cogeneration facility in which boilers and a turbine generator would burn the digester gas (or biogas) in turbines to convert it to heat, steam, and electricity that would then be used to operate the new biosolids facilities (called the "energy recovery system" in the FEIR). However, the SFPUC is now proposing to revise the approved project to convert the digester gas into pipeline-quality, renewable natural gas for injection into PG&E's existing natural gas pipeline, referred to hereafter as the "biogas utilization system." Consequently, the energy recovery system components would be removed from the approved project as shown in **Figure 2**. This alternative end-use of the digester gas would result in a smaller footprint of new facilities to be constructed and simplify Southeast Plant operations.

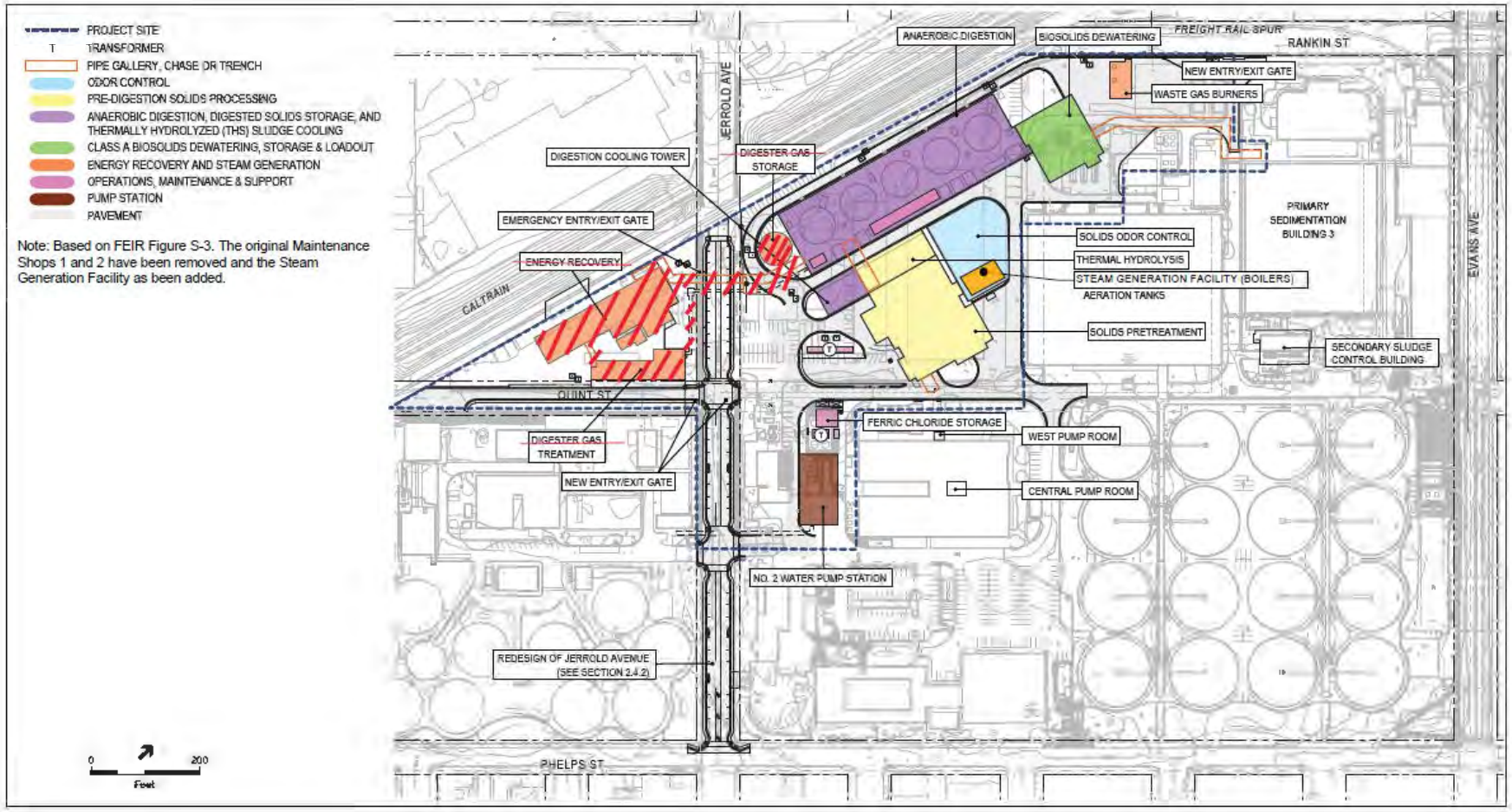
This addendum evaluates the environmental effects of the proposed modifications to the approved project: the construction and operation of a biogas utilization system instead of the approved energy recovery system and related changes to operational energy demand/supply.

### 3.1 Biogas Utilization System

The SFPUC would build and operate the proposed biogas utilization system, except for the Interconnection Station that PG&E would build and operate. The proposed biogas utilization system would convert the digester gas generated at the Southeast Plant into renewable natural gas that would become part of the greater energy market.[2] **Figure 3** shows the location of the proposed biogas utilization system components. The proposed biogas upgrade facility would be built at the location of the approved project's Maintenance Building No. 2 that was previously removed from the approved project

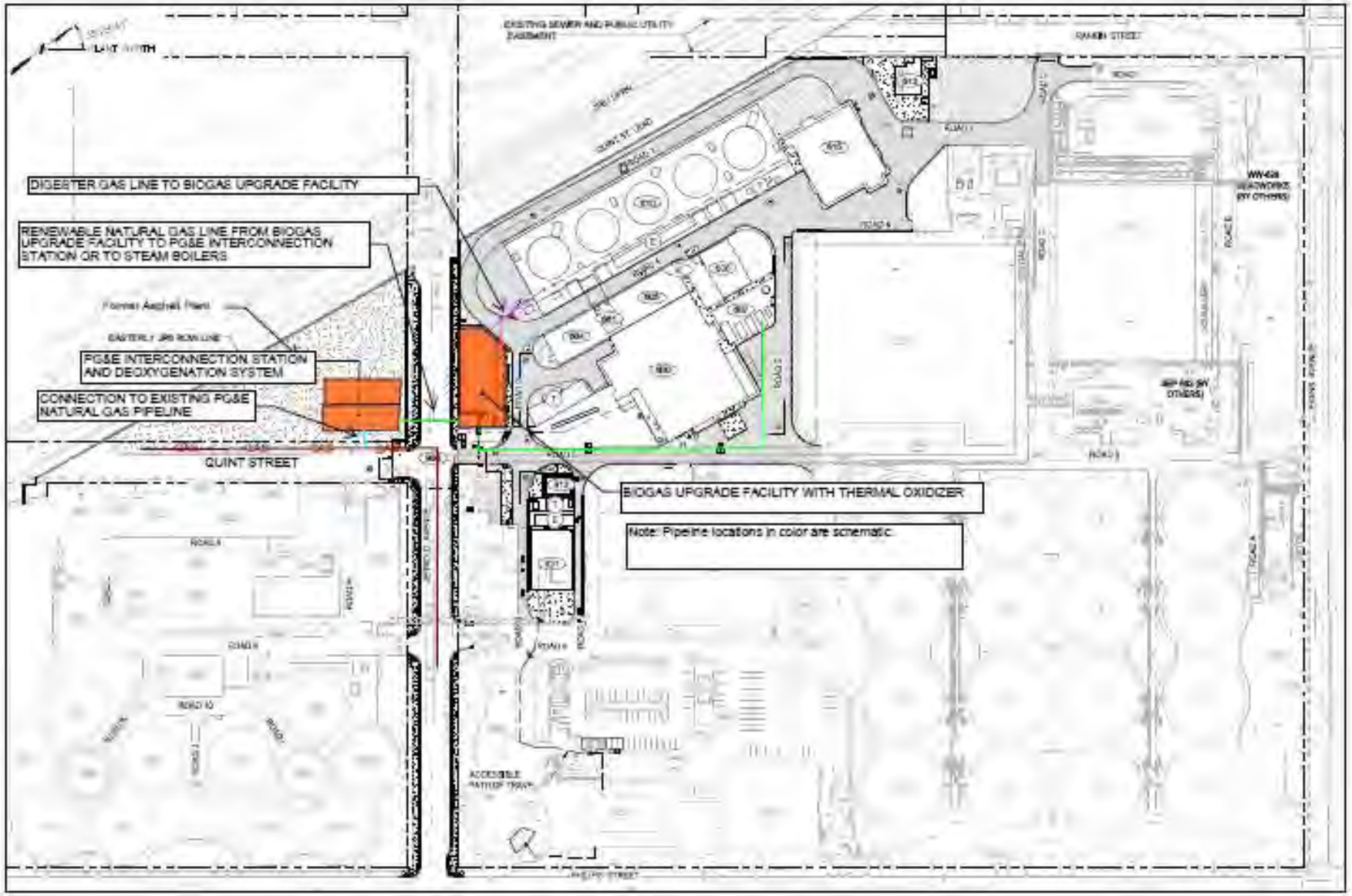
2 The proposed system promotes current California state goals for in-state production and distribution of renewable natural gas as documented in Assembly Bill 1900 and Senate Bill 840, and more recently in the Inflation Reduction Act.

## Figure 2 Energy Recovery System Components Proposed To Be Removed from the Approved Project




Note: Cross hatching indicates energy recovery components to be removed

## Figure 3 Modified Project Proposed Biogas Utilization System Components




Source: SFPUC

as documented in Minor Project Modification 10.[3] The PG&E interconnection station and deoxygenation system would be built at the location of the former digester gas treatment facility that was part of the approved project energy recovery system. The proposed biogas utilization system facilities would be within the approved project boundary, and no additional staging areas or access points would be needed. Each of the system's components are discussed below.

**Table 1** provides a summary of the energy recovery system components to be removed from the approved project and the biogas utilization system components to be added. As shown, the 57-foot-tall energy recovery building, 60-foot tall by 60-foot-diameter digester gas storage tank, digester gas treatment facility, and maintenance shop building would not be constructed. Instead, the modified project would construct the Biogas Upgrade Facility with thermal oxidizer comprised of piping, tanks, and storage container-type structures approximately 15 to 45 feet tall and a PG&E Interconnection Station and Deoxygenation System with above-ground valves and piping. Because the proposed biogas utilization system would be a less complex system with less substantial components than the approved energy recovery system facilities, construction would disturb 0.3 acres less work area, excavate 5,538 cubic yards less soil, and drill 279 to 331 fewer piles.

### *3.1.1 Biogas Upgrade Facility*

The first step of the biogas utilization system would be to convert the digester gas generated by the Southeast Plant to renewable natural gas at the proposed Biogas Upgrade Facility. The facility would be built on the north side of Jerrold Avenue within the footprint of the originally planned Maintenance Shops 2 Building. It would consist of outside equipment, including piping, valves, and tanks. The facility foundation would be either a shallow, approximately 2-foot-thick concrete pad supported by up to approximately 50, 60-foot-deep piles, or an approximately 8-foot-thick concrete pad without piles. The technology to convert the digester gas to renewable natural gas is still being evaluated and would determine the height of the equipment. The vessels (or tanks) would either be more spread out and shorter, up to about 20 feet tall, or more confined and taller, up to about 45 feet tall. Most of the digester gas would be converted to renewable natural gas, but some residual tail gas, comprised of methane and carbon dioxide, may remain. Therefore, the facility may include a thermal oxidizer unit, 15 to 45 feet tall, to abate the methane, with resulting emissions of carbon dioxide. For the purpose of this addendum analysis, the thermal oxidizer unit is assumed to be needed.

The digester gas would be piped directly from the anaerobic digesters to the proposed Biogas Upgrade Facility via a portion of the previously approved Digester Gas Line, instead of needing to be stored in a digester gas storage tank first. From the biogas upgrade facility, two approximately 4-inch-diameter pipes would be installed under Jerrold Avenue to convey the renewable natural gas to and from the proposed PG&E Interconnection Station discussed below.

3 SFPUC, Biosolids Digester Facilities Project Minor Project Modification 10 - Facilities Modifications, approved by San Francisco Planning Department on February 2, 2021.

## Table 1 Proposed Modifications to Facilities

| Facility | Location | Approximate Area and Excavation Depth | Height and Diameter | Piles |
|---|---|---|---|---|
| **Remove from Approved Project** | | | | |
| Digester Gas Storage tank | North of Jerrold | 2,827 sq. ft (0.06 acre) by 15 feet deep | 60 foot tall by 60 foot diameter tank | 38 piles: 3 foot diameter by 60 feet deep<br>(none were in cultural site)[4] |
| Energy Recovery Building (turbines, boilers, 1.5MW emergency generator) | South of Jerrold | 21,000 sq. ft. (0.48 acre) by 5 feet deep | 57 foot tall building, 75 foot tall by 4 foot diameter vent stack for turbine | 185 piles: 3 foot diameter by 60 feet deep<br>(6 were in cultural site) |
| Digester Treatment Facility | South of Jerrold | 8,568 sq. ft. (0.2 acre) by 5 feet deep | 12 foot tall by 10 foot diameter outside tanks and vessels (11) | 75 piles: 4 foot diameter by 60 feet deep<br>(35 were in cultural site) |
| Digester Gas Line[5] | Under Jerrold, North and South of Jerrold | 1440 sq. ft. (0.03 acre) [96 feet long by 15 inches wide] by 15 feet deep | N/A | 9 piles: 4 foot diameter by 60 feet deep<br>(none were in cultural site) |
| Pipe Chase under Jerrold from Digester Gas Storage Tank to Energy Recovery Building | Under Jerrold | 1440 sq. ft. (0.03 acre) [247 feet long by 18 inches wide by 12 feet deep | N/A | 24 piles: 4 foot diameter by 60 feet deep<br>(none were in cultural site) |

4 California Register- and National Register-eligible Native American archeological site CA-SFR-171. Refer to Section 5.3, Cultural Resources for discussion.

5 The portion of the originally approved digester gas line west of Jerrold would still be built to convey gas from the new digesters to the proposed biogas upgrade facility.

| Facility | Location | Approximate Area and Excavation Depth | Height and Diameter | Piles |
|---|---|---|---|---|
| **Add to Modified Project**[6] | | | | |
| Biogas Upgrade Facility with thermal oxidizer | North of Jerrold – replaces originally approved Maintenance Shops | 9,984 sq. ft. (0.23 acre) by 2 to 8 feet[7] | 15 feet to 45 feet tall outside piping and tanks, various diameters[8] | To be determined[9]<br>Either none or up to 52 piles, 3 foot diameter by 60 feet deep<br>(all would be in cultural site) |
| PG&E Interconnection Station and Deoxygenation System | South of Jerrold - replaces originally approved Digester Treatment Facility | 15,000 sq. ft. (0.34 acre) by 2 feet | 15 feet tall | None |
| Pipes from Biogas Upgrade Facility to PG&E Interconnection Station | Under Jerrold | 940 sq. ft. (0.02 acre) [235 feet long by 4 feet wide] by 6 feet deep | N/A | None |
| Pipe from PG&E Interconnection Station to existing PG&E natural gas pipeline | Under Quint | 35 sq. ft. (0.001 acre) [14 feet long by 2.5 feet wide] by 6 feet deep | N/A | None |
| **NET** | | **Less 12,326 sq. ft. (0.3 acres)**<br>**Less 5,538 cubic yards excavated** | | **279 to 331 fewer piles**<br>(11 more or 41 fewer in cultural site) |

6 The exact dimensions of new facilities are to be determined upon completion of final design; the information in this table represents the range of facility dimensions.

7 A range in excavation depth is provided because the new tanks and piping could either be on a shallow concrete pad with piles or a deeper concrete pad with no piles.

8 A range in height is provided because the new tanks and piping could either be shorter and more spread out or taller and more confined.

9 Piles may or may not be needed depending on the final design of the concrete pad foundation.

Like the energy recovery system under the approved project that would have generated a small amount of solid waste associated with removing impurities in the digester gas, impurities would need to be removed from the tail gas generated at the biogas upgrade facility and also would need to be hauled to an approved landfill by several trucks every four to six months. The volume of material would be similar and involve approximately the same number of trucks as the approved project because the volume of digester gas would not change.

### *3.1.2 PG&E Interconnection Station and Deoxygenation System*

PG&E would construct and operate a standard Interconnection Station at the former Asphalt Plant site, south of Jerrold where the originally-approved digester gas treatment facility would have been located. The Interconnection Station would test the quality of the renewable natural gas. Poor-quality renewable natural gas would be returned to the biogas upgrade facility for additional treatment. Quality renewable natural gas would be conveyed to PG&E's existing natural gas pipeline in Quint Street. The Interconnection Station would consist of skid-mounted piping and valves on a 2-foot-thick concrete pad (no piles) with equipment up to 10 feet tall. Access would occur from Jerrold Avenue and a solar panel may be installed for power. PG&E would construct and operate a short section of new pipeline from the station to its existing natural gas pipeline in Quint Street.

A Deoxygenation System may also be necessary in this area to remove oxygen to meet PG&E's renewable natural gas quality standards prior to injection. The Deoxygenation System would be adjacent to the Interconnection Station and would include tanks and storage containers up to 15 feet tall on a concrete slab.

## 3.2 Modified Project Construction

### *3.2.1 Schedule*

The proposed biogas utilization system would take approximately two years to construct from about December 2024 through December 2026. The proposed biogas utilization system facilities would be constructed along with the remaining approved project facilities so that they would be operational concurrent with the other new Biosolids facilities to start immediately reusing the biogas. While the energy recovery facilities would have taken about three years to build, the biogas utilization system would take approximately two years. This decrease in construction duration is commensurate with the reduction in construction level of effort (i.e., less excavation, pile drilling, building construction, trucking, etc.). Overall, the approved project started later, and construction is projected to extend approximately one and a half years longer than estimated in the FEIR because it is taking longer to construct than initially envisioned. **Table 2** presents the revised construction schedule for the remaining facilities. The recently approved project modification to construct the Interim Sidestream Nutrient Removal Facility would also be constructed within this timeframe.

**Table 2 Revised Schedule**

| Activity | FEIR Table 2-10 Estimated Schedule | Revised Estimated Schedule | Facilities in Construction |
|---|---|---|---|
| Biosolids Digester Facilities Construction | Feb. 2018 – Jan. 2023 (5 years) | Jan. 2020 - July 2026 (6.5 years) | • Approved project facilities (ongoing)<br>• Approved Interim Sidestream Nutrient Removal facility (May 2024 to April 2025)<br>• Proposed Biogas Utilization System (December 2024 to December 2026)[10]<br>• Future anticipated proposed SEP-7 Operations, Engineering, and Maintenance Buildings[11] (February 2025 to September 2027) |
| Post-Construction Activities (performance testing/start-up, full facility commissioning) | Feb. 2023 - July 2025 (2.5 years) | August 2026 – Summer 2028 (2 years) | |
| Existing Digesters Decommissioning[12] | After 2025 | After 2028 | |

### *3.2.2 Hours, Work Force, and Construction Coordination*

The construction schedule days and work hours for the biogas utilization system and the remaining approved facilities during the extended construction period of the modified project would be the same as for the approved project. Construction of the biogas utilization system components would require up to approximately 20 workers at any one time, which would be within the work force estimated for the approved project. As currently, the Southeast Plant Construction Management Team would coordinate construction staging, parking, project interfaces, and traffic controls for the modified project with the other Southeast Plant maintenance and repair projects to maintain local traffic, transit, bicycle, and pedestrian access and safety.

### *3.2.3 Equipment, Staging, Truck and Delivery Access, Demolition, and Foundations*

Construction of the proposed biogas utilization system would use the same types of equipment as the construction of the other approved project facilities. No new types of equipment would be required. Staging and worker parking for construction of the biogas utilization system would occur within the approved project boundary, inclusive of the warehouses at the corner of McKinnon and Rankin streets

10 The proposed biogas utilization system is evaluated in this addendum.

11 SFPUC has proposed new SEP-7 Operations, Engineering, and Maintenance Buildings, to replace the maintenance shops included in the originally approved project described in the FEIR. This proposed revision to the approved project is undergoing environmental analysis.

12 Per the FEIR, potential demolition of the existing digesters and the solids handling facilities would be evaluated as a separate project when future uses of the site are proposed.

previously added to the approved project for parking and staging areas under Minor Project Modification 16.[13] The same roads would be used for access and trucking as for the approved project, including Highway 101, Interstate 280, Cesar Chavez, Evans Street, Phelps Street, Rankin Street, Jerrold Avenue, and McKinnon Street.

Because the structures that were present at the proposed locations for the Biogas Upgrade Facility and the PG&E Interconnection Station and Deoxygenation System have already been demolished as part of the approved project, no demolition is required for the proposed modification. There are no trees at these locations. Construction of the proposed biogas utilization system facilities would involve removing asphalt, excavation and drilling piles to serve as building foundations by the same methods as the approved project. As shown in **Table 1**, the modified project would result in approximately 5,538 cubic yards less excavation and installation of 279 to 331 fewer piles.

### *3.2.4 SFPUC Standard Construction Measures*

As with the approved project, SFPUC's Standard Construction Measures would be implemented during construction of the proposed biogas utilization system.

## 3.3 Modified Project Operations

### *3.3.1 Removal of the Energy Recovery System and Related Changes in Operation and Energy Demand/Supply*

Without the energy recovery system, in which the digester gas would be burned in boilers and a turbine generator to provide heat, steam, and electricity to operate the new biosolids facilities, the steam boilers would need to operate full-time instead of on a stand-by basis to generate the steam needed for the solids treatment (i.e., pre-digestion solids processing using the thermal hydrolysis process). Additionally, whereas flaring would have been infrequent with the energy recovery system, the SFPUC expects that the biogas utilization system would operate 90 to 95 percent of the time with intermittent flaring, or burning off the digester gas in a smokestack, limited to 5 to 10 percent of the time.[14]

Removal of the energy recovery system would require natural gas and electricity to power the steam boilers and other approved project facilities. **Table 3** below presents the revised energy demand and supply sources with the proposed biogas utilization system in comparison to the approved project.

### *3.3.2 Work Force and Maintenance*

Operation of the proposed biogas upgrade facility and deoxygenation system may require approximately one additional employee, resulting in two additional worker vehicle trips per day during operations. The PG&E interconnection station would operate autonomously with periodic site visits by an existing PG&E employee to inspect and maintain equipment. Therefore, with the modified project there may be one

13 SFPUC, Biosolids Digester Facilities Project Minor Project Modification 16, approved by San Francisco Planning Department May 17, 2023.

14 As discussed further in the air quality analysis below, this addendum evaluates a worst-case operating scenario of the biogas utilization system operating only 70 percent of the time and flaring 30 percent of the time.

## Table 3 Estimated Energy Demand and Supplies with Project Revisions

| Energy Type | Facility | FEIR Table 2-8 for Existing Facilities | FEIR Table 2-8 for Future Biosolids Facilities[15] | With Proposed Revisions |
|---|---|---|---|---|
| Electricity Power Demand | BDFP Solids Treatment Process | 1 MW (estimated) | 4.4 MW (2023)<br>4.9 MW (2045) | 4.1 MW (2027)[16]<br>4.5 MW (2045) |
| | Interim Sidestream Nutrient Removal (MPM-17) | - | N/A – not in FEIR | 0.5 MW |
| | Proposed Biogas Utilization System | - | N/A – not in FEIR | 1.6 MW |
| Electricity Produced from Cogeneration (i.e., Energy Recovery System) | From Digester Gas | 0.66 MW | 4.2 MW (2023)<br>5.2 MW (2045) | 0 MW |
| | *Digester gas generation, cubic feet per day* | *Approximately 1.3 million* | *Approximately 1.6 million (2023)*<br>*Approximately 2 million (2045)* | *Approximately 1.6 million (2027)*<br>*Approximately 2 million (2045)* |
| | From Natural Gas | 0.02 MW | 0 MW | 0 MW |
| Electricity from Hetch Hetchy Hydropower | | 0.32 MW | 0.2 MW (2023)<br>0 MW (2045) | 5.2 MW (2027)<br>5.6 MW (2045) |
| Electricity from PG&E | | N/A | N/A – not in FEIR | 1.6 MW[17] |
| Diesel Use, gallons year | | 50 gallons/year | 5,250 gallons/year | 50 gallons/year |
| Natural Gas/Propane Gas | | Minor volume to supplement steam boilers as-needed | | Up to 50,000 standard cubic feet/hour (24/7)[18] |

BDFP = Biosolids Digester Facilities Project; MW = megawatts; N/A = not applicable

15 Source: FEIR, see original table for information details on existing and approved project assumptions

16 Revised date due to construction delays and extended schedule

17 Because power for the biogas utilization system could be provided by the SFPUC or PG&E, it is conservatively shown as coming from PG&E in this table and as evaluated in this addendum.

18 Natural gas demand conservatively assumes steam boilers are operating full time and to process the maximum potential daily intake of sewerage and associated digester production, but the annual average digester gas production is less such that annual natural gas consumption would also be less.

new employee for operations compared to the approved project having no new employees. Maintenance frequency for the proposed biogas utilization system would be similar to the approved project, with minor repairs every few years and repairing major pieces of equipment every 20 to 30 years. Thus, there would be a negligible change in the number of truck trips or vehicle miles travelled during operation of the proposed biogas utilization system or the overall modified project.

#### *3.3.3 Other Southeast Plant Operations*

The proposed revisions would not affect the existing overall capacity of the Southeast Plant for wastewater treatment; the overall treatment methods and in turn chemical storage, use, handling and associated truck trips and routes; the amount of digester gas generated; or the amount of biosolids generated and the associated number of hauled trucks and routes. Lastly, the long-term streetscape and landscape improvements along Jerrold Avenue would still be implemented under the modified project.

### 3.4 Approvals

This addendum will be used to support the following public agency approvals:

- San Francisco Public Utilities Commission - Approval of the proposed biogas utilization system at a public hearing
- Bay Area Air Quality Management District – Authority to Construct and Permit to Operate

## 4.0 CEQA Approach

San Francisco Administrative Code section 31.19(c)(1) states that a modified project must be reevaluated, and that "If, on the basis of such reevaluation, the Environmental Review Officer determines, based on the requirements of the California Environmental Quality Act (CEQA), that no additional environmental review is necessary, this determination and the reasons therefore shall be noted in writing in the case record, and no further evaluation shall be required by this Chapter." CEQA Guidelines section 15164 provides for the use of an addendum to document the basis for a lead agency's decision not to require a subsequent FEIR for a project that is already adequately covered in a previously certified FEIR. An addendum to a certified FEIR may be prepared if some changes or additions are necessary, but none of the conditions described in section 15162 calling for the preparation of a supplemental or subsequent FEIR have occurred.

This addendum to the FEIR documents the environmental effects of the proposed modifications to the Biosolids Digester Facilities Project: the construction and operation of the biogas utilization system in lieu of the originally proposed energy recovery facilities and related changes to operational energy demand/supply. The Biosolids Digesters Facilities Project, inclusive of these proposed modifications (herein referred to as the "modified project"), is compared to the impacts of the "approved project" as disclosed in the FEIR and subsequently approved minor project modifications, and explains why the proposed modifications would not result in any new significant environmental impacts or a substantial increase in the severity of previously identified environmental impacts, and would not require the adoption of any new or considerably different mitigation measures.

Since certification of the FEIR, several changes have occurred in the approved project and the circumstances under which the approved project would be undertaken. These changes include the following: 1) minor modifications to the approved project described in the FEIR; 2) new information regarding cumulative projects proposed in the vicinity; and 3) changes in the existing conditions regarding health risks from air pollution sources due to an updated citywide health risk assessment. These changes are described further in the subsections below. As analyzed in this addendum, the modified project combined with these changed circumstances would not materially change any of the analyses or conclusions of the certified FEIR.

## 4.1 Approved Minor Project Modifications

As described in Section 2.2 above, since FEIR certification, the SFPUC has proposed a number of minor changes to the approved project including the following: additional dewatering wells; geotechnical potholes and test piles; a rerouted pipeline; additional work, staging, and parking areas (and the removal of other staging areas); substitution of alternative effective air quality mitigation; removal of Maintenance Shops 1 and 2; reducing the size of the Odor Control Building; adding a new Steam Generation Facility; and, adding an Interim Sidestream Nutrient Removal Facility to reduce nutrients (mainly nitrogen) from treated effluent to improve effluent water quality. The Planning Department determined that these changes were minor project modifications that would clearly not alter the FEIR conclusions and documented these determinations with memoranda to the case file. Two key previous changes related to this addendum were the removal of the Maintenance Shops Building No. 2 from the approved project (now the proposed location of the Biogas Upgrade Facility) and the addition of the Steam Generation Facility to support the solids treatment process.[19] **Table 4** summarizes the approved project inclusive of the minor project modifications to date and the proposed modifications analyzed in this addendum.

## 4.2 Cumulative Projects in the Site Vicinity

FEIR Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes potential projects in the site vicinity. FEIR Table 4.1-1 lists 40 nearby projects considered in the cumulative impact analysis, including the construction dates of those projects. Since certification of the FEIR, some of these projects have been completed and would no longer be part of the modified project cumulative scenario; others have been delayed and would now overlap with the modified project construction. In addition, new projects have been proposed both at the Southeast Plant and in the project vicinity. **Appendix A** updates the projects considered in the cumulative impact analysis for the modified project.

19 SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, Approved by San Francisco Planning Department February 2, 2021.

## Table 4 Summary of Approved Project and Modified Project

| Feature | Approved Project | | Modified Project |
|---|---|---|---|
| | FEIR Certified Project | Previously Approved Project Changes[20] | |
| Southeast Plant Property Size | Approximately 47 acres | No change | No change |
| Southeast Plant Design Wastewater Flow Capacity | 250 mgd (wet weather) | No change | No change |
| Digester Tanks | 85 mgd (dry weather design average) | No change | No change |
| Solids Treatment Process | • Thickening<br>• Screening<br>• Pre-thermal hydrolysis<br>• Thermal Hydrolysis Process<br>• Anaerobic Digestion<br>• Biosolids Dewatering | Same as certified project with addition of:<br>• Steam Generation Facility with boilers operating full time[21]<br>• Interim Sidestream Nutrient Removal[22] | No change |
| Biosolids | Classification: Class A Exceptional Quality<br>Annual Production: 24,000 dry tons<br>Haul Trips: 10-14 trips per day | No change | No change |
| Odor Control | Designed to limit odors from biosolids facilities to within revised SEP site boundaries | No change | No change |
| Digester Gas | Production: approximately 2 million cubic feet/day<br>Flaring: Infrequent | No change | No change in production<br>Flaring: Intermittent |

20 Minor revisions to the original project in the FEIR as modified under Minor Project Modifications approved by Planning Department

21 SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, Approved by San Francisco Planning Department February 2, 2021

22 SFPUC Biosolids Digester Facilities Project Minor Project Modification 17 – Interim Sidestream Nutrient Removal, Approved by San Francisco Planning Department February 12, 2024

| Feature | Approved Project | | Modified Project |
|---|---|---|---|
| | FEIR Certified Project | Previously Approved Project Changes [20] | |
| Energy Recovery | Technology:<br>• Gas Turbines<br>• Heat Recovery Steam Generation System<br>• Steam Boilers: Backup Only<br>Electricity Generation (Annual Average): 4.2 to 5.2 megawatts | No change | Removed Technology:<br>• Gas Turbines<br>• Heat Recovery Steam Generation System<br>• Steam Boilers: Backup Only (*see changes related to boilers in Solids Treatment Process above)<br>Added Technology:<br>• Biogas Upgrade Facility with Thermal Oxidizer<br>• PG&E Interconnection Station with Deoxygenation System<br>Electricity Generation (Annual Average): 0.0 megawatts<br>• Power for Biogas Upgrade Facility may be from PG&E<br>• Power for all other facilities from SFPUC Hetch Hetchy Water and Power |
| Southeast Plant Staffing Levels | 280 staff (entire SEP including biosolids staff) | No change | One additional employee |
| New Operations, Maintenance, and Support Buildings/Structures | Maintenance Shops 1 (19,600 square feet)<br>Maintenance Shops 2 (5,500 square feet)<br>Digester Electrical Rooms<br>Ferric Chloride Storage<br>Transformers<br>Maximum Height: 30 feet above grade | Same as certified project except no Maintenance Shops 1 and 2.[23] | No change |

23 SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, Approved by San Francisco Planning Department February 2, 2021.

| Feature | Approved Project | | Modified Project |
|---|---|---|---|
| | FEIR Certified Project | Previously Approved Project Changes [20] | |
| Landscaping Improvements | Trees, landscaping, fencing and street improvements along Jerrold Avenue<br>Proposed removal of 90 trees | No change | No change |
| BDFP Project Site | Approximately 12.9 acres | Approximately 14 acres | No change |
| Construction Schedule | Five years (2018-2023) | No change | Six and a half years (2020 – Summer 2026) |
| Construction Staging, Worker Parking | Within plant, on Quint Street, Closed portion of Jerrold Avenue, Piers 94 and 96, Southeast Greenhouses site, 1550 Evans | Same as certified project except:<br>• No use of 1550 Evans, Piers 94/96<br>• Added 2000 McKinnon Avenue<br>• Expanded staging on Jerrold Avenue to between Phelps and Rankin [24] | No change |
| Construction Truck and Delivery Access, Worker Access | Truck/Delivery Access to BDFP: Rankin Street, Evans Avenue, Jerrold Avenue, Cesar Chavez, Phelps Street<br>Worker Access: Jerrold Avenue | Truck/Delivery Access to BDFP: added McKinnon Avenue<br>Worker Access: added Quint Street, McKinnon Avenue [25] | No change |
| Muni Route 23 Relocation | Temporarily relocated from Jerrold Ave to Oakdale and Palou Avenues | No change | No change |
| Construction Equipment | Listed in FEIR | No change | No change |

24 SFPUC Biosolids Digester Facilities Project Minor Project Modification 16 – McKinnon Parking Site, Approved by San Francisco Planning Department May 17, 2023

25 SFPUC Biosolids Digester Facilities Project Minor Project Modification 7 – Traffic on Jerrold, Approved by San Francisco Planning Department September 1, 2020

| Feature | Approved Project | | Modified Project |
|---|---|---|---|
| | FEIR Certified Project | Previously Approved Project Changes [20] | |
| Building Demolition | Central Shops<br>Asphalt Plant Structures<br>Buildings 855, 870, 925, SS5A/5B<br>1550 Evans<br>Total: 136,000 square feet | Same as certified project except:<br>• Building 870 not demolished [26] | No change |
| Excavation Volumes /Areas/Depths | Volume: 190,000 cubic yards<br>Depth: 45 feet below ground surface | Same as certified project plus:<br>Additional volume: 360 cubic yards [27] | Same as certified project except:<br>• Volume: reduced by 5,538 cubic yards to total of 184,812 cubic yards<br>• 279 to 331 fewer piles |
| Temporary Roadway Closures | Jerrold Avenue between Caltrain right-of-way and SEP entrance on Phelps Street | Jerrold Avenue between Rankin and Phelps Street [28] | No change |
| Maximum Construction Workers (daily) | 550 | No change | No change (possibly fewer) |

BDFP = Biosolids Digester Facilities Project

26 SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, Approved by San Francisco Planning Department February 2, 2021.

27 Combined total from SFPUC Biosolids Digester Facilities Project Minor Project Modifications 3, 6, 14, 15, 17

28 SFPUC Biosolids Digester Facilities Project Minor Project Modification 6– Additional Work Area Changes, Approved by San Francisco Planning Department April 28, 2020

### 4.3 Existing Air Quality Conditions

In 2020, the City and County of San Francisco completed an update to the San Francisco Citywide Health Risk Assessment (HRA), which was previously prepared in 2014.[29] The 2020 San Francisco Citywide HRA evaluated the cancer risks and small particulate matter (PM2.5) concentrations from existing known sources of air pollution including updates to vehicle activity and emissions rates, updates to maritime emissions, emissions from Caltrain and updated stationary source emissions. The 2020 San Francisco Citywide HRA was used to update the air pollutant exposure zone that is referenced in Health Code article 38 and the Clean Construction Ordinance. The 2020 San Francisco Citywide HRA and air pollutant exposure zone updates the 2014 analysis referenced in the FEIR. This addendum air quality analysis uses the updated 2020 Citywide HRA for the existing plus project and cumulative health risk assessment. The updated background health risks show an increase in the existing background health risks since 2014 due to the changes in emissions and methodology.

### 4.4 Updates to CEQA Guidelines

Since FEIR certification, the CEQA Guidelines Appendix G Environmental Checklist Form has been updated to add the topics of Tribal Cultural Resources and Wildfire. Accordingly, these topics are discussed in the analysis of potential environmental effects below.

## 5.0 Analysis of Potential Environmental Effects

The FEIR and subsequent approved minor project modifications evaluated potential physical environmental impacts of the approved project and found that implementation of the approved project would result in project-specific significant environmental effects that could be mitigated to a less-than-significant level with implementation of mitigation measures, except for the demolition of historic buildings and NOx emissions in Years 1 and 3 of construction. A Mitigation Monitoring and Reporting Program was required for the approved project and adopted by the SFPUC on March 13, 2018,[30] and applicable mitigation measures from the approved project would be required for the modified project.

This addendum evaluates the modified project with respect to the resource topics discussed in the FEIR, with the addition of analyses for tribal cultural resources and wildfire in accordance with recent changes in the CEQA Guidelines Appendix G initial study checklist. Because the modified project is located within the approved project site and would be similar to the approved project evaluated in the FEIR, only those environmental topics with significant impacts or otherwise requiring additional analysis or new analysis are discussed in detail below. The environmental topics discussed in detail include:

- Air Quality
- Greenhouse Gas Emissions
- Noise
- Cultural Resources

29 San Francisco Department of Public Health (SF DPH), San Francisco Planning Department, and Ramboll. 2020. San Francisco Citywide Health Risk Assessment: Technical Support Documentation.

30 San Francisco Public Utilities Commission Resolution No. 18-0042, March 13, 2018.

- Tribal Cultural Resources
- Biological Resources
- Wildfire

The remaining environmental topics are addressed in less detail below or briefly in the "Other Environmental Topics" section.

## 5.1 Air Quality

### *5.1.1 Biosolids Digester Facilities Project FEIR Findings*

The FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding air quality:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)

The potentially significant impacts associated with the above criteria for the approved project and modified project are discussed in detail in the construction and operations sections below.

Briefly, the FEIR also evaluated several other significance criteria regarding air quality impacts and determined that the potential impacts related to these criteria would be less than significant. The FEIR found that operation of the approved project would result in the emissions of criteria air pollutants below the significance thresholds and thus would not result in any new violations of air quality standards, contribute to an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants. The FEIR found that construction and operation of the approved project would generate toxic air contaminants, including diesel particulate matter, but would not expand the City's air pollutant exposure zone (APEZ) boundaries or create new APEZ areas or result in net excess cancer risk and PM2.5 emissions concentrations in exceedance of significance thresholds at sensitive receptors within 1 kilometer of the site. Lastly, the FEIR determined that odors from construction and operation would be less than significant because construction odors (e.g., diesel exhaust from equipment) would be temporary and variable and that odors from the operation of the approved solids treatment facilities would improve compared to existing conditions because the solids handling and digester gas handling facilities would be relocated further from sensitive receptors and facilities would include odor control features.

#### Construction

Construction of the project would generate emissions of fugitive dust from soil disturbance and hauling soil off-site and criteria air pollutants through construction equipment and truck emissions. The FEIR determined that because the SFPUC would be required to implement dust control measures like watering, covering truck beds hauling soil, and perimeter dust monitoring pursuant to with San Francisco

Health Code Article 22B (Dust Control Ordinance), fugitive dust emissions would have a less than significant impact on air quality.

Criteria air pollutants include nitrogen oxides (NOx), particulate matter (PM10 and PM2.5), and reactive organic gases (ROG). The FEIR estimated construction criteria air pollutant emissions and found that because the SFPUC would be required to use either newer construction equipment or equip older construction equipment with after-market emissions controls (e.g., soot filters) pursuant to San Francisco Environment Code Chapter 25 (Clean Construction Ordinance), the average daily emissions of NOx, ROG, PM10, and PM2.5 would be below applicable thresholds, except that NOx emissions would exceed thresholds in Years 1 and 3 of construction. To further reduce $NO_x$, emissions, the FEIR requires implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization), which requires equipment greater than 140 horsepower to have a Tier 4 Final engine rating, 80% of trucks to be 2010 or newer, and the use of renewable diesel in all off-road equipment and haul trucks. However, the FEIR found that while this measure would further reduce $NO_x$ emissions, $NO_x$ emissions would still exceed the significance threshold in construction Years 1 and 3. The FEIR therefore further requires implementation of Mitigation Measure M-AQ-1b (Emission Offsets), requiring the SFPUC to offset any remaining $NO_x$ emissions in Years 1 and 3 to below significance thresholds, such as by upgrading other equipment at the Southeast Plant or paying a mitigation offset fee to the Bay Area Air Quality Management District. Nevertheless, the FEIR determined that although these measures combined would mitigate construction-related NOx emissions to below the significance threshold levels, NOx emissions were significant and unavoidable with mitigation because implementation of the offset mitigation depends on the actions of a third party (the BAAQMD) and could not be guaranteed.

The FEIR evaluates if the project's construction-related air pollutant emissions would conflict with or obstruct implementation of the BAAQMD's 2010 Clean Air Plan. It also discusses the BAAQMD's Draft 2017 Clean Air Plan. The FEIR found that with implementation of Mitigation Measures M-AQ-1a (Construction Emissions Minimization) and M-AQ-1b 1b (Emission Offsets), the project would not hinder either plan in meeting its primary goals.

Operation

The only significant operational air quality impact was if the approved project would be consistent with the BAAQMD's 2010 Clean Air Plan. The FEIR determined that approved project would be consistent with the BAAQMD's 2010 Clean Air Plan and this impact would be less than significant with implementation of Mitigation Measures M-AQ-1a (Construction Emissions Minimization) and M-AQ-1b (Emission Offsets).

### *5.1.2 Modified Project*

The following discussion summarizes the findings of the air quality technical analysis presented in **Appendix B.**[31]

Construction

*Dust and Criteria Air Pollutants*

Because the proposed biogas utilization system would have fewer and less substantive facilities than the originally-approved energy recovery facilities, the modified project would require less excavation,

[31] Ramboll, Air Quality Health Risk Assessment Update for Potential Modification to the Future End-Use of Digester Gas at the Southeast Plant Biosolids Digester Facility Project in San Francisco, California. April 10, 2024.

drilling, trucking, and overall construction activities. This would reduce potential dust emissions because there would be less ground disturbance, soil stockpiling, and soil off-hauling. Like the approved project, the SFPUC would comply with the Dust Control Ordinance to minimize dust emissions during construction.

Similarly, this reduction in construction effort would also decrease criteria air pollutant emissions because there would be fewer hours of equipment operation and less trucking. Further, the actual daily average criteria air pollutant emissions from construction of the approved project components for Years 1 through 3 were substantially less than estimated in the FEIR (See Appendix B, Table 1) because the hours of actual equipment use have been less than estimated in the FEIR, and this trend is expected to continue. For example, the FEIR estimated that with mitigation in year 3, average daily NOx emissions during construction would be approximately 55 pounds per day (lbs/day); actual average daily NOx emissions were 30 lbs/day. Therefore, it is reasonable to conclude that criteria air pollutant emissions from the modified project, with continued implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization) requiring the use of clean equipment and newer trucks, would be less severe than estimated in the FEIR.[32] Additionally, Mitigation Measure M-AQ-1a requires the SFPUC to track actual equipment use. Therefore, as done for Years 1 through 3 to date, SFPUC would quantify actual construction emissions during future years, including construction of the proposed biogas utilization system, and if the NOx threshold is exceeded, the SFPUC would implement Mitigation Measure M-AQ-1b (Emissions Offsets) to mitigate this potentially significant impact. However, because implementation of Mitigation Measure M-AQ-1b relies on a third-party and cannot be guaranteed, like the approved project, to the extent that implementation of M-AQ-1b is required, the modified project's construction impacts on air quality would continue to be significant and unavoidable with mitigation.

The approved project will require an additional approximately 1.5 years to construct because it is taking longer to construct the approved project components than estimated at the time of the FEIR, not the addition of new components. The total hours of equipment usage has occurred as estimated, but for fewer hours per day resulting in a longer duration. As a result, potential dust emissions and criteria air pollutant emissions from construction equipment would occur over a longer time. Dust control measures would continue to be implemented pursuant to the Dust Control Ordinance to minimize dust emissions during this extension. Spreading construction of the same scope of work out over a longer time reduces the maximum average daily emissions because the same total emissions would be divided over more days.

*Health Risks*

As discussed above, the FEIR determined that the approved project would have a less-than-significant impact on health risks, inclusive of construction and operations. Because the modified project operations would substantially alter the end use of digester gas and related changes to operational energy demand/supply, the effects of the modified project on health risks compared to the approved project are discussed in detail here. As discussed in Appendix B, health risks correlate with construction equipment emissions, especially during the first few years of construction when heavy equipment use is most intensive, and receptors are assumed to be young children that have higher breathing rates and a greater

32 Mitigation Measure M-AQ-1a (Construction Emissions Minimization) was previously revised to require that 80% of trucks either be 2010 or new and run on renewable diesel or could be 2012 or newer and run on regular or renewable diesel, as approved under Minor Project Modification 10.

chance of contracting cancer over their lifetime due to their young exposure age. Because criteria air pollutant emissions of the modified project would decrease due to the reduction in excavation, pile driving, building construction, and trucking, the health impacts associated with modified project construction would reasonably be expected to decrease as well. Therefore, health risks related to construction emissions would remain less than significant.

As discussed above, construction of the approved project will require an additional 1.5 years because construction is taking longer than expected at the time of the FEIR, not the addition of new project components. Thus, the total air pollutant emissions analyzed in the FEIR would not increase. Therefore, the longer construction period would not increase health risks impacts.

Operation

*Dust and Criteria Air Pollutants*

Like the approved project facilities, the areas around the proposed biogas upgrade system, PG&E interconnection station, and deoxygenation facility would be paved upon the completion of construction and would thus not be sources of fugitive dust during operation.

Net operational criteria air pollutant emissions of the project with the proposed biogas utilization system instead of the energy recovery system were calculated by the SFPUC's Biosolids Design Consultant Team (Brown and Caldwell, CH2M Hill, Black & Veatch).[33] Because the final detailed design of the biogas upgrade facilities is still underway, the team quantified emissions based on a worst-case operating scenario, which assumes that 70 percent of the digester gas would be converted to renewable natural gas for export (injection into the PG&E pipeline), while the remaining 30 percent of digester gas would be combusted on-site by flaring. This is a conservative assumption that would yield higher, or worst case, emissions analysis because the SFPUC expects that digester gas would be converted to renewable natural gas 90 to 95 percent of the time, with flaring limited to 5 to 10 percent of the time. The analysis also includes that steam boilers at the plant would need to operate full time to produce steam for the thermal hydrolysis process instead of being generated by the energy recovery facilities. The steam boilers would use electricity and natural gas for operation.

**Table 6** compares the operational emissions of the modified project and the approved project. The changes in criteria air pollutant emissions are due to changes in equipment (namely, the removal of the proposed turbines and an increase in boiler and flaring operations), as well as differing amounts and composition of the gas combusted. As shown in **Table 6**, the modified project would increase operational emissions of ROG, PM10 and PM2.5, but would decrease NOx emissions compared with the approved project. Overall, criteria air pollutant emissions would still be below significance thresholds.

*Health Risks*

Since some operational criteria air pollutant emissions would increase with the proposed biogas utilization system and the location of emissions sources on the project site would change, the health risk model was updated as discussed in more detail in Appendix B to quantify changes in health risks (excess lifetime cancer risks, PM2.5 concentrations, and chronic and acute noncancer health effects) from modified project operation. **Table 7** presents the health risk impacts from operation of the modified

[33] Brown and Caldwell with CH2M, Black & Veatch, and associated firms, Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project, March 2021.

project compared to the approved project at the maximally exposed individual sensitive receptor or MEISR.

**Table 6 Net Operational Criteria Air Pollutant Emissions with the Modified Project**

| Approach | Annual Emissions (Tons/Year) | | | |
|---|---|---|---|---|
| | ROG | NOx | $PM_{10}$ | $PM_{2.5}$ |
| Existing (2014) Total | 5.0 | 22 | 1.7 | 1.7 |
| FEIR Approved Project - Full Operation (2045) (Net Change to Existing)[34] | - 4.3 | 2.6 | 2.9 | 2.9 |
| Proposed Modified Project - Full Operation (2045) (Net Change to Existing)[35] | -2.9 | -3.2 | 3.8 | 3.8 |
| CEQA Significance Threshold (Tons/Year) | 10 | 10 | 15 | 10 |
| Modified Project Emissions Above Threshold? | No | No | No | No |

**Table 7 Health Risk Impacts from Modified Project Operations**

| Source | Excess Cancer Risk (in a million) | PM2.5 Concentration ($ug/m^3$) | Chronic Non-Cancer Hazard Index (unitless) | Acute Hazard Index (unitless) |
|---|---|---|---|---|
| FEIR Approved Project Maximum Impact (operations only)[36] | 0.022 | 0.09 | 0.0067 | 0.083 |
| Proposed Modified Project Maximum Impact (operations only)[37] | -0.009 | 0.17 | 0.015 | 0.22 |
| CEQA Significance Threshold | 7.0 | 0.2 | 1.0 | 1.0 |
| Modified Project Risks Above Threshold? | No | No | No | No |

34 Sourced from the FEIR.

35 Brown and Caldwell with CH2M, Black & Veatch, and associated firms, Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project, March 2021. Emissions are based on the worst-case operating scenario of biogas being converted to renewable natural gas 70% of the time with 8.3% methane in the tail gas and flaring 30% of the time (Operations Scenario 3 in the BAAQMD permit application). In reality, the SFPUC expects that digester gas would be converted to renewable natural gas 90 to 95% of the time with flaring limited to 5 to 10% of the time.

36 Ramboll, Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR, March 10, 2017. Refer to Table 22, Net Project Cancer Risk at MEISR (Scenario 2); Table 24, Chronic and acute Health Impacts from Project Operation at MEISR and MEI.

37 Ramboll, Air Quality Health Risk Assessment Update for Potential Modification to the Future End-Use of Digester Gas at the Southeast Plant Biosolids Digester Project in San Francisco, California. April 10, 2024. Refer to Updated Table 22, Net Project Cancer Risk at Off-site MEISR; Updated Table 24, Chronic and acute Health Impacts from Project Operation at MEISR and MEI.

As shown in **Table 7**, although some health risks would increase, all health risks associated with modified project operations would remain below the significance thresholds. While **Table 7** only presents the operational health risk impacts, the excess cancer risk threshold of 7.0 per million is inclusive of emissions from both construction and operation. In the FEIR, the Maximally Exposed Individual Sensitive Receptor (MEISR) worst-case value for excess cancer risk was less than 0.1 to 1.7 per million, well below the CEQA threshold. Given that the modified project would reduce construction-related emissions and the operational cancer risk would decrease to -0.009 per million, it is reasonable to conclude that the modified project's combined excess cancer risk from construction and operation would still be below the CEQA threshold without re-quantifying construction risk.

Cumulative

The FEIR states that the geographic scope of the cumulative impact analysis of criteria air pollutant emissions encompasses the San Francisco Bay Area Air Basin and the geographic scope of health risk encompasses existing and new emissions sources (including diesel-fueled standby emergency generators) within approximately 1 km of the project site.

*Criteria Air Pollutants*

For the cumulative analysis, the FEIR establishes that no single project by itself would be of such size as to result in regional non-attainment of ambient air quality standards. The project-level thresholds for criteria air pollutants are based on levels at which new sources are not anticipated to result in a cumulatively considerable net increase in non-attainment criteria air pollutants. Therefore, a separate cumulative criteria air pollutant analysis is not necessary.

*Health Risks*

As discussed above, construction of the modified project would be expected to reduce health risks compared to the approved project while operation would increase some health risks and decrease others. For this reason, the cumulative health risk analysis focuses only on the increased health risks from project operations and does not evaluate the health risks from construction as the impact would be lower than the approved project. The cumulative impact analysis done for this addendum (Appendix B) estimates excess lifetime cancer risks and PM2.5 concentrations at the project's MEISR that are attributable to other existing mobile and stationary sources and cumulative projects as disclosed in the FEIR within 1,000 feet of the sensitive receptor,[38] in addition to operational impacts only from the modified project. This 1,000-foot distance from the project's MEIRs is the typical radius in which cumulative health risks are analyzed, as discussed on FEIR page 4.8-71. As discussed above in the Approach to Analysis in Section 4.3, the background risks were derived from the health risks database from the 2020 Citywide Health Risk Assessment[39] rather than the previous analysis conducted in 2014 that was used for the FEIR analysis. The cumulative projects accounted for in the cumulative analysis below are only those projects where quantitative information from the FEIR was available.[40] As shown in Appendix A, there are a number of additional projects in the vicinity of the Biosolids project site that have proposed been since the FEIR

38 The analysis includes construction of newly proposed Operations, Engineering, and Maintenance buildings (SEP-7) instead of the Maintenance Shops 1 and 2 as originally proposed in the FEIR.

39 San Francisco Department of Public Health, San Francisco Planning Department, and Ramboll. San Francisco Citywide Health Risk Assessment: Technical Support Documentation, 2020

40 Ramboll, Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR, March 10, 2017. Refer to Table 17, Cumulative Projects and Schedules; Table 18, Cumulative Project Operational Emissions and Modeled Emission Rates.

certification. Lastly, quantitative health risk information that was not available for the San Francisco Gateway Project is now available and can be considered in the updated cumulative analysis. The estimated cumulative excess lifetime cancer risk from operational emissions of the modified project at the nearest resident location (maximally exposed individual sensitive receptor or MEISR) would be approximately 69 in a million, compared to 10 in a million for the approved project as analyzed in the Air Quality Technical Report prepared for the FEIR.[41] This increase is due to the difference in background risks and the receptor location and accounts for an additional cumulative project.[42] The cumulative PM2.5 concentration from modified project emissions at this location would decrease from 9.0 ug/$m^3$ to 8.8 ug/$m^3$. The chronic non-cancer hazard index at this location would increase from 0.0087 to 0.019 (unitless). **Table 8** shows the quantitative cumulative health risk impact at the Modified Project maximally exposed individual sensitive receptor. However, Table 8 does not account for additional health risks from other nearby cumulative projects listed in Appendix B for which quantitative information is not available. Nor does it account for additional health risks from the SEP-7 Operations, Engineering and Maintenance Buildings that would replace Maintenance Shops No. 1 and No. 2 that were part of the project analyzed in the FEIR. To the extent that these cumulative projects also result in PM2.5, diesel particulate matter or other toxic air contaminants within 1,000 feet of the modified project maximally exposed individual receptor, these projects would increase health risks beyond that disclosed in Table 8. It is possible that cumulative health risks could be exceeded when considering the health risk impact from these additional cumulative projects. However, the proposed project's contribution would remain the same and would be below the project-level significance thresholds. Therefore, the modified project's health risk impact, like the approved project, would be less than cumulatively considerable, a less-than-significant impact.

*Conclusion*

As discussed above, dust and criteria air pollutant emissions from modified project construction would decrease as compared to the approved project because the proposed revisions would entail smaller structures, less excavation and hauling. As a result, construction dust emissions from the modified project would remain less than significant with compliance with the Dust Control Ordinance. Construction criteria air pollutant emissions would be reduced with Mitigation Measure M-AQ-1a (Construction Emissions Minimization), except potentially NOx emissions. If NOx emissions are exceeded, Mitigation Measure M-AQ-1b (Emission Offsets) would also be required, but because implementing offsets depends on the actions of a third party (the Bay Area Air Quality Management District or BAAQMD), this impact would remain significant and unavoidable with mitigation like the approved project.

Modified project operation would not result in dust emissions, like the approved project. Modified project operation would reduce the annual emissions of some criteria air pollutants and increase others compared to the approved project; however, all pollutants would be below significance thresholds and thus impacts would remain less than significant. Similarly, modified project operation would reduce some health risks and increase others relative to the approved project; however, all health risks would be below significance thresholds and thus remain less than significant. The modified project would result in no

41 The Air Quality Technical Report prepared for the FEIR evaluates the maximum health risk impact of two scenarios: 1) scenario 1 evaluates the cancer risk impact from construction and operation of the approved BDFP project and 2) scenario 2 evaluates the cancer risk impact from operation of the approved BDFP project. Because scenario 1 would result in the greatest health risk impact, these results are reported in the FEIR. The results of scenario 2 are reported in the Air Quality Technical Report and compared to the modified project's operational health risks in this addendum because construction health risks would be lower than predicted in the FEIR.

42 For example, the background risk at the approved project's sensitive receptor location increased from 10 in a million to 19 in a million using the Citywide HRA.

changes regarding odors during construction and operation, which would thus remain less than significant.

**Table 8 Cumulative Health Risk Impacts from Modified Project Operation**

| Source | Excess Cancer Risk (in a million) | PM2.5 Concentration (ug/m$^3$) | Chronic Non-Cancer Hazard Index (unitless) |
|---|---|---|---|
| FEIR Approved Project Operation Cumulative Health Risk Impact (existing, project, plus cumulative projects[43] | 10 | 9.0 | 0.0087 |
| **Proposed Modified Project** | | | |
| Proposed Modified Project Health Risks[44] | -0.009 | 0.17 | 0.015 |
| Existing Background Health Risks (Citywide HRA Background) | 57 | 8.5 | -- |
| Cumulative Project Health Risk Contribution[45, 46, 47] | 0.12 | 0.083 | 0.0038 |
| Modified Project Cumulative Health Risk Total | 57 | 8.7 | 0.019 |
| Cumulative Significance Thresholds for sensitive receptors in Health Vulnerable Locations within Air Pollutant Exposure Zone | 90 | 9.0 | 10 |
| Project Level Significance Thresholds | 7.0 | 0.2 | 1.0 |
| Modified Project Health Risks Exceed Significance Thresholds? | No | No | No |

The modified project cumulative health risk from operations would increase, corresponding to changes in operations, background health risks, additional health risks from cumulative projects and sensitive receptor location; however, the project's contribution to cumulative health risks would remain less than significant. Further, as explained above, actual operational emissions are expected to be less than

43 As discussed in the FEIR and AQTR, Acute Non-Cancer Hazard is not assessed as a cumulative impact.

44 The Citywide HRA does not evaluate chronic hazard Index.

45 Ramboll, Air Quality Health Risk Assessment Update for Potential Modification to the Future End-Use of Digester Gas at the Southeast Plant Biosolids Digester Facility Project, April 10, 2024. Updated AQTR Table 26 – Cumulative Lifetime Excess Cancer Risk at MEISR with the Proposed Modification; Updated AQTR Table 27 – Cumulative PM2.5 Concentration at MEISR with the Proposed Modification; and Updated AQTR Table 28 – Cumulative Chronic Hazard Index at MEISR with the Proposed Modification

46 AECOM, San Francisco Gateway Project Air Quality and Health Risk Assessment Methodology Memorandum, August 2023.

47 The quantitative cumulative health risk analysis includes those projects evaluated in Ramboll's Air Quality Health Risk Assessment Update for Potential Modification to the Future End-Use of Digester Gas at the Southeast Plant Biosolids Digester Facility Project in San Francisco, California (cited above) in addition to the maximum health risk impact from the SF Gateway Project at 749 Toland Street and 2000 McKinnon Avenue, Planning Department Case no. 2015-012491ENV. The maximum exposed individual resident for the SF Gateway Project is located 440 feet south of the SF Gateway Project site on Oakdale Avenue, which is approximately two-thirds of a mile southwest of the Modified Project maximally exposed individual receptor impact. Thus, the actual health risk contribution from the SF Gateway Project at the Modified Project maximally exposed individual receptor would be much lower than presented here.

calculated, as the analysis is based upon the conservative assumption of the biogas utilization system operating 70 percent of the time, whereas it is expected to operate 90 to 95 percent of the time.

For the reasons described above, the modified project would not have any new or substantially more severe impacts related to air quality than the approved project.

## 5.2 Greenhouse Gases

### *5.2.1 Biosolids Digester Facilities Project FEIR Findings*

The FEIR found that the approved project would have less-than-significant impacts related to the following significance criteria regarding greenhouse gas emissions:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The FEIR discusses that because no individual project could emit greenhouse gases at a level that could result in a significant impact on global climate, greenhouse gas emissions are a cumulative impact. The FEIR evaluated the proposed project's consistency with AB 32 goals by comparing the project's net changes in non-biogenic GHG emissions to the stationary source GHG significance threshold from BAAQMD, which is 10,000 metric tons of carbon dioxide equivalent ($MTCO_2E$). The FEIR identified that construction would directly emit greenhouse gases from equipment use and vehicles and indirectly emit greenhouse gases via electricity providers for electric power. The FEIR determined that the project's annualized construction-related GHG emissions would average 894 $MTCO_2E$, which would be below BAAQMD's annual threshold for stationary sources of 10,000 $MTCO_2E$. Further, the SFPUC would be required to use renewable diesel in all municipal fleets (Executive Directive 06-02) and comply with San Francisco Environment code Chapters 7 and 14 to recycle construction waste. Therefore, the project's contribution to global GHGs from construction would be less than significant.

Regarding operation, the FEIR discussed that, by 2045, the approved project would result in a 120 percent increase in biogenic greenhouse gas emissions and an 11 percent decrease in non-biogenic greenhouse gas emissions compared to existing conditions. Biogenic emissions would mainly increase due to an increase in the production and combustion of digester gas due to population growth and the increased capture and reuse of biogas for on-site energy recovery. Meanwhile, non-biogenic emissions would decrease due to elimination of future natural gas use for energy to run processes because the originally planned energy recovery facilities would generate this energy instead. Non-biogenic emissions at full operation, estimated to be 207 $MTCO_2E$, would be well below BAAQMD's annual threshold for stationary sources of 10,000 $MTCO_2E$. The FEIR does not consider biogenic greenhouse gas emissions from the Southeast Plant to be a project impact because they would occur regardless of the project and regardless of whether the organic material decomposes in solids processing facilities at the treatment plant or at a land application site elsewhere (i.e., landfills, composting operation, etc.). The FEIR also discussed that because the approved project energy recovery facilities would generate sufficient electricity to power all the new Biosolids facilities by 2045, making more renewable energy from Hetch Hetchy hydropower available to other users, it would also indirectly reduce GHG emissions.

The FEIR also notes that the approved project would be subject to the California Air Resources Control Board's Greenhouse Gas Mandatory Reporting Regulation, just as it is now for the existing facilities. The project would also be subject to applicable City regulations adopted to reduce operational greenhouse gas emissions as identified in the San Francisco Strategies to Address Greenhouse Gas Emissions, which include but are not limited to: compliance with the City's Commuter Benefits Program, Emergency Ride Home Program, Executive Directive 06-02 requiring use of renewable diesel, Clean Construction Ordinance, bicycle parking requirements, the City's Green Building and recycling and composting ordinance requirements that would reduce greenhouse gas emissions in the City from transportation, waste, and promote energy and water efficiency. Lastly, by planting new landscaping trees per (and above) the City's Street Tree planting requirements, the approved project would help offset the effects associated with the proposed removal of about 90 trees and would serve to increase carbon sequestration. Through implementation of these actions, the FEIR determined that the project would be consistent with San Francisco's Strategies to Address Greenhouse Gas Emissions, and thus would not conflict with the AB 32 goal to reduce greenhouse gas emissions to 1990 levels by 2020.

### *5.2.2 Modified Project*

#### Construction

Construction of the modified project would require less intensive construction activities (less excavation, piles, materials) and fewer truck trips which, as discussed above, would reduce equipment and exhaust emissions and related greenhouse gas emissions. Although construction of the approved project will require an additional approximately 1.5 years, it is because the project it is taking longer to build, not because of the addition of new project components and thus total greenhouse gas emissions would not increase. As a result, there would not be an increase in GHG emissions from modified project construction.

#### Operation

**Table 9** shows the modified project greenhouse gas emissions, and the net operational greenhouse gas emissions resulting from replacing the originally-approved energy recovery facilities with the biogas utilization system. Changes in greenhouse gas emissions are also due to the changes in equipment (namely, the removal of the proposed turbines and an increase in boiler and flaring operations), as well as differing amounts and composition of the gas combusted between the FEIR scenario and the modified project. Compared to the approved project's operations as analyzed in the FEIR, biogenic emissions have decreased, non-biogenic emissions have increased, and total project GHG emissions have decreased slightly, without accounting for any greenhouse gas emissions reductions from renewable natural gas production.[48] Renewable natural gas produced by the modified project would be injected into PG&E's natural gas pipeline. By making this renewable natural gas available to customers, the renewable natural gas injection would thus replace and avert potential emissions from burning fossil fuel-derived natural gas. This calculation assumes only 70% of the digester gas is converted to renewable natural gas and exported off site; in reality, more renewable natural gas is expected to be produced and injected into the pipeline. The modified project's total greenhouse gas emissions would be 30,615 $MTCO_2E$ per year, and

48 $CO_2$ emissions from biogas combustion in the flares and thermal oxidizer are considered biogenic emissions by the California Air Resources Board; however, the $CH_4$ and $N_2O$ emissions from these sources are considered non-biogenic emissions. Additionally, biomethane and biogas emissions from wastewater treatment facilities are exempt from compliance requirements under of the State's Cap-and-Trade Regulation, per Section 95852.2(a)(8)(B).

19,805 $MTCO_2E$ per year when accounting for averted emissions, a reduction when compared to 31,241 $MTCO_2E$ per year analyzed in the AQTR. While the modified project's non-biogenic emissions would increase to 5,005 $MTCO_2E$ per year, non-biogenic emissions would still be below the GHG significance threshold outlined by the BAAQMD, which is 10,000 $MTCO_2E$ per year for stationary sources.

**Table 9 Greenhouse Gas Emissions from Modified Project Operations**

| | GHG Emissions ($MTCO_2e$/year) [49] | | |
|---|---|---|---|
| Emissions Type | Existing 2014 | EIR Project Full Operation 2045 | Modified Project Full Operation |
| Total Biogenic Emissions | 13,931 | 31,035 | 14,566 |
| Total Non-Biogenic Emissions | 234 | 207 | 16,048 |
| **Total Operational Emissions** | **14,165** | **31,241** | **30,615** |
| Averted Emissions from Biomethane Sent to PG&E Pipeline | -- | -- | -10,809 |
| **Net Operational Non-Biogenic Emissions (including Averted Emissions)** | **--** | **-27** | **5,005** |
| **Total Operational Emissions (including Averted Emissions)** | **14,165** | **31,241** | **19,805** |

Conclusion

The modified project would reduce the construction level of effort compared to the approved project, which would reduce greenhouse gas emissions from construction. Total greenhouse gas emissions from modified project operations would also decrease relative to the approved project. When accounting for averted emissions from the renewable natural gas sent to the PG&E pipeline, the total operational greenhouse gas emissions would be even further reduced. While non-biogenic emissions would increase, emission levels would be below BAAQMD significance thresholds for greenhouse gas emissions. Moreover, like the approved project, the modified project would continue to be consistent with the various San Francisco's Strategies to Address Greenhouse Gas Emissions to reduce emissions during construction and operation, and would not conflict with local or state climate goals. Therefore, modified project construction, operation, and cumulative impacts on greenhouse gases would remain less than significant.

For the reasons described above, the modified project would not have any new or substantially more severe impacts related to greenhouse gas emissions than the approved project.

[49] Ramboll, Air Quality Health Risk Assessment Update for Potential Modification to the Future End-Use of Digester Gas at the Southeast Plant Biosolids Digester Project in San Francisco, California. April 10, 2024.

## 5.3 Cultural Resources

### *5.3.1 Biosolids Digester Facilities Project FEIR Findings*

The Biosolids Digester Facilities Project FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding cultural resources:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code
- Cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines Section 15064.5
- Disturb any human remains, including those interred outside of formal cemeteries

The potentially significant impacts associated with the above criteria for the approved project and modified project are discussed in detail below.

#### Historical Resources

The FEIR evaluated all buildings and structures at the Southeast Plant for eligibility to the National Register and California Register and determined that a portion of the SEP, including 26 buildings and structures (or combinations of buildings and structures) that comprise most of the southernmost block of the SEP and a portion of the block adjacent to the north, was eligible for listing in the National and California registers and National Register as a historic district named the Southeast Treatment Plant Streamline Moderne Industrial Historic District (district). The district includes 22 contributing buildings and structures that were all constructed in 1952 in the Streamline Moderne style. Four non-contributing buildings and structures were not 45 years old when the assessment was made and did share the same architectural style as the district. The evaluation found that none of the buildings or structures within the district were individually eligible for listing in the National or California Register. Additionally, the FEIR found that Buildings A and B of the Central Shops complex eligible for listing in the National and California registers as a single resource having the distinctive characteristics of a type, period, and method of construction as an important example of Industrial Modern architecture in San Francisco.

The approved project included the demolition of historic Building 870 and all the historic Central Shops buildings to build the new Maintenance Shops No. 1 and the new digester tanks at those locations. The removal of Building 870 was determined to be a less-than-significant impact for multiple reasons; however, demolition of the Central Shops buildings was determined to be a substantial adverse change in the significance of the historical resource and requires implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display). The FEIR concluded that while Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display) would reduce the severity of the impact, it would not reduce the impact to a less-than-significant level, and that the demolition of the Central Shops was a significant and unavoidable impact with mitigation.

#### Archeological Resources

The FEIR identified the presence of previously recorded California Register- and National Register-eligible Native American archeological site CA-SFR-171 within the approved project site, as well as the potential presence of a deeply submerged/buried prehistoric deposit. It also identified the potential for historic archeological resources related to a potential buried historic refuse deposit. The FEIR determined that

these archeological resources could be impacted by excavation and pile drilling, but that impacts would be reduced to a less-than-significant level through implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation Measure M-CR-2b (Procedures for Accidental Discovery of Archeological Resources) that require the SFPUC as directed by Planning Department's archeologists to conduct additional archeological testing prior to construction and monitoring during construction, to halt work and implement proper procedures to ensure appropriate treatment of significant archeological resources discovered, and to implement data recovery and public interpretation if significant resources were found. Implementation of these measures also required consultation with Native American representatives and Native American monitoring during construction activities.

Human Remains

The FEIR discussed that although no known human burial locations had been identified within the approved project site during archeological investigations undertaken for the FEIR, the possibility that human remains could be encountered during earthmoving activities could not be discounted given construction would occur within a known Native American archeological site. The FEIR concluded that potentially significant impacts on human remains would be reduced to a less-than-significant level through implementation of Mitigation Measure CR-2a (Archeological Testing, Monitoring, and/or Data Recovery), which requires that any human remains or associated or unassociated funerary objects discovered during construction be treated in compliance with applicable local, state and federal laws, including immediate notification of the Planning Department's archeologist, the Coroner of the City and County of San Francisco (Office of the Chief Medical Examiner), and the California Native American Heritage Commission in the event of the Coroner determined that the human remains are Native American remains. The California State Native American Heritage Commission would appoint a Most Likely Descendant (Public Resources Code Section 5097.98). The Most Likely Descendant would provide recommendations to the SFPUC on the appropriate treatment of the remains.

### *5.3.2 Modified Project*

As discussed above in the approved project status, all buildings and structures on the proposed biogas utilization system site have been demolished. The approved project no longer includes demolition of Building 870, a contributor to the historic district, as Maintenance Shop 1 was removed from the approved project in an earlier modification. The modified project would be within the footprint of the approved project.

Construction

*Historical Resources*

The proposed biogas utilization system, including all tanks, containers, and pipelines to convey renewable natural gas from the north to south side of Jerrold Avenue and into PG&E's existing pipeline in Quint Street would all be built outside of the Southeast Plant Historic District. Further, there are no buildings or structures in the areas where the proposed facilities would be built. Therefore, the proposed modifications would not directly impact historical resources. Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display) applicable to the Central Shops has been completed or is in process of being finalized with the Planning Department.

The FEIR discusses that vibration of 0.5 in/sec PPV or greater could indirectly damage nearby historic structures and that pile driving within 75 feet of a structure could exceed this limit. Since Building 870 would not be demolished, it could be indirectly impacted by the modified project. However, neither Building 870 nor any other historic buildings are within 75 feet; therefore, no historic building would be expected to be indirectly damaged by modified project construction. The nearest historic buildings are about 180 feet away. At this distance, vibration from the modified project would not damage these contributing historic buildings.

*Archeological Resources*

Construction of the modified project would reduce excavation by over 5,000 cubic yards compared to the approved project excavation and thus reduce potential impacts on archeological resources because eliminating the energy recovery building and digester gas treatment facility on the former Asphalt Plant site would reduce excavation in known Native American archeological site CA-SFR-171. The modified project would also require 279 to 331 fewer deep piles (depending upon the type of foundation needed for the biogas upgrade facility). Removal of the energy recovery facilities would eliminate 41 piles in CA-SFR-171, although the biogas upgrade facility may require up to 52 piles for a net increase in 9 piles, if piles are needed. The SFPUC has already completed testing and data recovery for CA-SFR-171 as required by Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) based on the impacts of the approved project[50] and is currently working with the Planning Department and Native American community on a public interpretation program. Based on the chosen foundation system for the biogas upgrade facility, additional archeological investigation identified in consultation with Native American tribal representatives will be undertaken as required by Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) to address potential impacts on CA-SFR-171 due to the modified project. The completed testing did not identify the presence of the potential historic-era refuse deposit or any other significant historical archeological resources within the project area. In any event, the biogas utilization system would not include work near the potential historic-era refuse deposit location. Like the approved project, monitoring would be required during open-cut excavations for construction of the proposed biogas utilization system facilities pursuant to M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation Measure M-CR-2b (Accidental Discovery of Archeological Resources) would be implemented in the event of discoveries to minimize impacts on archeological resources from the modified project.

*Human Remains*

For the same reasons discussed above for archeological resources, construction of the modified project would have similar or reduced potential to affect the known archeological site wherein human remains could be present. Like the approved project, during construction of the modified project, the SFPUC would be required to conduct monitoring during excavation pursuant to M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and implement Mitigation Measure M-CR-2b (Accidental Discovery of Archeological Resources) in the event of discoveries to minimize impacts to human remains.

50 Far Western, December 2023. Archaeological Data Recovery Report for Site CA-SFR-171 for the Biosolids Digester Facilities Project, Southeast Water Pollution Control Plant, San Francisco, California Planning Department Case No. 2015-000644ENV Block 5262/Lot 009.

Operation

Like the approved project, the modified project operations would not impact historic or archeological resources, including human remains.

Cumulative

*Historic Resources*

The FEIR establishes that the geographic scope for cumulative effects on historical resources includes the Southeast Plant and the boundaries of the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. The FEIR found that the loss of Building 870 in combination with the proposed future demolition of all existing digesters (Buildings 630-730) and their control buildings (Buildings 620 and 680) as part of the Demolition of the Existing SEP Digesters and Southside Renovation Project, would result in a significant and unavoidable cumulative impact on historic architectural resources, even with implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display). Building 870 would no longer be demolished under the modified project thereby reducing cumulative impacts on the historical resource. The SFPUC has notified the Planning Department of another change to the approved project known as the SEP-7 Operations, Engineering and Maintenance buildings that is undergoing separate environmental review, which for the purpose of this addendum, is evaluated as a new cumulative project. The SEP-7 Operations, Engineering, and Maintenance Building Project would demolish Building 850, which is also a contributor to the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*, but since Building 870 will not be removed, the net loss of the district's contributory buildings would remain at 13 of the original 22 contributors or 59 percent and would not result in additional cumulative impacts than those identified in the FEIR.

Of the other projects on the cumulative list at the Southeast Plant at the time of the of FEIR, only the Southeast Plant Headworks Replacement project (still under construction) remains on the updated cumulative list and the FEIR determined this project would not contribute to a cumulative impact on historic architectural resources. Several new SFPUC projects at the Southeast Plant have been added to the cumulative list, including the Primary Treatment Health and Safety Improvement project (SEP 040 and 041), HVAC and Mechanical Upgrades, and Electrical Controls Upgrade (SEP 545). The Primary Treatment Health and Safety Improvement project includes replacement of windows and vents and installation of conduit on Buildings 040, 041, and 043 all of which are contributors to the historic district. Previous environmental review for this project determined that after completion the buildings would continue to convey their historical significance such that this project in combination with the modified project would not cause an adverse cumulative impact.[51] The other two projects involve upgrades and repairs of existing equipment that would not impact historic resources.

Regardless, as found in the FEIR for the approved project, because the overall implementation of the modified project would replace the function of the existing digesters and associated control buildings, thereby allowing for demolition of the existing digesters and control buildings, the modified project's contribution to this cumulative impact would be cumulatively considerable, or significant, and the cumulative impact on the historic district would remain significant and unavoidable with mitigation.

51 San Francisco Planning Department, CEQA Categorical Exemption Form, SFPUC SEP 040/041/043 Health and Safety Improvements, Case No. 2022-011482ENV, July 12, 2023.

The only other project added to the updated cumulative list in the vicinity of the Southeast Plant with the potential to impact historic resources is the future Bayview Train Caltrain Station project. According to the San Francisco Property Information Map, there are buildings on this parcel that are old enough to be historic resources but have yet to be evaluated. This cumulative project and the modified project are near each other; however, changes at this cumulative project site would not combine with changes to historic buildings within the Southeast Plant given intervening fencing, walls, and plant facilities to result in a new significant cumulative impact.

*Archeological Resources*

The FEIR establishes that the geographic scope for cumulative effects on archeological resources and human remains includes the immediate vicinity of locations where the project would cause ground disturbance. The FEIR found that the approved project and cumulative projects in the project vicinity at the time of the FEIR could result in a significant cumulative impact on buried archaeological resources associated with Native American site CA-SFR-171. The only two cumulative projects remaining from the FEIR are the Southeast Plant Headworks Replacement Project and the SEP Power Feed and Primary Switchgear Upgrades. Excavation for these projects is largely completed and has not exposed significant buried archaeological resources to date. The new cumulative project, the SEP-7 Operations, Engineering and Maintenance Building Project, would also occur within the boundary of CA-SFR-171 and could likewise affect buried archeological resources in the project vicinity. As part of the implementation of Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) for the approved project, several geoarcheological cores were collected around Building 850 and were found to contain a dense layer of redeposited shell midden. Thus, this project combined with modified project could result in a significant cumulative impact on this site. The SEP-7 Operations, Engineering, and Maintenance Building Project would also be subject to Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation M-CR-2b (Accidental Discovery of Archeological Resources) and would reduce this impact to less than significant.

Overall, the modified project would reduce the extent of excavation that could affect archeological resources relative to the approved project. Additionally, removal of the energy recovery facilities would eliminate 41 piles in CA-SFR-171, but the biogas upgrade facility may require up to 52 piles for a net increase in 9 piles. Nevertheless, similar to the approved project, the modified project's contribution to cumulative impacts would not be considerable with implementation of Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation M-CR-2b (Accidental Discovery of Archeological Resources).

Conclusion

As discussed above, the modified project construction and operation would have similar or reduced impacts on historic resources and archeological resources and impacts would remain less than significant with mitigation, including implementation Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display), Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery), and Mitigation M-CR-2b (Accidental Discovery of Archeological Resources). As a result, the modified project's contribution to cumulative impacts would also not be considerable.

For the reasons described above, the modified project would not have any new or substantially more severe impacts on cultural resources than the approved project.

## 5.4 Tribal Cultural Resources

The Biosolids Digester Facilities Project FEIR did not analyze tribal cultural resources as this topic was not yet mandated for inclusion under CEQA. As defined in Public Resources Code section 21074, a Tribal Cultural Resource is either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k); or, b) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

### Construction

As discussed above, archeological site CA-SFR-171 was found eligible for the National Register of Historic Places and the California Register of Historical Resources. Based on previous consultation with local California Native American tribal representatives undertaken by the San Francisco Planning Department, all Native American archeological resources have cultural value to tribal representatives and are considered to be Tribal Cultural Resources. As such CA-SFR-171 is considered to be a Tribal Cultural Resource. As required under Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and discussed in the Cultural Resources section above, an archeological data recovery program has already been prepared, and Native American monitoring was undertaken as part of the effort. Native American monitoring and consultation will continue to be included as part of Mitigation Measure M-CR-2a. Cultural sensitivity training by a local Native American representative will also be included in tandem with archeological awareness and accidental discovery training for construction crews.

Additionally, as requested through prior consultation with local Native American tribal representatives, a public interpretation program is one means to memorialize the cultural value of the tribal cultural resource while also educating the public concerning Native American lifeways, both past and present. On September 1, 2021, the San Francisco Planning Department sent letters to local California Native American representatives providing information on CA-SFR-171 and asking if they would like to consult on a public interpretation program. Based on the responses received, the Planning Department and SFPUC are in the process of developing a public interpretation program with the Association of Ramaytush Ohlone, which will include both an onsite interpretative component as well as a nearby offsite component in a more publicly accessible location. Therefore, project impacts on tribal cultural resources would be less than significant with the implementation of consultation on the archeological investigations of CA-SFR-171 and public interpretation program that is currently under preparation in consultation with the Native American community as required under Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery).

### Operation

Like the approved project, modified project operations would not impact archeological resources, including tribal cultural resources.

Cumulative

The cumulative impact on CA-SFR-171 as described above under cumulative archeological resources would be similar to the cumulative impact analysis on CA-SFR-171 as a tribal cultural resource. As stated, like the approved project, the modified project's contribution to cumulative impacts on tribal cultural resources would not be considerable with implementation of public interpretation program that is currently under preparation in consultation with the Native American community as required under Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery).

Conclusion

As discussed above, the modified project construction and operation would have similar or reduced impacts on archeological resources and tribal cultural resources as the approved project, and impacts would be less than significant with mitigation, including implementation of the public interpretation program that is currently under preparation in consultation with the Native American community as required under Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery). As a result, the modified project's contribution to cumulative impacts would also not be considerable.

## 5.5 Noise

### *5.5.1 Biosolids Digester Facilities Project FEIR Findings*

The Biosolids Digester Facilities Project FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding noise and vibration:

- Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project

The potentially significant impacts associated with the above criteria for the approved project and modified project are discussed in detail below under Construction.

Additionally, the FEIR evaluated several other significance criteria regarding potential noise and vibrations impacts and determined that there would either be no impact or less-than-significant impacts as briefly discussed here. The approved project was found to have no impact related to being with within an airport land use plan area or in the vicinity of a private airstrip or being affected by existing noise level because there are no airports nearby and the project site is not a noise-sensitive land use. The FEIR determined that noise from construction traffic would be less than significant because a traffic control plan would establish truck routes that minimize truck traffic in residential areas and that traffic along Phelps Street where there are residences would primarily be worker vehicles accessing the Southeast Greenhouses staging area (not trucks). The FEIR determined that operational noise from the new facilities and additional truck trips would be less than significant because the estimated maximum combined noise level of 59 dBA at nearest residential receptor at 1700 Kirkwood Avenue would not exceed the minimum 60-dBA nighttime noise limit applicable under Section 2909(d) and there would only be a small change in trucking that would occur on Jerrold Avenue, Rankin Street, and Evans Street where there are no residential receptors or noise-sensitive uses. Lastly, the FEIR found that vibration from construction and operation would have a less-than-significant impact on buildings and people

because vibration would not exceed the 0.5 in/sec PPV threshold for structural damage at the nearest buildings or the 0.1 in/sec PPV threshold for human annoyance at the nearest sensitive receptor.

Construction

As discussed in the FEIR, Section 2907 of the Noise Ordinance allows construction activities between 7:00 a.m. and 8:00 p.m. but limits noise from any individual piece of construction equipment, except impact tools that are exempt, to 80 dBA at 100 feet (equivalent to 86 dBA at 50 feet). The FEIR evaluated the various types of non-impact construction equipment to be used and found that only concrete saws would exceed the 86-dBA (at 50 feet) noise limit of Section 2907, but concluded that this potentially significant impact on noise would be reduced to a less-than-significant level through implementation of the noise controls specified in Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations). The FEIR defined a substantial temporary or periodic increase in ambient noise levels as noise that would be greater than 10 dBA above ambient at sensitive receptors. The FEIR found that construction noise level would only exceed this threshold at the former Southeast Community Center daycare center[52] and the closest residential receptor at 1700 Kirkwood Avenue at the corner of Phelps Street from activities at the Southeast Greenhouses staging area. The FEIR concluded that implementation of the noise controls specified in Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area) would reduce this impact to a less-than-significant level. Noise from construction at other locations throughout the site was found to be lower than 10 dBA above ambient.

Operation

As discussed above, the FEIR found that all potential noise and vibration impacts from operation of the approved project would be less than significant.

### *5.5.2 Modified Project*

Construction

*Noise*

Construction of the proposed biogas utilization system would not require the use of any new types of equipment beyond what was included in the FEIR for the approved project, and all of the equipment in the FEIR was found to comply with the noise limit of 86 decibels average (dBA) at 50 feet in San Francisco Police Code section 2907, except for the concrete saws. Like the approved project, Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations) would be required during construction of the modified project to minimize noise from concrete saws. Construction of the modified project would occur within the approved project boundary and would use the previously approved staging areas and truck routes, including the off-site vacant warehouses on McKinnon Street at the corner of Rankin for employee parking and McKinnon as a truck route. As a result, construction of the modified project would not affect additional sensitive noise receptors. The closest construction to the residential receptor at 1700 Kirkwood Avenue would be construction of the Biogas Upgrade Facility and the PG&E Interconnection Station and Deoxygenation Facility. These facilities would be built at the same locations as the originally approved Maintenance Shops No. 2 Building and the Digester Gas Treatment facility, respectively. The FEIR determined that construction of the Maintenance Shops No. 2 Building and the Digester Gas Treatment would not be greater than 10 dBA above ambient at this closest receptor. The proposed

52 The former Southeast Community Center daycare center has relocated to 1550 Evans and is thus no longer a sensitive receptor that could be affected by the proposed biogas utilization system construction. Therefore, it is not discussed further.

Biogas Upgrade Facility and the PG&E Interconnection Station and Deoxygenation Facility are smaller structures and would involve less intensive construction than the facilities analyzed in the FEIR, and thus would generate similar or less noise. As a result, it is reasonable to conclude that noise during construction of the biogas utilization system also would not increase noise at 1700 Kirkwood Avenue by greater than 10 dBA above ambient.

The Southeast Greenhouses staging area would continue to be used for offices and parking during construction of the modified project and these uses generate limited noise. With implementation of Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area), noise impacts on nearby residences during use of this staging area would remain less than significant with mitigation.

As discussed above, construction will extend an additional 1.5 years due to construction of the approved project taking longer than estimated, not the addition of new project components. As a result, while noise from construction would occur for a longer time, it would not involve new types of equipment or methods/activities that would result in different or louder noise. Therefore, with implementation of the mitigation measures described above, construction noise impacts would continue to be less than significant with mitigation throughout the extended project duration.

*Vibration*

Vibration from modified project construction and operation would continue to have a less-than-significant impact on buildings and people because vibration-inducing construction activities would be located at the same distances relative to nearby buildings and sensitive receptors, and less pile driving would occur.

Operation

The FEIR establishes operational noise limits of no more than 8 dBA above ambient at the nearest property line, 60 dBA at the exterior of the nearest residence at night, and 70 dBA at the exterior of the nearest residence during the day. Ambient noise at the closest residential receptor at 1700 Kirkwood Avenue is 67 dBA during the day and 58 dBA at night. The FEIR estimated that the combined noise from operating all of the new Biosolids facilities would be 59 dBA at the exterior of 1700 Kirkwood Avenue and determined that this would be less than significant because it would be below ambient noise. As shown in FEIR Table 4.7-11, under the approved project, the closest operational noise source to 1700 Kirkwood Avenue would have been the originally approved digester gas treatment facility at 47 dBA.

Estimated noise from the proposed Biogas Upgrade Facility on the north side of Jerrold would be similar to noise from the modified project's digester gas treatment facility (47 dBA) and waste burners (35 dBA), respectively, which would be 47.3 dBA when combined.[53,54] The Deoxygenation System would have similar noise levels as the Digester Gas Treatment facility or 47 dBA. Noise from the PG&E Interconnection Station would be negligible because it would consist of only piping and valves to test renewable natural gas quality and would not require pumping to return poor quality gas to the Biogas Upgrade Facility because the renewable natural gas is pressurized. Although noise from the proposed Biogas Upgrade Facility at 47.3 dBA would be slightly higher than noise from the originally approved Digester Gas

53 Noise levels provided by designer Adam Ross, P.E., Vice President, Central Valley-Tahoe Area Leader, Brown and Caldwell.

54 Noise calculations performed using online calculators at http://www.sengpielaudio.com/calculator-leveladding.htm and http://www.sengpielaudio.com/calculator-SoundAndDistance.htm

Treatment facility at 47 dBA, the Biogas Upgrade Facility would be over 65 feet further away from residential receptor at 1700 Kirkwood Avenue. To be conservative, even if noise from operation of the proposed biogas utilization system were combined with the total estimated noise level of 59 dBA from all the approved project facilities (including the Digester Gas Treatment Facility and other energy recovery facilities that would no longer be included in the modified project), the combined noise would be 59.28 dBA, which would not be a discernable increase and would not exceed the minimum 60-dBA nighttime exterior noise limit at 1700 Kirkwood Avenue. Therefore, noise from operation of the modified project would remain less than significant.

Only one additional person may be required to operate the proposed biogas utilization system, which would add a negligible amount of worker vehicle traffic. Like the approved project, several trucks would be required every four to six months to remove solid waste from the digester gas upgrade process. Truck trips to remove this solid waste would be the same as for the approved project and the FEIR determined that noise from these trucks would be less than significant. Given the minor change in operational traffic, traffic related noise during operation of the proposed biogas utilization system would also be expected to be less than significant.

Cumulative

In general, cumulative construction-related noise increases would occur if any nearby cumulative projects are constructed at the same time as the modified project and would affect the same sensitive receptors. As discussed above, the nearest sensitive receptor is the residence at 1700 Kirkwood Avenue. Among the projects identified in **Appendix A**, only the following could result in cumulative noise impacts due their location adjacent to the modified project site and construction schedule:

- Headworks Replacement Project
- Power Feed and Primary Switchgear Upgrades
- Wastewater Enterprise Repair and Replacement
- Quint-Jerrold Connector Road
- Primary Treatment Health and Safety Project
- Electrical Controls Upgrade (SEP 545)
- HVAC and Mechanical Upgrades
- Operations, Engineering and Maintenance Buildings (SEP 7)[55]

The Southeast Plant Headworks project site is located north of the modified project site and further from the sensitive receptors. As the loudest construction activities – excavation, pile driving, and building erection - have been completed, remaining construction noise from this project is expected to be lower. The Quint-Jerrold Connector Road Project would be separated physically from the modified project site by the existing railroad embankment which would buffer sensitive receptors to the east from roadway construction noise. Except for the Operations, Engineering and Maintenance Buildings, the other projects at the Southeast Plant are not expected to contribute substantially to cumulative construction-related noise impacts at the closest receptors because they would replace or upgrade existing equipment, avoid impact pile driving, and/or involve construction that would occur inside existing building enclosures.

55 The proposed Operations, Engineering and Maintenance Buildings is currently undergoing CEQA review.

The Operations, Engineering and Maintenance Buildings would replace Maintenance Shops No. 1 and No. 2 that were part of the project analyzed in the FEIR. These proposed buildings would be located to the east of the modified project site and closer to the residential receptor at 1700 Kirkwood Avenue, at a distance of approximately 250 feet. Construction of the Operations, Engineering and Maintenance buildings would overlap with the final 20 months of the modified project. The combined or cumulative impact from simultaneous construction could be potentially significant. The modified project's contribution to the cumulative impact, however, would not be considerable for several reasons: the modified project site is further from the 1700 Kirkwood Avenue receptor; the modified project will be in the final stages of construction with less noisy construction activities (more interior work and connections); and, the Operations, Engineering and Maintenance buildings construction activities of demolition, excavation, and pile driving would be expected to be noisier. Therefore, the modified project's contribution to a potential cumulative construction noise impact would be less than significant.

Conclusion

The modified project would continue to have no impact or less-than-significant impacts related to location near an airport, construction truck trips and operational noise. As discussed, modified project construction would have similar or reduced noise impacts than the approved project with implementation of Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations) and Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area). The modified project would have a less-than-cumulatively considerable contribution related to a potentially significant cumulative construction noise impact (less than significant).

For the reasons described above, the modified project would not have any new or substantially more severe noise impacts than the approved project.

## 5.6 Biological Resources

### *5.6.1 Biosolids Digester Facilities Project FEIR Findings*

The Biosolids Digester Facilities Project FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding biological resources:

- Have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service

The potentially significant impacts associated with the above criteria for the approved project and modified project are discussed in detail below under the Construction and Operation sections.

Briefly, the FEIR also evaluated several other significance criteria regarding biological resources and determined that there would either be no impact or impacts would be less than significant. The approved project had no impact on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service; migratory corridors or the use of native wildlife nursery sites; implementation of an adopted habitat conservation plan or Natural Community Conservation Plan; or operational effects on biological resources. The FEIR determined that with adherence to Article 4.2 of the San Francisco Public

Works Code (Section 146) and the State Water Resources Control Board's Construction General Stormwater Permit during grading and excavation near wetlands at the Piers 94 and 96 staging areas, the approved project would have a less-than-significant impact on wetlands. The FEIR identified that the approved project would not significantly conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, because the design includes planting trees and other landscaping along Jerrold Avenue to replace trees requiring removal and a site-specific Tree Protection Plan would be required to protect trees that would be retained pursuant to San Francisco Public Works Code Article 16.

Construction

The FEIR found that there is no sensitive habitat or species present that could be affected by construction or operation due to its location in an urban, paved environment. The FEIR found that underutilized buildings, trees, and other structures in and near the project site and construction staging areas could serve as migratory bird nesting habitat and bat roosting sites. The FEIR determined that impacts to nesting birds would be less than significant with implementation of SFPUC's Standard Construction Measure 7 (Biological Resources) that requires pre-construction surveys and establishing no disturbance buffers for active nests, while Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) would reduce impacts on bats to a less-than-significant level. Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) requires pre-construction surveys, establishing no disturbance buffers for active nests and roosts, removing bat roosts under certain weather conditions when bats are more active and only in consultation with the CDFW, and installing artificial habitat to compensate for removed roosts.

Operation

The FEIR determined that because all operations would be restricted to the modernized Southeast Plant and no activities would occur within the staging areas, operation of the approved project would have no impacts on biological resources.

### *5.6.2 Modified Project*

Construction

Construction of the proposed biogas utilization system facilities would be within the Southeast Plant and the approved project boundary where there is no sensitive habitat or species present. Buildings, trees, and other structures where the Biogas Upgrade Facility, PG&E Interconnection Station, and Deoxygenation System would be built have already been removed. As a result, it is unlikely that construction of the modified project would affect nesting birds or bat roosts. Nevertheless, like the approved project, the SFPUC would implement Standard Construction Measure 7 (Biological Resources) and Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) during construction to ensure that nesting birds and bats would not be adversely affected. The modified project impacts on biological resources would remain less than significant with mitigation.

Operation

Because the proposed biogas utilization system would be confined to the Southeast Plant and the approved project boundary, like the approved project, the modified project would not impact biological resources during operation.

Cumulative

The FEIR establishes that the geographic scope for potential cumulative impacts on biological resources encompasses the species occurrences, habitats, and sensitive natural communities in the vicinity of the project site and off-site staging areas. Cumulative projects that would affect biological resources similar to those of the project and that could combine to result in potential cumulative impacts on biological resources include projects that would demolish or remove buildings or structures that could be used as bat roosts or result in adverse effects on nesting birds by removing trees or generating substantial noise. As the use of Piers 94/96 for construction staging is no longer proposed, the modified project would have no contribution to potential cumulative impacts on wetlands.

The modified project would not involve the demolition of any additional buildings or trees and thus would not increase the project's contribution to potential cumulative impacts. The only two cumulative projects remaining from the FEIR that could contribute to cumulative biological resources impacts are the Headworks Replacement Project and the Power Feed and Primary Switchgear Upgrades, both of which involve demolition and/or tree removal and include measures to prevent impacts to nesting birds and bats. Several new projects at the Southeast Plant have been added to the cumulative list, including the Primary Treatment Health and Safety Improvement project (SEP 040 and 041), HVAC and Mechanical Upgrades, Electrical Controls Upgrade (SEP 545), and the Operations, Engineering, and Maintenance Building Project (SEP 7), but only the last project would include building demolition and tree removal. Lastly, there are buildings and trees at the site of the future Bayview Train Caltrain Station project that may need to be removed and measures to protect birds and bats would be expected in the environmental review document. The modified project in combination with these cumulative projects could have a potentially significant cumulative impact on birds and bats. However, like the approved project, with implementation of Mitigation Measure M-BI-1 (Protective Measures for Special-status Bats and Maternity Roosts) and SFPUC Standard Construction measure 7 (Biological Resources), the modified project's contribution to potentially significant cumulative impacts would be less than cumulatively considerable, or less than significant with mitigation.

Conclusion

The modified project does not require demolition or tree removal and it is therefore unlikely that construction would affect birds or bat roosts. Nevertheless, like the approved project, the SFPUC would implement Standard Construction Measure 7 (Biological Resources) and Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) to ensure that potential impacts would remain less than significant. Like the approved project, the modified project would not impact biological resources during operation. Although other cumulative projects in the vicinity would also have demolition and tree removal, the modified project's contribution to cumulative impacts would not be considerable (less than significant).

For the reasons described above, the modified project would not have any new or substantially more severe impacts on biological resources than the approved project.

## 5.7 Geology, Soils, and Paleontological Resources

### *5.7.1 Biosolids Digester Facilities Project FEIR Findings*

The Biosolids Digester Facilities Project FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding geology, soils, and paleontological resources:

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

The potentially significant impacts associated with the above criterion for the approved project and modified project are discussed in detail below under Construction.

Briefly, the FEIR also evaluated several other significance criteria regarding geology and soil impacts and determined that impacts would be less than significant. Impacts related to ground shaking or seismically induced ground failure, liquefaction, earthquake-induced settlement, lateral spreading, and ground settlement that could expose people or structures to the risk of loss, injury, or death would were found to be less than significant for a number of reasons: the approved project was designed in accordance with the San Francisco Building Code, ASCE/SEI 7-10, and the SFPUC's Seismic Design Requirements; incorporates engineering and design features to withstand a major earthquake; the geotechnical interpretive report concluded that there is a low potential for lateral spreading at the approved project site; and measures would be implemented to prevent ground settlement due to excavation, dewatering, and pile driving in accordance with Title 8 of the California Code of Regulations. Moreover, the FEIR discusses that the approved project would substantially improve the Southeast Plant's seismic safety because it would replace the digesters and other existing Southeast Plant solids treatment facilities that are over 60 years old and were not built to withstand a major earthquake. Lastly, the FEIR determined that the approved project would not result in substantial erosion because the SFPUC would be required to prepare and implement a site-specific erosion and sediment control plan pursuant to San Francisco Public Works Code Article 4.2.

#### Construction

The FEIR found that the Pleistocene-aged, upper-layered sediments underlying the approved project site have a high paleontological sensitivity, and that excavations extending into these sediments would have the potential to encounter and damage or destroy paleontological resources (fossils). The FEIR concluded that this potentially significant impact on paleontological resources would be less than significant with implementation of Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program), which requires that excavation activities within the upper layered sediments be monitored by a qualified paleontologist, that any substantial find be adequately curated, and establishes procedures in the event of discoveries.

#### Operation

The FEIR found no potentially significant impacts from operation of the approved project related to geology, soils, and paleontological resources.

### *5.7.2 Modified Project*

Construction

Modified project impacts related to ground shaking or seismically induced ground failure, liquefaction, earthquake-induced settlement, lateral spreading, and ground settlement that could expose people or structures to the risk of loss, injury, or death would continue to be less than significant because the modified project is also designed in accordance with the San Francisco Building Code and ASCE/SEI 7-10 and the SFPUC's Seismic Design Requirements. Like the approved project, site-specific erosion and sediment control measures would continue to be implemented during construction of the modified project such that this impact would remain less than significant. Overall, construction of the modified project would reduce potential impacts on paleontological resources because it would result in less excavation and eliminate from 279 to 333 piles (depending upon foundation design) at depths where fossils could potentially be encountered. To date, no fossils have been exposed during the sampling and monitoring performed for construction of the approved project pursuant to Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program). This mitigation measure would also be applicable to the modified project and potential impacts on paleontological resources would remain less than significant with mitigation.

Operation

The FEIR found potential impacts related to geology, soils, and paleontological resources would be less than significant. Like the approved project, the modified project facilities would meet current engineering standards to limit damage from seismically-induced hazards like ground shaking, and settlement and liquefaction.

Cumulative

The FEIR establishes that the geographic scope of cumulative geology and soils impacts is restricted to the project site and adjacent areas because related impacts are relatively localized or even site-specific. All of the SFPUC-sponsored cumulative projects would be engineered and designed according to the most current building code requirements, the SFPUC Seismic Design Guidelines, and applicable engineering standards for seismic safety, which would minimize the potential for cumulatively considerable damage. The non-SFPUC cumulative projects would also be subject to local and state building codes. Additionally, all cumulative projects would be required to implement the requirements of Article 4.1 of the San Francisco Public Works Code that would ensure that cumulative impacts of erosion from the construction sites would be less than significant. The Operations, Engineering, and Maintenance Building Project (SEP 7) could also impact upper-layered sediments where paleontological resources could be present. It would also be subject to Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program). Moreover, like the approved project, the modified project's contribution to potentially significant cumulative impacts related to geology, soils, and paleontological resources would be less than cumulatively considerable with implementation of Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program) or less than significant.

Conclusion

The modified project would reduce impacts to paleontological resources because it would reduce the amount of excavation and number of piles required within the upper layer sediments where resources could occur. For the reasons described above, the modified project would not have any new or

substantially more severe geology, soils and paleontological resources impacts than the approved project.

## 5.8 Wildfire

The Biosolids Digester Facilities Project FEIR did not analyze wildfire as this topic was not yet mandated for inclusion under CEQA. CEQA Guidelines Appendix G Checklist criteria for wildfire impacts are listed below.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- Substantially impair an adopted emergency response plan or emergency evacuation plans?
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
- Expose people or structure to significant risks including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

San Francisco and bordering areas within San Mateo County do not have any state responsibility areas for fire prevention or lands that have been classified as very high fire hazard severity zones.[56] Therefore, the wildfire topic is not applicable to the project.

## 5.9 Other Environmental Topics with Less-Than-Significant Impacts

The FEIR found that the following topics would have less than significant impacts. The modified project would have similar or reduced impacts as the approved project for the reasons discussed below.

- **Land Use.** The existing Southeast Plant is an area designated as Public Facilities and Light Industrial in the *San Francisco General Plan*. The FEIR discuses that construction would temporarily affect land uses in the project vicinity, particularly related to closing Jerrold Avenue to public through-traffic between Phelps Street and the Caltrain right-of way to maintain a safe work area but that this would be a less-than-significant impact because the closure would be temporary; there would be detour routes; and the area affected by the closure does not clearly constitute an established community given the distinct nature of land uses on either side of this closed road segment (e.g., industrial warehouses to the west and residences and commercial uses to the east), along with the large-scale intervening industrial land uses that comprise the

56 California Department of Forestry and Fire Protection, Fire and Resource Assessment Program, San Francisco County Draft Fire Hazard Severity Zones in Local Responsibility Areas Map, October 5, 2007; San Mateo County Fire Hazard Severity Zones in State Responsibility Areas Map, November 7, 2007; and San Mateo County Very High Fire Hazard Severity Zones in Local Responsibility Areas Map, November 24, 2008, *http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps*.

existing Southeast Plant site. Regarding operation, the FEIR determined that although the approved project would expand the Southeast Plant wastewater facilities into the Central Shops and Asphalt Plant sites, the new facilities would not divide an established community because those areas were already being used for storage and for industrial uses similar to Southeast Plant, were already not accessible to the public, and would not block access between adjacent land uses. The FEIR concluded that, on the whole, the Biosolids project would not conflict with applicable land use plans and policies, since it would advance the General Plan objective and policy concerning the location of wastewater facilities and provision of effective and efficient wastewater treatment, the streetscape improvements would be consistent with *the Better Streets Plan and* impacts on policies related to the preservation of historic resources would be mitigated.

The modified project would be constructed and operated entirely within the Southeast Plant and the approved project boundary such that, like the approved project, construction and operation would not physically divide a community. Overall, the proposed revisions would eliminate several large buildings and tanks, which would minimize changes to the landscape and replace them with fewer and less substantive facilities. Moreover, the long-term streetscape and landscape improvements along Jerrold Avenue that would enhance the safety and connectivity of Jerrold Avenue for various transportation modes (e.g., bikes, pedestrians) in the plant's vicinity would still be constructed. As discussed above, the approved project will take any additional 1.5 years to construct, which will extend the closure of Jerrold Avenue between Rankin and Phelps for safety considerations. During this time, detour routes will continue to be provided.

For these reasons, the modified project would not have any new or substantially more severe land use impacts than the approved project.

- **Aesthetics.** As stated in the FEIR, there are no scenic views or vistas in the project vicinity. The FEIR discussed that construction could affect the visual character of the area due to views of construction activities and staging areas, as well as the creation of new sources of light or glare. The FEIR determined that these impacts would be less than significant because construction equipment would be similar to other equipment and buildings already present in the area; other existing buildings at the Southeast Plant and in the general area and the 15-foot-tall Caltrain berm would block views of the site from nearby residential, commercial, and industrial properties; views from adjacent or nearby streets for passing motorists, bicyclists, pedestrians, and Caltrain passengers would be brief and quickly replaced by succeeding streetscape views as the viewer moves past the project; views from the hills would be distant and include other industrial facilities; views of the trailers would replace those of the former greenhouses; and construction equipment and activities would not create a substantial new source of light or glare because the SFPUC would implement Standard Construction Measure 8 to shield lights if used at night. Regarding operation, the FEIR found that the new Biosolids facilities would be similar to the existing Southeast Plant facilities, views of the new facilities from outside the project site would be limited by intervening structures and trees or would be fleeting views from cars or the train, and that the overall visual character of the Southeast Plant as seen from surrounding areas would remain essentially the same as the existing character, that of a major industrial facility. The FEIR discussed that the design of the new facilities would be consistent with applicable standards (such as the Industrial Area Design Guidelines, the San Francisco Arts Commission Civic Design Review process, and the *Better Streets Plan)* and that landscaping and other street

improvements included in the project would enhance the overall long-term visual quality of the area. As are result, the FEIR determined that the new permanent facilities would have a less-than-significant aesthetic impact.

The modified project would be constructed within the approved project boundary and involve similar construction equipment and methods as the approved project, such that construction would not introduce work at new locations or new equipment and methods that could result in temporary impacts on visual character.

Regarding operation, the proposed biogas utilization system would require fewer and less substantive new facilities than the approved energy recovery facilities. North of Jerrold Avenue (within the plant) the large Digester Gas Storage tank would be eliminated, while the new Biogas Upgrade Facility would be built instead of the originally approved Maintenance Shops 2. The Maintenance Shops 2 would have been 15 feet tall. The Biogas Upgrade Facility would include various equipment on a concrete pad. The equipment could be either approximately 15 feet tall, or up to approximately 45 feet tall, depending on the final design, and thus would be similar in height or taller than the originally planned maintenance building. Even if the new biogas upgrade facility equipment were taller than Maintenance Shops 2 would have been, it would be equipment at various heights (not a building) and would be seen in the foreground of the 65-foot-tall digesters that, as with the approved project, would dominate views from Jerrold Avenue overall. South of Jerrold (within the former Asphalt Plant), the 57-foot-tall Energy Recovery Building and the 22-foot-tall Digester Gas Treatment Facility would be eliminated. The PG&E Interconnection Station would be built within the footprint of the former Digester Gas Treatment Facility and be approximately 10 feet tall. The Deoxygenation Facility would be up to approximately 15 feet tall. The FEIR discussed that the Energy Recovery Building at 57 feet tall would have increased massing in the foreground that may reduce views of the distant hillside from the surrounding area. The modified project would thus reduce this impact on hillside views because the proposed facilities in this area would only be approximately 15 feet tall or shorter.

Like the approved project, the modified project facilities would be behind the Southeast Plant perimeter wall and trees would be installed along both sides of Jerrold Avenue per the planned long-term streetscape and landscape improvements along Jerrold Avenue discussed in the FEIR. These improvements would improve the public edges along the plant and enhance the visual quality of the area compared to existing conditions. The FEIR determined that, overall, the approved project would not substantially degrade the visual character of the area because the new facilities would be visually compatible with existing plant facilities, views of the new biosolids facilities at the plant to the typical motorist or pedestrian continued southeast on Jerrold Avenue would be fleeting, and views from the surrounding areas would remain that of a major industrial facility. These conditions would remain the same because the modified project would have fewer, less substantive permanent facilities within the approved project boundary.

For these reasons, the modified project would not have any new or substantially more severe aesthetic impacts than the approved project.

- **Population and Housing.** As discussed in the FEIR, the approved project does not involve any housing construction and thus would not directly induce growth by constructing housing that would attract people to the area, nor would it extend roads or other infrastructure that could

indirectly induce growth because it is located at an existing industrial site in an area that is already well-served by roads and other infrastructure. The FEIR found that given the size of the regional construction work force compared to the number of workers needed to construct that project, even during peak construction periods, construction workers would likely be drawn primarily from the local and regional construction work force and that workers who do not live in the Bayview-Hunters Point neighborhood would likely commute from elsewhere in the city or Bay Area rather than relocate from more distant cities or towns such that the approved project would not induce population growth by attracting a substantial number of workers from outside the region to relocate to the area and thus would not create demand for additional housing. The FEIR found that operation of the approved project would also have a less than significant impact on population and housing because it would not include new homes; increase the number of workers employed at the Southeast Plant; extend roads or other infrastructure into areas lacking such services that could induce substantial population growth; and would not increase existing overall Southeast Plant wastewater treatment capacity and would only provide solids treatment capacity that is consistent with the Association of Bay Area Government's growth forecasts. Thus, the project would not indirectly induce population growth.

The modified project construction and operation would have similar impacts as the approved project because the biogas utilization system facilities would be smaller and less complex than the originally proposed energy recovery facilities, fewer construction workers would be needed. While the approved project would not result in additional employees, only one new permanent employee may be needed for the modified project and could reasonably be expected to be available from the local or regional workforce. Further, like the approved project, the modified project would not change the Southeast Plant's treatment capacities.

For these reasons, the modified project would not have any new or substantially more severe impacts on population and housing than the approved project.

- **Transportation and Circulation.** The FEIR discusses that construction-related traffic comprised of trucks and workers trips to and from the approved project site and staging areas and detours and road closures could interfere with pedestrian, bicycle, or vehicle circulation; increase potential traffic hazards; and cause inadequate emergency vehicle access. The FEIR found that even during the periods of peak truck trips (406 total trips) and peak worker vehicle trips (742 total trips) the overall contribution to total traffic volumes and to increased vehicle delay would be minimal, that detour trips to two nearby parallel east-west routes (Oakdale Avenue and Evans Avenue) could be accommodated without substantial delays or out-of-way travel, the reroute of the 23 Monterey would not substantially affect accessibility to transit or transit operations, and that emergency vehicles would not be substantially affected by the temporary closure of a two-block segment of Jerrold Avenue. Regarding traffic safety hazards, as discussed in the FEIR, the approved project includes establishing a site-specific Traffic Control Plan that conforms to the SFMTA's Blue Book, which requires the implementation of construction safety measures like proper advance warning and detour signage, identification of approved construction truck routes, and coordination with public service providers like the fire department. The approved project also establishes that the SFPUC would coordinate traffic control across the various projects at the Southeast Plant that would be constructed concurrently. With these measures, the FEIR determined that construction of the approved project would have a less-than-significant

impact on transportation and circulation. Operational impacts of the approved project were also less than significant, with approximately 60 truck trips (one way) annually for hauling digester treatment waste and no additional worker trips.

The modified project would use same access routes for construction vehicles, including from Evans, Rankin, Jerrold, and McKinnon as described in the FEIR and subsequently approved minor modifications. Construction of the modified project would require fewer truck trips to deliver materials (e.g., concrete and rebar) and to off-haul spoils because the proposed biogas utilization system would be comprised of fewer and less substantial facilities than the energy recovery facilities. Just reducing soil excavation by 5,538 cubic yards alone would eliminate approximately 615 one-way truck trips (assuming 18-cubic yard trucks). Similarly, modified project construction would require fewer delivery and haul trips and construction worker vehicles per day. Therefore, construction trips on any one day could reasonably be expected to be well within the maximum daily truck and vehicle trips analyzed in the FEIR, which were found to have a less-than-significant impact on transportation and circulation. Like the approved project, the SFPUC would implement traffic control measures during construction of the modified project per the Traffic Control Plan to minimize potential traffic hazards to public vehicles, pedestrians, and bicyclists from these construction trips. Additionally, pursuant to the FEIR, the Southeast Plant program construction management team would coordinate access and truck routes with traffic from the other ongoing approved project construction to minimize impacts on the public. The approved project will require approximately 1.5 additional years to construct, which would extend the temporary closure of Jerrold Avenue and elongate the time during which traffic safety hazards from construction-related traffic in the area could occur. During this time, the same traffic safety measures will be implemented.

Operation of the proposed biogas utilization system would not require the routine import of any materials. A similar amount of spent media (solid waste) associated with removing digester gas impurities would be generated at the biogas upgrade facility as was estimated in the FEIR to be generated from operation of the energy recovery system. As a result, off-haul of this material would not require additional truck trips. Operation of the biogas upgrade system facilities may require one additional full-time person. PG&E would have limited visits to maintain the PG&E Interconnection Station. As a result, there would be a negligible increase in employee vehicle miles traveled to operate the proposed biogas utilization system. The modified project would not change the improvements to be implemented at the end of construction along Jerrold Avenue to improve pedestrian and bicycle circulation.

For these reasons, the modified project would not have any new or substantially more severe impacts on transportation and circulation than the approved project.

- **Wind and Shadow.** The FEIR determined that construction would have no impact on wind or shadow because construction equipment would be smaller than or similar in size and height to other equipment and buildings in the area such that it would not substantially alter wind patterns in the project vicinity nor be tall enough to create substantial new shadows that could affect public open spaces. Regarding the approved project's new permanent facilities, the FEIR found that the approved new project facilities, including the 65-foot-tall digesters and 57-foot-tall energy recovery building, would not alter wind patterns in a manner that substantially affects public areas. The shadow analysis conducted for the FEIR to evaluate impacts of the new

permanent facilities on the nearest recreational facilities found the project would not create new shadows that would substantially affect outdoor recreational areas, streets and sidewalks. Wind and shadow impacts were less than significant.

Construction of the proposed biogas utilization system would use the same type of construction equipment within the same approved project work areas and thus would be expected to have similar effects on wind and shadows as the approved project. Regarding permanent effects on wind patterns, the modified project would eliminate the 57-foot-tall Energy Recovery Building, the 65-foot-tall Digester Storage Tank, and 22-foot-tall Digester Gas Treatment Facility and replace them with less substantial outdoor equipment ranging from 15 to 45 feet tall on concrete pads (not buildings) through which air could flow and thus there would likely be less effects on wind patterns. The Biogas Upgrade Facility, PG&E Interconnection Station, and Deoxygenation Facility would be built within the approved project boundary at the same distance to the closest recreational facilities and would not be taller than the other approved project buildings and structures such that they would also not cast shadows on outdoor recreational areas or substantially affect streets and sidewalks.

For these reasons, the modified project would not have any new or substantially more severe impacts on wind and shadow than the approved project.

- **Recreation.** The FEIR found that construction of the approved project would have no impact on recreational facilities, either directly or indirectly, because there are no such facilities within the approved project site or the off-site staging areas and because the existing parks and trails in the vicinity at over 1,000 feet and 300 feet (Bay Trail) respectively would remain open and are sufficiently far so as not to be physically deteriorated or degraded by the project. The FEIR found that operation of the project would also have no impact on recreational facilities because it does not permanently affect existing recreational resources, it does not include new residential or other uses that would generate increased demand for parks or other recreational facilities, it would not increase existing operations staff levels at the Southeast Plant that could increase demand at existing recreational facilities near the Southeast Plant, and that ongoing demand would continue to be met by existing parks and recreational facilities.

  Construction of the modified project, like the approved project, would not include the construction or expansion of recreational facilities, or increase the use of existing neighborhood and regional parks or other recreational facilities because construction workers and possibly one additional permanent staff member would continue to be drawn from the local and regional work force such that there would not be a significant increase in population that could accelerate the physical deterioration existing recreational facilities.

  For these reasons, the modified project would not have any new or substantially more severe impacts on recreation than the approved project.

- **Utilities and Service Systems.** The FEIR evaluated several construction-related utilities and services systems topics, including wastewater discharges in excess of the treatment capacity of the Southeast Plant and associated conveyance infrastructure, landfill capacity for construction waste, and compliance with local, state and federal regulations pertaining to the disposal of solid waste. The FEIR concluded that potential impacts would be less than significant because wastewater discharges from the sanitary needs of construction workers and groundwater

dewatering could be accommodated by the Southeast Plant's existing treatment capacity, the SFPUC would be required to recycle construction and demolition debris pursuant to Section 708 and Chapter 14 of the San Francisco Environment Code to divert solid waste from landfills and that the landfills the project would use have sufficient capacity for the maximum amount of potential waste, and because by complying with the local code, the approved project would also be consistent with the California Integrated Waste Management Act of 1989 (AB 939). Regarding potential impacts due to operation, the FEIR identified that the project would increase water demand due to changes in processes and facilities (i.e., for the energy recovery facilities and the Maintenances Shops 1 and 2) and generate 820 cubic yards of solid waste (iron sponge media waste and siloxane media waste) annually from the new digester gas treatment facilities. The FEIR concluded that these operations would result in a less-than-significant impact because the City's existing water supply could sufficiently meet the additional demand and that amount of solid waste constituted a small fraction of available, permitted landfill capacity.

Construction of the modified project would involve less excavation and pile drilling and thus would likely require less groundwater dewatering. As a result, the Southeast Plant's existing treatment capacity would still be able to accommodate discharges of both wastewater from the sanitary needs of construction workers and groundwater during construction, including during the approximately additional 1.5 years of approved project construction. Since the proposed biogas utilization system facilities would be built in the footprint of other originally approved project components, the FEIR already accounts for the solid waste generated by the demolition of existing structures in those locations. Construction of the proposed biogas utilization system would reduce the amount of soil to be excavated and disposed of by over 5,000 cubic yards. Thus, construction of the modified project would not generate additional solid waste that could cause the capacity of permitted landfills to be exceeded. Like the approved project, the SFPUC would be required to divert waste from landfills during construction in accordance with the City code to recycle construction demolition and debris.

Operation of the modified project would not use more water during operation than the approved project because the Biogas Upgrade Facility, PG&E Interconnection Station, and Deoxygenation Facility would not include bathrooms and, although full time operation of the steam boilers would use more water, less water would be used elsewhere with elimination of than the energy recovery system. Operation of the proposed biogas utilization system would result in a similar amount of solid waste associated with removing digester gas and/or tailgates impurities as the originally-planned energy recovery facilities and would not affect the amount of biosolids generated. Lastly, PG&E has capacity in the existing natural gas system to receive the additional renewable natural gas within its existing facilities.

For these reasons, the modified project would not have any new or substantially more severe impacts on utilities than the approved project.

- **Public Services.** The FEIR found that construction and operation of the approved project would have a less-than-significant impact on public services because it would not result in a substantial increase in the local population as construction workers would likely be drawn primarily from the local and regional construction work force, and the new facilities would be operated by existing Southeast Plant employees. The FEIR concludes that incidents during construction that require law enforcement, fire protection, or emergency medical services would constitute an incremental

increase in demand that would be temporary, could be accommodated by existing services, and would not require construction of new or physically altered facilities to maintain services.

Construction workers for the modified project would also reasonably be expected to be drawn from the local and regional construction work force and construction would be less extensive than the approved project (i.e., less excavation, less truck trips, less drilling, less substantial buildings erected, etc.) such that the potential for incidents that could require public services would not be expected to increase. Operation of the proposed biogas utilization system may require one new permanent employee who would also be expected to be drawn from the local and regional work force.

For these reasons, the modified project would not have any new or substantially more severe impacts on public services than the approved project.

- **Hydrology and Water Quality**. The FEIR evaluates several topics related to hydrology and water quality, including that soil disturbing activities (i.e., excavation) and using hazardous materials could result in excess sediment and other pollutants being entrained in stormwater runoff and discharged into the sewer or San Francisco Bay (at off-site Pier 94-96 staging areas) without proper controls; contaminated groundwater from dewatering could be discharged into the sewer and/or Bay; groundwater level could decline from dewatering activities or increased impervious surface limiting recharge and thereby interfere with nearby wells; and people or structures could be harmed at facilities in the 100-year flood or tsunami inundation zones. The FEIR concluded that all of these impacts were less than significant because the SFPUC would prevent sediment and other pollutants from entering the sewer or the Bay per San Francisco Public Works code Article 4.2 (Construction Site Runoff Controls) and the State Water Resources Control Board Construction General Stormwater Permit; must obtain and comply with a Batch Wastewater Discharge Permit for discharging groundwater into the sewer pursuant to Public Works code Article 4.2 that regulates the quality of the water; there are no groundwater wells within 1/2 mile of the site and impervious surface would not permanently increase; and no structures would be in the flood or tsunami inundation zones. During operation, the FEIR discusses that the project could increase water quality impacts on the San Francisco Bay because the approved new thermal hydrolysis process would increase total ammonia and nitrogen concentrations in the dewatering return that is ultimately discharged as secondary-treated effluent to the Bay via the Southeast Bay Outfall during dry weather; increase impervious surface that could overwhelm the site's stormwater infrastructure; and exacerbate future flood hazards. The FEIR concludes that these impacts would be less than significant because the water quality analysis showed that the increase in ammonia and nitrogen concentrations in the Southeast Plant effluent would not exceed the SFPUC's Bayside NPDES permit effluent limitations, future flooding would not be exacerbated since the site's topography would not change, and structures that could increase the extent of storm surge-related flooding compared to existing conditions would not be installed.

  Construction of the modified project would reduce impacts on groundwater during construction because it would reduce excavation and pile drilling at depths where groundwater is present. Like the approved project, groundwater that is encountered during construction would be appropriately treated prior to discharge. Similarly, the modified project would reduce potential impacts on stormwater quality given less site disturbance and soil off-hauling. Like the approved project, the SFPUC would still be required to install erosion and sediment controls during

construction of proposed biogas utilization system facilities to prevent sediment-laden water from entering storm drains in accordance with the Construction Site Runoff Control Permit requirements of Article 4.2 of the San Francisco Public Works Code.

Operation of the proposed biogas utilization system would not affect the thermal hydrolysis process that the FEIR discusses would increase nutrient concentrations discharged from the Southeast Plant into the San Francisco Bay. Moreover, the SFPUC will be installing a new Interim Sidestream Nutrient Removal Facility at the Southeast Plant as previously approved in minor project modification 17 that would reduce nutrients, primarily nitrogen, in the Southeast Plant's discharges from the approved project by about 50 percent. Thus, future operation would have reduced water quality impacts on San Francisco Bay that the approved project.

For these reasons, the modified project would not have any new or substantially more severe impacts on hydrology and water quality than the approved project.

- **Hazards and Hazardous Materials.** The FEIR evaluates several topics related to hazards and hazardous materials, including that the approved project site and staging areas are known to contain contaminated soil and groundwater; that the project would transport, store, and use routine hazardous materials (i.e., fuels, lubricants, and solvents for construction vehicles and equipment); that the project includes and demolition of old structures that could contain hazardous building materials (i.e., asbestos and lead based paint); and that it could interfere with emergency access and start fires. The FEIR discusses that without adequate management, these conditions could adversely affect public and environmental health, such as due to spills and pollutants in airborne dust. The FEIR concludes that because the SFPUC must comply with California Highway Patrol regulations related to transportation, implement site-specific best management practices like proper storage and secondary containment to prevent spills per San Francisco Public Works Article 4.2 (Construction Site Runoff Controls) and the State Water Resources Control Board Construction General Stormwater Permit, abate building hazards pursuant to well-established regulations prior to demolition, comply with Article 22A of the San Francisco Health Code (the Maher Ordinance), implement a Traffic Control Plan that would provide adequate emergency access, comply with the California Fire Code requirements for Fire Safety during Construction and Demolition, and comply with other applicable state and federal laws, that all of these potential impacts would be less than significant. During operation, the FEIR discusses that the approved project would increase the quantity of several chemicals used at the Southeast Plant, use diesel for a backup generator, and may require periodic disposal of hazardous wastes (e.g., fluorescent light tubes), but that because the SFPUC would be required to update the Hazardous Materials Business Plan for the Southeast Plant that is on file with the San Francisco Health Department pursuant to Article 21 of the San Francisco Health Code and comply with local, state, and federal regulations for hazardous material use, storage, and disposal, these impacts would be less than significant.

  Construction of the modified project would occur entirely within the approved project area such that it would not affect, or be affected, by new sources of existing soil and/or groundwater contamination that could expose the public and environmental to new or more severe impacts. The same types of hazardous materials would be used during construction, and the SFPUC would be required to continue transporting and managing them properly in accordance with the local, state, and federal laws discussed above. The only school located within one-quarter mile of the

approved project site was the Wu Yee Southeast Child Development Center that has now relocated and thus would not be exposed to hazardous materials related incidents. The SFPUC would be required to update the project's Traffic Control Plan to address traffic during construction of the modified project while maintaining emergency access and implementing fire prevention measures. Operation of the proposed biogas utilization system would not introduce new types of chemicals than those identified in the FEIR for operation of the approved project. Like the approved project, operation of the proposed biogas utilization system would use hazardous materials in accordance with applicable laws.

For these reasons, the modified project would not have any new or substantially more severe impacts related to hazards and hazardous materials than the approved project.

- **Mineral Resources, Energy Resources, and Water Use.** The FEIR found that the project site and construction areas do not contain substantial mineral resources or locally important mineral resource recovery sites. The FEIR discussed that energy, in the form of diesel, gasoline, and electricity would be consumed directly by construction equipment as well as indirectly through the energy needed to make the materials and components used in construction. The FEIR determined that construction energy use would be less than significant because construction would be temporary and would therefore not result in long-term depletion of local or regional energy resources, would not be wasteful because efficient equipment and alternative fuels would be used per Mitigation Measure AQ-1a, and would recycle construction waste per Chapter 14 and Section 708 of the San Francisco Environment Code which would reduce energy associated with extraction and manufacturing of new and raw materials. The FEIR discussed that potable water use during construction would not be wasteful, inefficient, or unnecessary because for San Francisco Public Works Code, Article 21 requires the use of recycled water for dust control during construction. Regarding operation, the FEIR discussed that the approved project would increase energy and water use. However, the FEIR determined that the approved project energy recovery facilities would, by 2045, generate enough steam and electricity to operate the Biosolids facilities to provide this additional energy, only importing 5,250 gallons of diesel a year for the 1.5-MW standby power generator, and that the design maximizes using recycled water and/or other non-potable water to the extent possible in the new processes along with complying with the San Francisco Building Code and San Francisco Water Efficient Irrigation Ordinance such that the project's operational impacts on fuel, water, and energy resources would be less than significant.

  Construction of the modified project would not affect mineral resources because the biogas upgrade facility, PG&E interconnection station, deoxygenation system and associated piping would be built within the approved project boundary where the FEIR determined that no resources are present. Construction of the modified project would reduce energy use (fuel) relative to the approved project because it would require less construction effort (less excavation, piles, materials) and fewer truck trips. Although construction would occur for an additional approximately 1.5 years, the time increase is due to the approved project components taking longer to complete, not additional project components. Therefore, the overall energy required for construction would not increase. Moreover, like the approved project, energy consumption during construction would not be wasteful because efficient equipment would be used pursuant to the City's Clean Construction Ordinance and Mitigation Measure M-AQ-1a

(Construction Emissions Minimization) and the consumption would temporary such that it would also not result in long-term depletion of local or regional energy resources.

Operation of the modified project would not increase overall water use as discussed above. Like the approved project, design of the biogas upgrade facility, PG&E interconnection station, deoxygenation system and associated piping and surrounding areas would incorporate recycled water and/or other non-potable water to the extent possible and comply with the San Francisco Water Efficient Irrigation Ordinance. **Table 3** above provides an update on the operational energy demand with the proposed biogas utilization system. As shown, operation of the modified project would increase natural gas use because instead of the energy recovery system generating the steam needed to operate the Biosolids facilities, the steam would be generated by the steam boilers that would now need to operate full time. Diesel use would decrease because a smaller backup generator would be required (20 kw instead of 1.5 MW). Also, as shown there would be a change in electrical power demand. Under the approved project, the energy recovery facility would have generated the power needed to operate the Biosolids facilities. With the modified project, power from the electrical grid would now be needed. The SFPUC has confirmed that it generates sufficient clean hydroelectricity to provide all the power for the modified project; however, it is possible that PG&E's power may be used for the biogas utilization system components. Meanwhile, the digester gas that would be upgraded to renewable natural gas with the proposed biogas utilization system would be made available to the energy market and would offset some portion of natural gas that would have had to be extracted by others, elsewhere.

For these reasons, the modified project would not have any new or substantially more severe impacts related to mineral resources, energy, and water use than the approved project.

## 6.0 Conclusion

Based on the foregoing, it is concluded that the analyses conducted and the conclusions reached in the final FEIR certified by the planning commission on March 8, 2018 and adopted by the San Francisco Public Utilities Commission on December 18, 2018 remain valid. The modified project would not cause new significant impacts not identified in the FEIR, would not substantially increase the severity of the previously identified environmental impacts, and would not require new mitigation measures. No changes have occurred with respect to circumstances surrounding the modified project that would cause significant environmental impacts to which the modified project would contribute considerably, and no new information has become available that shows that the modified project would cause significant environmental impacts or a substantial increase in the severity of previously identified significant impacts. Therefore, no supplemental environmental review is required beyond this addendum.

I do hereby certify that the above determination has been made pursuant to State and local requirements.

Lisa Gibson

Lisa Gibson
Environmental Review Officer

July 12, 2024

Date of Determination

cc: SFPUC

Distribution List

# APPENDIX A
# CUMULATIVE PROJECTS

## Appendix A Projects Considered in Cumulative Impact Analysis

| Project No. in FEIR | Project Name (Project Sponsor) | Project Description | Construction Dates |
|---|---|---|---|
| 1 | Southeast Plant (SEP) Headworks Replacement Project (SFPUC) | The project would construct a new 250 million gallon per day, all-weather headworks facility to provide better screening and grit removal at the SEP. The project would replace two existing headworks facilities, modify the Bruce Flynn Pump Station (BFS), and construct a new odor control facility. It would provide redundant infrastructure to provide reliability and ensure operational reliability. It would also improve the seismic reliability of the headworks facility and improve odor control. The project would modify and eventually demolish the influent control structure/Southeast Lift Station. The two existing headworks buildings (SEP 011 and SEP 012) would also be demolished. The project was modified to include upgrades to the Bruce Flynn Pump station to enhance reliability in wet weather events, modify influent sewer, remove a proposed new generator and the sewer construction in Evans Avenue, Rankin Street and Davidson Avenue. The modified project would also construct a new SEP 005 Southeast Lift Station and associated piping. | Spring 2018 to Spring 2026 (Revised from January 2017 to December 2021) |
| 6 | SEP Power Feed and Primary Switchgear Upgrades (SFPUC) | The objective of the project is to increase reliability, redundancy and capacity of the electrical system at Southeast Plant (SEP) to meet Sewer System Improvement Program (SSIP) level-of-service goals by upgrading the existing power feed by PG&E and obtaining a new feed by SFPUC Power Enterprise. The project will construct an elevated building to house the new Primary Power Switch Station and substructures to provide adequate power for the existing electrical loads and new SSIP facilities, upgrade/replace aging existing substations, install power monitoring and protection system for additional reliability and efficiency, as well as provide redundant services to the nearby pump stations. | January 2024 to May 2025 (Revised from November 2017 to January 2020) |
| 11 | SEP Repair and Replacement Treatment Plant Improvement Projects (SFPUC) | In order to maintain the operational reliability of existing facilities, ongoing repair and replacement activities are conducted including replacement of equipment that has reached the end of its useful life, is no longer operational due to continuous operation in a highly corrosive environment, or does not meet current operational requirements. | Ongoing |
| 12 | Demolition of the Existing SEP Digesters and Southside Renovation Project (SFPUC) | This Phase II Sewer System Improvement Program (SSIP) project (Phase II has not yet been approved) would include demolition of the existing SEP digesters and associated control buildings, and improvements within the south side of the SEP. This project has not yet begun | After 2028 (Revised from after 2025) |

| Project No. in FEIR | Project Name (Project Sponsor) | Project Description | Construction Dates |
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| | | the planning phase and the SFPUC has not yet determined the specific improvements to be constructed. | |
| 24 | Quint-Jerrold Connector Road (San Francisco County Transportation Authority)[1] | This project would construct a new 950-foot-long roadway to provide access between existing Quint Street and Jerrold Avenue. The roadway would consist of two 13-foot-wide lanes (within a 50-foot-wide corridor), one northbound and one southbound. In addition, the project would construct or install several other elements along or beneath the length of the new roadway. Along the western side of the new roadway, the project would construct a new 5.5-foot-wide to 20-foot-wide sidewalk, depending on location; construct a new 27-foot-wide curb cut located along the San Francisco Wholesale Produce Market property (Project 25, below); and install street trees and street lighting. Along the eastern side of the new roadway, the project would construct a new 6.5-foot-tall reinforced concrete retaining wall. A new stop sign would be installed at the intersection of the new roadway and Jerrold Avenue. New sewer and water pipelines would be installed beneath the new roadway to provide on-site drainage and overall system reliability. The new road would support a potential new Caltrain station at Oakdale Avenue.<br>The intersection with Jerrold Avenue also would accommodate trucks, although some movements would require wide turns. The San Francisco County Transportation Authority (SFCTA), Caltrain, and SF Public Works have coordinated project schedules to minimize the duration of the street closure. | Currently in the right-of-way acquisition phase. If successful, design would begin and construction could start in 2025.<br>(Revised from later 2018 to 2019 depending on land acquisition) |
| 25 | San Francisco Market (formerly San Francisco Wholesale Produce Market) Expansion (City and County of San Francisco Market Corporation)[2] | This project consists of phased development to expand the existing San Francisco Wholesale Produce Market. The project would demolish the existing San Francisco Market buildings at the four quadrants of the main site, and would construct new buildings at each of the four quadrants. The project would include warehousing, office, meeting hall, and restaurant/café land uses. The new buildings would be 16 to 45 feet tall and would have a larger footprint than the existing buildings. The project and its associated roadway infrastructure would be built in about nine phases, over a period of approximately 16 years. It would start with the demolition of existing facilities at the SE Quadrant and construction of the 1900 Kirkwood Avenue building in January 2024, and would conclude with the occupancy of the 2000 Kirkwood Avenue building in June 2041. Phases 1 through 4 of the project include: Closure of Jerrold Ave between Toland and Rankin by the San Francisco Market; Demolition of the existing 455 Toland St building (NW Quadrant), and | 2024 through 2041: Phases 1 through 4 would occur between 2024 and 2028 |

| Project No. in FEIR | Project Name (Project Sponsor) | Project Description | Construction Dates |
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| | | grading for new surface parking lot; Vacation of Jerrold Ave, and other minor right-of-way areas at the Main Site; and Demolition of existing SE Quadrant Building and dock, and construction of 1900 Kirkwood Ave Building. The project would vacate Jerrold Avenue on the main site and reroute through-traffic around the main site on Innes Avenue, which will become the primary route for non-market destined traffic traveling through the area. | |
| 27 | Candlestick Point-Hunters Point Shipyard Phase I and II Development Project (Lennar Urban)[3] | This project would redevelop the 702-acre Candlestick Point-Hunters Point Shipyard area along the waterfront between south of India Basin and Candlestick Point. The project includes a mixed-use community with a wide range of residential, retail, office, research and development, civic, and community uses, and parks and recreational open space. In addition, a 300-slip marina would be constructed as would shoreline improvements to stabilize the shoreline. Phase I is already underway, including demolition of Candlestick Park Stadium. Phase II includes 6,225 units of housing (including rebuilding the Alice Griffith Public Housing), a regional retail center, a 220-room hotel, a performance venue, and 160 acres of new and revitalized open space. | Phased construction 2015 - 2035 (expect delays) |
| 29 | Pier 70 Waterfront Site (Forest City Development CA)[4] | This project consists of redevelopment of approximately 28 acres (identified as the "Waterfront Site") of the former industrial shipyard at Pier 70 and an additional 7 acres of land owned by the Port and PG&E. The site would be developed into a new mixed-use community with new commercial office development, new residential development, and a retail and arts component. New above-grade and below-grade parking and approximately 8 acres of new and expanded parks and shoreline access would be constructed. The project also includes the rehabilitation and adaptive reuse of Buildings 2, 12, and 21, which contribute to the eligible Pier 70 National Register Historic District. Overall, the project would construct a maximum of 4.2 million gross square feet in four phases over about 11 years. Two land use scenarios are under consideration, each with different amounts of commercial and residential land uses. The project would include up to 3,025 new residential units and up to 2.3 million square feet of commercial, restaurant, retail, and arts/light industrial land uses. | Phased construction 2018 - 2029 (expect delays) |
| 30 | Blue Greenway Project (Port of San Francisco)[5] | The Blue Greenway is the City's project to improve the City's southerly portion of the 500-mile, nine-county, region-wide Bay Trail, as well as the newly established Bay Area Water Trail and associated waterfront open space system. The alignment of the Blue Greenway generally follows the | Aqua Vista Park to be completed by 2025-2026 |

| Project No. in FEIR | Project Name (Project Sponsor) | Project Description | Construction Dates |
|---|---|---|---|
| | | alignment of the Bay Trail and Bay Area Water Trail from Mission Creek on the north to the County line on the south. Remaining parks: Warm Water Cove Park (in future after 2030), Pier 70 Parks (2028-2029) and Aqua Vista Park (would be completed by 2025-2026). The Port expects to complete all Blue Greenway projects within its jurisdiction by 2035. | |
| 39 | India Basin Mixed-Use Development (Build, Inc. and San Francisco Recreation and Parks Department)[6] | This project would encompass publicly and privately owned parcels, including existing streets, totaling approximately 38.8 acres at 700 Innes Avenue, 900 Innes Avenue, India Basin Shoreline Park, and India Basin Open Space locations. The project at 700 Innes Avenue would develop 17.12 acres of privately owned land plus 5.94 acres of developed and undeveloped public rights-of-way in phases; proposed uses include residential, retail, commercial, office, research and development/laboratory and clinical care space, institutional, flex space, recreational and art uses, parking, and a shoreline network of publicly accessible open space. The project at 900 Innes Avenue, India Basin Shoreline Park, and India Basin Open Space would include improvement of 14.2 acres of publicly owned parcels along the shoreline plus 1.58 acres of unimproved "paper" streets to create a publicly accessible network of new and/or improved parkland and open space. This new shoreline network would extend the Blue Greenway/Bay Trail and would provide pedestrian and bicycle connections to and along the shoreline, fronting San Francisco Bay. | On hold<br>(Revised from 2018 – 2024) |
| 40 | San Francisco Gateway Project<br>(Prologis, Inc.)[7] | The San Francisco Gateway Project would demolish the four existing single-story buildings at 749 Toland Street and 2000 McKinnon Avenue and construct two new multi-story buildings that would provide new production, distribution, and repair (PDR) space in the city. Each building would be approximately 97 feet tall and would have a maximum height of 115 feet, including rooftop appurtenances. The two new buildings would include PDR space, a logistics yard, vehicular circulation systems, and ground-floor retail spaces; they would total 2,160,000 gross square feet. The proposed project would convert Kirkwood Avenue (along the northern side of the project site, between Toland and Rankin streets) to a single-lane, eastbound one-way street; and convert a portion of McKinnon Avenue (along the southern side of the project site, between Toland and Selby streets) to a single-lane, westbound one-way street.<br>Construction is anticipated to take approximately 31 months. Approximately 140,600 cubic yards of soil would | Summer 2026 through Winter 2028<br>(Revised from TBD) |

| Project No. in FEIR | Project Name (Project Sponsor) | Project Description | Construction Dates |
|---|---|---|---|
| | | be excavated for the proposed project. The EIR also analyzes an expanded streetscape variant, which would improve the public right-of-way surrounding the project site. | |
| | Channel Force Main Intertie (SFPUC) | The existing 66-inch Channel Force Main transports wastewater from the northeastern part of San Francisco to the Southeast Treatment Plant. The Channel Force Main Intertie Project will increase reliability, provide operational flexibility, and allow for future inspections and maintenance. This project will construct a new pipeline connection and control systems along the existing force main. The project will also install control panels in the sidewalk along Cesar Chavez Street, between Indiana and Pennsylvania Streets, and replace existing air valves at two locations on Indiana Street, near the 20th and 25th street intersections. | January 2024 - December 2025 |
| | City Distribution Division Headquarters Project (SFPUC)[8] | This project would establish a new City Distribution Division (CDD) headquarters at 2000 Marin Street that would replace the existing CDD yards located at 639 Bryant and 1990 Newcomb. The proposed CDD headquarters would consist of an administrative building, car shop, machine shop, meter shop, warehouse, fabrication shop, paint and autobody shop, auto shop, landscape shop, a parking garage, outdoor vehicle and equipment parking, outdoor storage and laydown area, outdoor space, and a fuel station. | January 2025 - December 2027 |
| | 3433 3rd Street (Equity Community Builders)[9] | The proposed project would construct an approximately 16,194 gross square-foot (sf), two-story, office and assembly building with surface parking with an approximate 9,441 sf ground floor footprint. The proposed project would include a 7,364 sf of union assembly/meeting hall, 8,830 sf of office space which includes 2,646 sf of elevators and corridors, 4,215 sf of landscaped area, and 9,372 sf of parking area. The project site is approximately 25,968 sf in area. | Under review with SF Planning |
| | Bay Corridor Transmission and Distribution (Phase 3 and 4) (SFPUC) | The San Francisco Public Utilities Commission Power Enterprise is building a high voltage transmission and distribution system in the Southeast portion of the city. It is intended to serve existing and future customers with large power needs. There are four phases of the project; phases 1 and 2 were completed in 2022.<br>Phase 3 - 1535 Davidson Avenue - Power Distribution System - builds a new electrical substation at 1535 Davidson Avenue.<br>Phase 4 - The Project proposes the following improvements in the City's Bayview District: Installation of | Phase 3 construction on-going with completion by Winter 2024.<br>Phase 4 construction August 2024-May 2026 |

| Project No. in FEIR | Project Name (Project Sponsor) | Project Description | Construction Dates |
|---|---|---|---|
| | | a new duct bank from the intersection of Evans Avenue and Rankin Street to 2000 Marin Street. Replacement of existing 12-inch and 8-inch cast iron potable water mains with new 12-inch ductile iron pipe mains along three segments (Evans Avenue from Napoleon Street north to the existing Evans Avenue bridge near Cesar Chavez Street, Marin Street from Evans Avenue to the Marin Street terminus, and Cesar Chavez Street from Evans Avenue to Mississippi Street). This project component involves: the replacement of water main appurtenances including valves, fire hydrants, and water service; and extension and modernization of the existing emergency water system from the intersection of Evans Avenue and Marin Street to the Marin Street terminus; installation of high-pressure fire hydrants and high pressure valves. Ancillary work including ADA curb ramp upgrades, traffic signal related improvements, and restoration of traffic markings and striping. | |
| | Primary Treatment (SEP 040 and 041) Health and Safety Improvement project (SFPUC) | Southeast Plant (SEP) 040 and 041 are primary treatment facilities that were built in the 1950s and served as SEP's only primary treatment facility until a newer primary treatment facility (SEP 042) was constructed in the 1980s. The primary sedimentation tanks in SEP 040 and 041 provide additional operational flexibility, currently providing added capacity to SEP 042 tanks to handle wet weather flows as well as to serve as a backup during dry weather conditions when some or all tanks at SEP 042 need to be taken offline. The project proposes to sawcut the super structures of SEP 040 and 041 to expose the tanks to open air, and to cover those tanks with covers, and install a new odor control system. The project would also include the following: 1. replace and relocate utility lines; 2. Demolish, relocate, or provide an enclosure for exposed equipment (backup air compressor system, hydraulic power unit); 3. Replace electrical conduits and consolidate control centers; and, 4. Relocate outdoor storage areas. | September 2024 - September 2026 or 2027 weather dependent |
| | SEP HVAC and Mechanical Upgrades (SFPUC) | The SFPUC proposes to repair and replace various HVAC equipment and mechanical systems at the Southeast Plant. | December 2022 - Winter 2025 |
| | SEP 545 Electrical Controls Upgrade (SFPUC) | The project would conduct electrical service upgrades and repairs to existing facility valve controls adjacent to the Southeast Plant, Bruce Flynn Pump Station, and Booster Pump Station (adjacent to Islais Creek) to maintain permit compliance and support operational reliability and resilience. Key project scope includes selective demolition of the existing and installation of new power feeders and | Spring 2023 - Fall 2024 |

| Project No. in FEIR | Project Name (Project Sponsor) | Project Description | Construction Dates |
|---|---|---|---|
| | | fiber optic cable between Bruce Flynn Pump Station through the new and existing duct bank to the valve vault and existing pull box; new control panel; new automatic transfer switch, input/output unit; pump station ventilation; bollards; associated conduit and wiring, miscellaneous site and vault upgrades as required. | |
| | 1399 Marin Transit Service Operations and Maintenance Plan (SFMTA)[10] | The existing diesel hybrid fleet of approximately 88 buses will be moved from the Kirkland Transit Facility near Fisherman's Wharf to operate from the Islais Creek Transit Facility located at 1301 Cesar Chavez Street, with bus storage and repair-level maintenance occurring at the 1399 Marin facility, located across Indiana Avenue from Islais Creek facility site. Minimal improvements to the site (replacement or upgraded fencing, improved yard lighting, which likely will include some minor trenching and spot repavement of the surface yard area) are planned. No improvements are planned for the interior of the building on site. | Spring - Winter 2025 |
| | Operations, Engineering and Maintenance Buildings (SFPUC) | SFPUC proposes to modify the approved Biosolids Digester Facilities Project to construct the Operations, Engineering and Maintenance Buildings (SEP-7) instead of Maintenance Buildings 1 and 2. The project would include demolition of SEP 850 and trailers at SEP 850. Demolition of SEP 850 includes boiler that serves SEP 930, requiring installation of local hot water solution for SEP 930. The project would replace SEP 850 and the adjacent parking lot at Jerrold and Phelps, an area just under one acre, with two new buildings, SEP 603 and SEP 914. Building SEP 603 would be a single story, 9,800 square foot, Mechanical Maintenance building for crews 402, 402, and 404 shops. Building SEP 914 would be a two-story, 28,250 square foot building, consisting of shops for Painters, Carpenters and Plumber on the ground floor and shower and locker facilities on the second floor. | February 2025 - September 2027 |
| | Additional Newcomb Yard Improvements (SFPUC) | This program will fund interim improvements at CDD Headquarters at 1990 Newcomb Avenue that are required to address health and safety concerns and to renovate existing facilities to accommodate the division's staffing needs while a new SFWD Headquarters at 2000 Marin is designed and constructed. Interim improvements include: re-roofing the Administration, Shops and Warehouse Building; Emergency Communication Facilities at Newcomb Yard and Lake Merced Pump Station; developing approximately 4,000 square feet of new office space; renovating the Shops Building mechanical systems; | 2025 - 2027 |

| Project No. in FEIR | Project Name (Project Sponsor) | Project Description | Construction Dates |
|---|---|---|---|
| | | developing Incident Command Structure facilities; developing access control systems; and street and sidewalk improvements. | |
| | Islais Creek Bridge Project (San Francisco Public Works)[11] | The City and County of San Francisco is proposing to replace the existing Islais Creek Bridge along Third Street in San Francisco's Bayview neighborhood. Construction of the proposed project would result in the replacement of the existing drawbridge with a fixed bridge and large ships would no longer be able access the Islais Creek channel west of the new bridge. Throughout the construction duration, there would be no access for vehicles, the T-Third Street light rail service, or pedestrians to the bridge or Third Street between Marin Street to the north and Cargo Way to the south. Vehicles would be detoured around the site to other routes. T-Third Street passengers would use bus shuttles in lieu of light rail service south of Islais Creek Bridge and the 15 Bayview Hunters Point Express and 91 Third Street/19th Avenue OWL buses would be detoured around the project site. | Spring 2026 -Spring 2028 |
| | Bayview Train Caltrain Station (SFCTA)[12] | The San Francisco County Transportation Authority is proposing a new Caltrain Station in the Bayview community at either Oakdale (Quint Street between Oakdale and Jerrold avenues) or Evans Avenue (between Selby and Rankin streets). | Unknown |

**NOTES**

Projects with numbers were included in the FEIR Cumulative Projects List, with locations shown on FEIR 4.1-1. Projects completed since the FEIR have been removed from the cumulative list. Projects with no numbers are new projects.

**SOURCES**

Project descriptions without noted sources were prepared by the SFPUC.

1 San Francisco Planning Department, Mitigated Negative Declaration, Quint-Jerrold Connector Road Project, Case No. 2013.0858E, August 5, 2015. Schedule update from SFCTA website project page: https://www.sfcta.org/projects/quint-jerrold-connector-road; accessed January 9, 2024.

2 San Francisco Planning Department, Addendum 2 to Mitigated Negative Declaration, San Francisco Market Project (formerly SF Produce Mart), Case No. 2009-1153ENV-03, July 27, 2022. Available at sfplanning.org/sfceqadocs.

3 City and County of San Francisco, Office of Community Investment and Infrastructure, Hunters Point Shipyard Phase 1 and 2/Candlestick Point. Available online at Hunters Point Shipyard Phase 1 and 2/Candlestick Point | Office of Community Investment and Infrastructure (sfocii.org). Accessed July 8, 2024.

4 San Francisco Planning Department, Pier 70 Mixed-Use District Project Final EIR, Case No. 2014-001272ENV, certified August 24, 2017. Addendum to Environmental Impact Report dated April 16, 2018. Available at sfplanning.org/sfceqadocs. Accessed July 8, 2024.

5 Port of San Francisco, https://sfport.com/projects-programs/blue-greenway; Accessed January 23, 2024.
6 San Francisco Planning Department, India Basin Mixed-use Project, , Case No. 2014-002541ENV, Final EIR certified July 26, 2018. Available at sfplanning.org/sfceqadocs. Accessed July 8, 2024.
7 San Francisco Planning Department, San Francisco Gateway Project, Case No. 2015-012491ENV, State Clearinghouse No. 2022030286, Draft EIR. Available at sfplanning.org/sfceqadocs. Accessed July 8, 2024.
8 San Francisco Planning Department, SFPUC City Water Distribution Division Campus Project at 2000 Marin Street, Case No. 2022-000702ENV, Preliminary Mitigated Negative Declaration, June 18, 2024. Available at sfplanning.org/sfceqadocs.
9 San Francisco Planning Department, San Francisco Planning Department Public Portal. Available: https://aca-prod.accela.com/ccsf/Cap/CapDetail.aspx?Module=Planning&TabName=Planning&capID1=23CAP&capID2=00000&capID3=009CS&agencyCode=CCSF. Accessed December 1, 2023.
10 SFMTA, 1399 Marin Facility Improvements, https://www.sfmta.com/projects/1399-marin-facility-improvements. Accessed July 8, 2024.
11 San Francisco Planning Department, Islais Creek Bridge Project, Case No. 2022-000112ENV, Draft EIR, November 29, 2023. Available at sfplanning.org/sfceqadocs.
12 SFCTA, Bayview Caltrain Station Location Study. Available at: https://www.sfcta.org/bayview-caltrain. Accessed July 8, 2024.

# APPENDIX B
# AIR QUALITY HEALTH RISK ASSESSMENT UPDATE

# AIR QUALITY MEMO

Date: **April 10, 2024**

To: **Kimberly Stern, SFPUC**
**Karen Lancelle, ESA**
**Josh Pollak, San Francisco Environmental Planning**

From: **Rei Zhang**
**Michael Keinath, PE**

Subject: **AIR QUALITY HEALTH RISK ASSESSMENT UPDATE FOR POTENTIAL MODIFICATION TO THE FUTURE END-USE OF DIGESTER GAS AT THE SOUTHEAST PLANT BIOSOLIDS DIGESTER FACILTY PROJECT IN SAN FRANCISCO, CALIFORNIA**

As part of the environmental review effort in 2017, Ramboll conducted California Environmental Quality Act (CEQA) analyses of greenhouse gases (GHGs), criteria air pollutants (CAPs) and precursors, as well as a health risk assessment (HRA) based on exposure to toxic air contaminants (TACs), associated with the construction and operation of the San Francisco Public Utilities Commission's (SFPUC) Southeast Plant (SEP) Biosolids Digester Facility Project (BDFP or "the Project"). Analysis methodology and results were documented in an Air Quality Technical Report (AQTR), which was incorporated into the Final Environmental Impact Report (FEIR).[1,2]

In the FEIR design previously analyzed by Ramboll, the Project included the construction of energy recovery facilities, in which boilers, gas turbines, and microturbines would convert the SEP's generated digester gas to heat, steam, and electricity to operate SEP facilities. Since the certification of the FEIR, SFPUC is considering a modification to the end-use of the digester gas instead of energy recovery, which is to convert the gas to pipeline-quality renewable natural gas (RNG, also referred to as biomethane) for injection into PG&E's existing natural gas pipeline at Quint Street. Instead of constructing and operating the energy recovery components described in FEIR section 2.4.1.5, the SFPUC would construct a biogas upgrade facility where the digester gas would be converted to RNG, a deoxygenation facility, a PG&E Interconnection Facility where the RNG quality would be tested, and various pipelines connecting these facilities and them to the existing PG&E natural gas pipeline. These facilities are referred to collectively as the biogas utilization system.

The San Francisco Planning Department and SFPUC have requested an air quality analysis of this proposed modification analyzing changes to criteria air pollutant, toxic air contaminant and greenhouse gas emissions and resulting health risks. This technical memorandum presents a summary of the methodology and results, noting any details not included in the AQTR and FEIR. Tables and Figures were updated from the AQTR for the proposed modification; however, table numbering was

[1] Ramboll. 2017. Air Quality Technical Report. March. Available upon request.
[2] City and County of San Francisco. 2017. Biosolids Digester Facilities Project. May. Available at: https://ceqanet.opr.ca.gov/2015062073/2

preserved for ease of direct comparison to the AQTR.[3] Ramboll is providing this analysis of the proposed modification to support the San Francisco Planning Department's CEQA review of the modified project.

## OVERVIEW OF PROPOSED CHANGES

There are several differences between the Project analyzed in the FEIR and the proposed modification. Compared to the FEIR, this proposed modification would result in less construction activity, both temporally and materially, because fewer and less substantive structures would be built in less time (see **Attachment 1**). In the FEIR, a majority of the digester gas was analyzed as being combusted on-site by the digesters, the energy recovery system turbines and boilers, flares, and other associated facilities. In the proposed modification, a majority of the digester gas would be exported off-site as RNG and the balance would be combusted on-site by the digesters, boilers, flares, and other associated facilities. Lastly, compared to the FEIR, the proposed modification's operational emission sources would be located further from residences.

## IMPACTS FROM CHANGES IN CONSTRUCTION EMISSIONS

As discussed in the FEIR, construction off-road equipment, on-road vehicles, and paving and off-gassing result in the emissions of criteria air pollutants and greenhouse gases that impact air quality.

We calculated actual CAP emissions for the first two years of construction of the Project based on off-road equipment data provided by the construction contractors, which was collected and reported to demonstrate compliance with the FEIR mitigation measures, for two previously approved modifications.[4] For this analysis, we calculated actual CAP emissions for the third year of construction. Emissions of CAPs based on actual construction activity are shown in **Table A1a-c** of this report for Year 1-3, respectively. Compared to the FEIR, the emissions of all CAPs have decreased from the estimates for construction Years 1-3; this decrease is due to actual equipment use (i.e., hours of operation) being less than estimated at the time of the FEIR. Accordingly, GHG emissions from construction would reasonably be expected to decrease as well.

Construction impacts are directly correlated with ROG (reactive organic gases) that affects Acute Hazard Index, $PM_{10}$ (particulate matter less than 10 microns) as diesel particulate matter affects Cancer Risk and Chronic non-Cancer Hazard Index, and $PM_{2.5}$. Since the construction emissions of all of the CAPs, including ROG, have decreased from those estimated in the FEIR for Years 1 through 3, and the proposed modification would result in less construction activity than if the energy recovery facilities were built and thus fewer emissions, the health impacts associated with construction of the proposed modification would reasonably be expected to decrease as well. Additionally, the initial years of construction tend to have the highest health impacts due to the exposure parameters relative to the age of sensitive receptors evaluated; therefore, reductions in these early years of construction would be expected to also disproportionally reduce risk. Therefore, Ramboll did not re-quantify the health risk impacts of construction of the modified Project as part of this analysis.

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[3] Although the same existing facilities would be decommissioned with the proposed modification, the magnitude of their reduction on health impacts appears different because the project's MEISR changes with the proposed modification such that the values in the original and updated AQTR tables vary (not because of difference in activity, only because that activity is being reported at a different location).

[4] MPM-09 and MPM-13.

## IMPACTS TO HEALTH RISK FROM CHANGES IN OPERATIONAL EMISSIONS

### Methodology and Emissions

Operational CAP emissions with the proposed modification were estimated by the Biosolids Digester Facilities Project Consultant Team.[5] That team analyzed several operating scenarios for the new biogas utilization system. The most conservative operating scenario analyzed for emissions assumes that 70% of the digester gas would be converted to RNG for export (injection into the PG&E pipeline) while the remaining 30% of digester gas would be combusted on-site by flaring.[6] In reality, the SFPUC expects that 90% or more of the digester gas would be converted to RNG and that less than 10% would be flared; however, as 70:30 is the worst-case typical operating scenario, it is the basis for updating the operational CAP emissions and this update to health risk impacts during operations.

Ramboll re-modeled the Project operational sources at their modified locations and the existing sources at the facility. The modified locations of the Project stationary sources were provided by the SFPUC.[7] Updated **Figure 3** shows the modeled locations of the operational emissions sources, which include the flares, boilers, biogas upgrade facility, and solids odor control stack. Each stationary source was modeled as a point source, with various stack heights, temperatures, velocities, and diameters. Updated modeling parameters are shown in Updated **Table E-3**. The Project operational source parameters were provided by the BDFP consultant design team.

Ramboll evaluated excess lifetime cancer risks, $PM_{2.5}$ concentrations, and chronic and acute non-cancer health effects for Project stationary operational sources of emissions with the proposed modification. In the AQTR, operation-only risks are characterized by Scenario 2, and this is the scenario updated in this analysis for this proposed modification. Exposure assumptions for this update were consistent with AQTR Scenario 2, for risk to a resident with a 30-year exposure commencing at the time of Project operations. Cancer and non-cancer risks were calculated using the California Air Resources Board's Hot Spots Analysis & Reporting Program Air Dispersion Modeling and Risk Tool (HARP), following Bay Area Air Quality Management District (BAAQMD) 2023 CEQA guidelines and 2015 OEHHA Hot Spots Guidance.

For all TACs, Ramboll used toxicity values consistent with OEHHA-approved values found in the HARP Air Dispersion Modeling and Risk Tool (CARB 2023), shown in updated **Table 20c** for the updated TAC emissions from the modified operational sources provided by the BDFP Consultant Team.

### Results

Operational Emissions

Updated **Table 12c** shows the updated Project CAP emissions for the worst-case operating scenario with the proposed modification. Compared to the Project as analyzed in the FEIR at full operation in 2045, the proposed modification would slightly increase operational emissions of ROG, $PM_{10}$, and $PM_{2.5}$ and decrease NOx emissions. These changes in operational CAP emissions are due to changes in

[5] Brown and Caldwell, CH2M, Black & Veatch (Biosolids Digester Facilities Project Consultant Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. May.

[6] The worst-case operating scenario analyzed by the Biosolids Digester Facilities Project Consultant Team is identified as Operating Scenario 3 in the Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application.

[7] The location of the biogas upgrade facility in the BAAQMD to Construct/Permit to Operate Application is out of date. The SFPUC provided the location of this proposed facility on a site plan. It would be located at the former location of Maintenance Shops 2 Building that was previously removed from the project in MPM-10. This is where we modeled this facility in the update.

equipment (namely, the removal of the proposed turbines and increase in boiler and flaring operations), as well as differing amounts and composition of the gas combusted between the FEIR scenario and the proposed modification. The FEIR compares the net Project operational CAP emissions to the CEQA significance thresholds, which are calculated as the Project's operational CAP emissions from new Project facilities minus existing emissions from existing facilities that would be decommissioned. Net operational CAP emissions from the Project with the proposed modification are shown in updated **Table 14.**

Updated **Table 13c** shows the updated Project GHG emissions, and updated **Table 15** shows the net operational GHG emissions. Changes in GHG emissions are also due to the changes in equipment (namely, the removal of the proposed turbines and increase in boiler and flaring operations), as well as differing amounts and composition of the gas combusted between the FEIR scenario and the proposed modification. Compared to the Project's full operations as analyzed in the FEIR, biogenic emissions have decreased, non-biogenic emissions have increased, and total project GHG emissions have decreased slightly, without accounting for any GHG reductions from RNG production.[8] RNG produced by the BDFP will be injected into the PG&E's natural gas pipeline. By making this renewable natural gas available to customers, the RNG injection will thus replace and avert potential emissions from burning fossil-fuel-derived natural gas. This calculation assumes only 70% of the digester gas is converted to RNG and exported off site (worst-case); in reality, more RNG is expected to be produced and injected into the pipeline. The modified project's total GHG emissions would be further reduced to 19,805 MT/year when accounting for averted emissions. The total net increase from the baseline 2014 existing conditions in non-biogenic emissions from the modified project, including averted emissions, would be approximately 5,005 MT $CO_2e$ (metric tons of carbon dioxide equivalent)/year.

The differing amounts and composition of the gas combusted would result in different speciation and quantities of TACs between the FEIR scenario and the proposed modification. TAC emissions for the worst-case operating scenario are shown in updated **Table 16b.** Ramboll compared the existing operational TAC emissions to the proposed modification TAC emissions. While the overall TAC emissions would increase post-Project with the proposed modification, the emissions of the highest contributors to cancer risk would remain comparable or decrease compared to the existing operations.

Health Risks

*Modified Project Operational Impacts*

Long-term health impacts (cancer risk, chronic HI, and $PM_{2.5}$ concentrations) are evaluated at sensitive receptors (residences, schools, daycares, etc.), and the maximum impact for each is called the maximally exposed individual sensitive receptor (MEISR). The MEISR can vary for the different health endpoints (e.g., cancer risk, chronic HI). Short-term health impacts (acute HI) are evaluated for all receptors (not just sensitive receptors) since it is based on a one-hour exposure; the location of maximum impact is referred to as the MEI. Ramboll updated the health risk assessment to identify the MEISR and MEI locations for the proposed modification.

The updated Project MEISR due to changes in project operation (i.e., updated AQTR Scenario 2) was identified as the sensitive receptor location of the maximum net risk, which is calculated as the modified Project's cancer risks minus the adjusted existing SEP operational risk of sources planned for

[8] $CO_2$ emissions from biogas combustion in the flares and thermal oxidizer are considered biogenic emissions by the California Air Resources Board; however, the $CH_4$ and $N_2O$ emissions from these sources are considered non-biogenic emissions. Additionally, biomethane (RNG) and biogas emissions from wastewater treatment facilities are exempt from compliance requirements under of the State's Cap-and-Trade Regulation, per Section 95852.2(a)(8)(B).

removal. As shown in updated **Figure 6**, with the proposed modification, this sensitive receptor would be located far from the project boundary, which is emblematic of a net reduction in excess cancer risk (i.e., there is a greater impact from removal of existing SEP operational sources than introduction of new sources as part of the proposed Project). Accounting for the removal of the existing equipment, the sensitive receptors with the largest reductions in net cancer risk would be those located the closest to the project. A breakdown of excess lifetime cancer risk at the updated MEISR from each stationary source for operations at their modified locations is shown in updated **Table 22**. The AQTR net Project cancer risk at the MEISR with the energy recovery system was 0.022 in a million, whereas it would be -0.009 for the modified Project.[9] The proposed modification operations would thus represent a reduction in operational cancer risk.

The AQTR total and net $PM_{2.5}$ concentration at the MEISR with the energy recovery system was 0.39 $\mu g/m^3$ and 0.090 $\mu g/m^3$, respectively. The Project and net total Project $PM_{2.5}$ concentration at the off-site MEISR location for modified Project operations was calculated as 0.37 $\mu g/m^3$ and 0.17 $\mu g/m^3$, respectively, as shown in updated **Table 24**. The net total $PM_{2.5}$ concentration was calculated by subtracting the $PM_{2.5}$ concentration from the Project's stationary sources that would be replaced by the new Project facilities. The net total $PM_{2.5}$ concentration for the proposed modification would thus increase.

The chronic HI at the off-site MEISR associated with modified Project operations would be 0.015, compared to the value of 0.0067 in the AQTR. The acute HI associated with the proposed modification at the MEI would be 0.22, compared to a value of 0.083 presented in the AQTR. The updated information is shown in updated **Table 24**. Overall TAC emissions have increased for the proposed modified operations; however, distances from sources to residences have also increased, leading to only a slight increase in chronic HI. Acute hazards have experienced the largest relative increases, as acute HI accounts for maximum one-hour exposure and is assessed at any receptor location.

*Cumulative Impacts with Modified Project*

The cumulative analysis estimates excess lifetime cancer risks and $PM_{2.5}$ concentrations that are attributable to other mobile and stationary sources within the Project vicinity, in addition to impacts from the Project. The cumulative sources analyzed remained consistent with the AQTR, and consist of additional projects in the surrounding area that will be under construction during the construction and

[9] The MEISR analyzed in the AQTR and the MEISR for the proposed modification analyzed here are not at the same location due to changes in source locations; however, it is conservative to compare maximally exposed individuals.

operation of the BDFP,[10] as well as an update of the background risks from the health risks database from the 2020 San Francisco Citywide HRA.[11,12]

The lifetime excess cancer risk from each cumulative source, as well as from modified Project operations, was summarized and summed together to get cumulative risk in the updated **Table 26**. The estimated excess lifetime cancer risk from operational emissions for a resident at the off-site MEISR location with the proposed modification using the Citywide HRA would be 57 in a million, compared to 10 in a million in the AQTR using the CRRP-HRA. This increase is due to the change in MEISR locations due to the change in the location of emissions sources, as well as the difference in background risk from the Citywide HRA (used for this analysis) and the CRRP-HRA (used in the FEIR and AQTR). For comparison purposes, the background risk at the new MEISR would have been 16 in a million if the CRRP-HRA that was used for the AQTR was used for this analysis, instead of 57 million using the updated Citywide HRA. The background risk at the MEISR for the AQTR would have been 19 in a million using the updated 2020 Citywide HRA instead of 10 in a million using the 2014 CRRP-HRA (and presented in the AQTR). In other words, the increase in cumulative impacts with the proposed modifications is attributable to the increase in background risk in San Francisco since the FEIR and AQTR, not just the project modifications alone.

The cumulative $PM_{2.5}$ concentrations are presented in updated **Table 27**; the $PM_{2.5}$ concentration at the off-site MEISR with the proposed modification with the updated Citywide HRA would be 8.7 $\mu g/m^3$ during the operational period, a slight decrease from 9.0 $\mu g/m^3$ assessed in the AQTR.

The cumulative chronic HI and acute HI are shown in updated **Table 28** and **Table 29**, respectively. The cumulative chronic HI would be 0.019 for the modified Project operations. As shown in updated **Table 29**, there are no acute health impacts included in the CRRP-HRA and the original analysis and this update do not estimate acute health impacts from other on- and off-site cumulative projects. Therefore, the cumulative acute HI is equal to the Project acute HI or 0.22. Both cumulative chronic and acute HI would slightly increase from the 0.0087 chronic HI and 0.083 acute HI in the AQTR.

Locations of all MEISRs and MEIRs discussed above are shown in updated **Figure 6**.[13] The MEISR for excess cancer risk due to the project modification is the sensitive receptor with the highest risk over a 30-year exposure time. The MEISR for Chronic HI and $PM_{2.5}$ concentrations is the sensitive receptor with the maximum annual average hazard index or concentration, respectively. The MEI for acute HI is the location where the maximum one-hour exposure occurs. Because of the different exposure

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[10] As originally proposed in the FEIR, two new buildings (Maintenance Shops 1 and 2) were included to support operations and maintenance. Instead of Maintenance Shops 1 and 2, the SFPUC proposes to modify the approved BDFP to construct the SEP trades and maintenance buildings (designated as "SEP-7"), which would be located southeast of the approved Maintenance Shops 1 and 2 location and adjacent to but outside of the BDFP project site evaluated in the FEIR. SEP-7, separate to the biogas upgrading system addressed in this memo, is currently under development and also subject to review by the SF Planning Department.

[11] The San Francisco Planning Department evaluated citywide the cumulative cancer risks and $PM_{2.5}$ concentrations from existing known sources of air pollution in 2014 as part of the development of a Community Risk Reduction Plan (CRRP) and corresponding HRA database (CRRP-HRA) and this was used in the AQTR. Since the certification of the FEIR with the AQTR in 2018, the cumulative health risks were re-evaluated and the Citywide HRA was updated in 2020, supplanting the former CRRP-HRA. As requested by the SF Planning Department, this analysis uses the updated Citywide HRA for the cumulative risk assessment.

[12] San Francisco Department of Public Health (SFDPH), San Francisco Planning Department, and Ramboll. 2020. San Francisco Citywide Health Risk Assessment: Technical Support Documentation.

[13] The updated Project Cancer Risk MEISR due to operational emissions (AQTR Scenario 2 update) is located further away from the Project than the other identified MEISRs as the Project cancer risk is net negative. As the MEISR is determined based on the maximum net risk (Project minus existing), the sensitive receptors closer to the site have higher relative existing risk and therefore lower net risk. As the Project cancer risk is net negative, it is not shown in Figure 6.

periods and the various locations of different sources of emissions that go into each of these impacts, the location of the MEISR and MEI are not always coincident.

## SUMMARY

**Table 1** below summarizes actual Years 1 through 3 construction CAP emissions. Construction CAP emissions and, in turn construction GHG emissions, have decreased compared to the FEIR. As the proposed modification would require less construction activity because fewer and less substantive structures would be built than for the energy recovery system, it would result in fewer emissions. Construction impacts are directly correlated with ROG that affects Acute Hazard Index, $PM_{10}$ as diesel particulate matter affects Cancer Risk and Chronic Non-Cancer Hazard Index, and $PM_{2.5}$. Since construction emissions would decrease from those studied in the AQTR, the health impacts from construction of the proposed modification would reasonably be expected to decrease.

**Table 1: Actual Construction Criteria Air Pollutant Emissions Years 1 - 3**

| Criteria Air Pollutant Average Daily Emissions (lbs/day) | Year 1 (2020) | | Year 2 (2021) | | Year 3 (2022) | | FEIR CEQA Threshold (lb/day) |
|---|---|---|---|---|---|---|---|
| | AQTR Controlled[1] | Actual Controlled[2] | AQTR Controlled[1] | Actual Controlled[2] | AQTR Controlled[1] | Actual Controlled[2] | |
| **ROG** | 8.7 | 3.5 | 10 | 4.2 | 10 | 3.1 | 54 |
| **NOx** | **72** | **54.2** | 45 | 37 | **55** | 30 | 54 |
| **$PM_{10}$** | 0.7 | 0.3 | 0.7 | 0.3 | 0.63 | 0.14 | 82 |
| **$PM_{2.5}$** | 0.7 | 0.3 | 0.6 | 0.3 | 0.63 | 0.13 | 54 |

[1] Source: AQTR Table 4c.
[2] Source: See tables A1a – A1c of this report.
Bold indicates CEQA threshold exceedance. Emissions rounded to nearest whole number for comparison to FEIR CEQA threshold.

**Table 2a-2b** summarize the worst-case operating scenario of the biogas upgrade facility. Compared to the FEIR, operational CAP emissions of ROG, $PM_{10}$, and $PM_{2.5}$ would increase while NOx emissions would decrease with the proposed modification. However, all net operational CAP emissions would remain below the CEQA thresholds in the FEIR. As the modified project's net operational criteria pollutant emissions would not exceed CEQA thresholds, the modified project also would not result in a cumulatively considerable contribution to regional air quality impact.

**Table 2a: Net Operational Criteria Air Pollutant Emissions with the Proposed Modification**

| Approach | Annual Emissions (Tons/Year) | | | |
|---|---|---|---|---|
| | ROG | $NO_x$ | $PM_{10}$ | $PM_{2.5}$ |
| Existing (2014) Total[1] | 5.0 | 22 | 1.7 | 1.7 |
| FEIR/AQTR Scenario 2 - Full Operation (2045) Impacts (Net Change from Existing)[1] | -4.3 | 2.6 | 2.9 | 2.9 |
| Modified Project Operating Scenario, Full Operation (2045) Impacts (Net Change from Existing)[2] | -2.9 | -3.2 | 3.8 | 3.8 |
| Modified Project Emissions Above Threshold? | No | No | No | No |

[1] Sourced from the FEIR.
[2] Source is Brown and Caldwell. The operating scenario analyzed is 70% of the biogas being converted to RNG with 8.3% methane in the tail gas and 30% of the biogas flared on site (Operations Scenario 3 in the BAAQMD permit application). In reality, the SFPUC expects that 90% or more of the digester gas would be converted to RNG and only 10% would be flared.

Compared to the FEIR, the total net increase from the baseline 2014 existing conditions in non-biogenic emissions from the modified project, including averted emissions, would be approximately 5,005 MT $CO_2e$/year. However, net operational non-biogenic GHG emissions for the modified project would remain below the CEQA thresholds in the FEIR.[14]

**Table 2b: Net Operational Greenhouse Gas Emissions with the Proposed Modification**

| Approach | Annual Non-Biogenic GHG Emissions (MT $CO_2e$/Year) |
|---|---|
| Existing (2014) Total[1] | 234 |
| FEIR/AQTR Scenario 2 - Full Operation (2045) Impacts (Net Change from Existing)[1] | -27 |
| Modified Project Operating Scenario, Full Operation (2045) Impacts (Net Change from Existing)[2] | 5,005 |
| Modified Project Emissions Above Threshold? | No |

[1] Sourced from the FEIR.
[2] Biomethane produced by the BDFP will be injected into the PG&E's natural gas pipeline. By making this renewable natural gas available to customers, the biomethane injection will thus avert potential emissions from burning fossil-fuel-derived natural gas.

[14] The FEIR evaluated the project's net changes in non-biogenic GHG emissions in comparison to the BAAQMD's GHG significance thresholds, which is 10,000 MT$CO_2e$ per year for a stationary source.

**Table 3** summarizes the health risk impacts of the operation of the Modified Project, and **Table 4** summarizes the cumulative health impacts of the proposed modification. Some risks would increase slightly while others would decrease. However, all risks would remain below the FEIR CEQA thresholds.

**Table 3. Operational Health Risk Impacts with the Proposed Modification**

| Source | Excess Cancer Risk (in a million) from Operations | $PM_{2.5}$ Concentration from Operations ($ug/m^3$) | Chronic Non-Cancer Hazard Index from Operations (unitless) | Acute Hazard Index from Operations (unitless) |
|---|---|---|---|---|
| FEIR/AQTR Maximum Impact Value (Scenario 2 – operations only) | 0.022 | 0.09 | 0.0067 | 0.083 |
| Modified Project Operation Maximum Impact | -0.009 | 0.17 | 0.015 | 0.22 |
| CEQA Threshold | 7.0 | 0.2 | 1.0 | 1.0 |
| Modified Project Risks Above Threshold? | N[1] | N | N | N |

[1]In the AQTR, the MEISR worst-case value for excess cancer risk was <0.1 to 1.7 per million, well below the CEQA threshold. The excess cancer risk threshold of 7.0 per million is inclusive of emissions from construction and operation. Given the proposed modification would have decreased construction related and operational cancer risk, it is reasonable to conclude that the Project's combined excess cancer risk would still be below the CEQA thresholds even though construction risk was not re-quantified.

**Table 4. Cumulative Operational Health Risk Impacts with the Proposed Modification, Cumulative Projects and 2020 Updated Citywide Health Risk Assessment[1]**

| Source | Excess Cancer Risk (in a million) from Operations | $PM_{2.5}$ Concentration from Operations ($ug/m^3$) | Chronic Non-Cancer Hazard Index from Operations (unitless) |
|---|---|---|---|
| AQTR Maximum Impact Value with Background using the CRRP-HRA[2] (Scenario 2 – operations only) | 10 | 9.0 | 0.0087 |
| Modified Project Operation Maximum Impact with Background using the updated Citywide HRA | 57 | 8.7 | 0.019 |
| Cumulative CEQA Threshold | 90 | 9.0 | 10.0 |
| Modified Project Risks Above Threshold? | N | N | N |

[1] As discussed in the FEIR and AQTR, Acute Non-Cancer Hazard is not assessed as a cumulative impact. Cumulative impacts include risks from nearby stationary sources, major roadways, and SFPUC-sponsored projects, consistent with the AQTR and FEIR. Since the publication of the FEIR, the Gateway Draft EIR has been published; as discussed with SF Planning, operational chronic HI and $PM_{2.5}$ concentration from the Gateway project were included in the cumulative analysis.[15] Operational cancer risks were not included due to the distance between the Gateway MEIR and the modified project MEIR.

[2] "CRRP-HRA" refers to the Community Risk Reduction Plan (CRRP) and corresponding background HRA database (CRRP-HRA). "Citywide HRA" refers to the background risks updated in 2020. Refer to footnote 11 above regarding these two sources.

**CLOSING**

The analysis presented above provides updated construction CAP emissions analysis, operational CAP emissions, operational GHG emissions, and health risks that would occur from the Project with the proposed modification. The proposed modification would not result in any change in significance determinations of the FEIR. As discussed, this update conservatively analyses the worst-case operating scenario of the proposed biogas upgrade facility, such that in reality, emissions would be expected to be lower. It also includes the use of the Citywide HRA updated in 2020 for the cumulative health risk assessment. Citywide background health risk has increased since the FEIR (and AQTR), contributing to the increase in cumulative effects.

[15] San Francisco Gateway Project - 749 Toland Street and 2000 McKinnon Avenue. 2023. Draft Environmental Impact Report – Appendices. Available at: https://citypln-m-extnl.sfgov.org/SharedLinks.aspx?accesskey=8c6552f4f46e26a95ed91a0ccaa0995ad1bdd5d8d87236347774cfa7f57007c7&VaultGUID=A4A7DACD-B0DC-4322-BD29-F6F07103C6E0

**Tables**


| | |
|---|---|
| Table A1a: | Actual Construction Emissions Summary for Year 1 |
| Table A1b: | Actual Construction Emissions Summary for Year 2 |
| Table A1c: | Actual Construction Emissions Summary for Year 3 |
| Updated Table 12c: | Project Operational CAP Emissions for Worst Case Operational Scenario |
| Updated Table 13c: | Project Operational GHG Emissions |
| Updated Table 14: | Summary of Net Project Operational CAP Emissions |
| Updated Table 15: | Summary of Net Project Operational GHG Emissions |
| Updated Table 16b: | Project Operational TAC Emissions for Worst Case Operational Scenario |
| Updated Table 20c: | Toxicity Values – Project Operational Sources |
| Updated Table 22: | Net Project Cancer Risk at Off-site MEISR |
| Updated Table 24: | Chronic and Acute Health Impacts from Project Operation at Off-site MEISR and Off-site MEI |
| Updated Table 26: | Cumulative Lifetime Excess Cancer Risk at MEISR |
| Updated Table 27: | Cumulative PM2.5 Concentration at MEISR |
| Updated Table 28: | Cumulative Chronic Hazard Index at Off-site MEISR |
| Updated Table 29: | Cumulative Acute Hazard Index at Off-site MEI |
| Updated Table E3: | Modeling Parameters for Project Operational Sources |


**Figures**


| | |
|---|---|
| Updated Figure 3: | Operational Model Sources |
| Updated Figure 6: | Location of Maximally Exposed Individual Sensitive Receptor and Maximally Exposed Individual |


**Attachments:**


Attachment 1: Facility Description

Tables

Figures

# ATTACHMENT 1
# FACILITY DETAILS

## Attachment 1 - Modified Project Revisions to Facilities

| Facility | Location | Approximate Area and Excavation Depth | Height and Diameter | Piles |
|---|---|---|---|---|
| **Remove** | | | | |
| Digester Gas Storage tank | North of Jerrold | 2,827 sq. ft (0.06 acre) by 15 feet deep | 60 foot tall by 60 foot diameter tank | 38 piles: 3 foot diameter by 60 feet deep |
| Energy Recovery Building (turbines, boilers, 1.5MW emergency generator) | South of Jerrold | 21,000 sq. ft. (0.48 acre) by 5 feet deep | 57 foot tall building, 75 foot tall by 4 foot diameter vent stack for turbine | 185 piles: 3 foot diameter by 60 feet deep |
| Digester Treatment Facility | South of Jerrold | 8,568 sq. ft. (0.2 acre) by 5 feet deep | 12’ tall by 10’ dia. outside tanks and vessels (11) | 75 piles: 4 foot diameter by 60 feet deep |
| Digester Gas Line[1] | Under Jerrold, North and South of Jerrold | 1440 sq. ft. (0.03 acre) [96 feet long by 15 inches wide] by 15 feet deep | N/A | 9 piles: 4 foot diameter by 60 feet deep |
| Pipe Chase under Jerrold from Digester Gas Storage Tank to Energy Recovery Building | Under Jerrold | 1440 sq. ft. (0.03 acre) [247 feet long by 18 inches wide by 12 feet deep | N/A | 24 piles: 4 foot diameter by 60 feet deep |

1 The portion of the originally approved digester gas line west of Jerrold would still be built to convey gas from the new digesters to the added biogas upgrade facility.

| Facility | Location | Approximate Area and Excavation Depth | Height and Diameter | Piles |
|---|---|---|---|---|
| **Add**[2] | | | | |
| Biogas Upgrade Facility with thermal oxidizer | North of Jerrold – replaces originally approved Maintenance Shops | 9,984 sq. ft. (0.23 acre) by 2 to 8 feet[3] | 15 feet to 45 feet tall outside piping and tanks, various diameters[4] | To be determined[5]<br>Either none or up to 52 piles, 3 foot diameter by 60 feet deep |
| PG&E Interconnection Station and Deoxygenation System | South of Jerrold - replaces originally approved Digester Treatment Facility | 15,000 sq. ft. (0.34 acre) by 2 feet | 15 feet tall | None |
| Pipes from Biogas Upgrade Facility to PG&E Interconnection Station | Under Jerrold | 940 sq. ft. (0.02 acre) [235 feet long by 4 feet wide] by 6 feet deep | N/A | None |
| Pipe from PG&E Interconnection Station to existing PG&E natural gas pipeline | Under Quint | 35 sq. ft. (0.001 acre) [14' long by 2.5 feet wide] by 6 feet deep | N/A | None |
| **NET** | | **Less 12,326 sq. ft. (0.3 acres)**<br>**Less 5,538 cubic yards excavated** | | **279 to 331 fewer piles** |

[2] The exact dimensions of new facilities are to be determined upon completion of final design; the information in this table represents the range of facility dimensions.

[3] A range in excavation depth is provided because the new tanks and piping could either be on a shallow concrete pad with piles or a deeper concrete pad with no piles.

4 A range in height is provided because the new tanks and piping could either be shorter and more spread out or taller and more confined.

5 Piles may or may not be needed depending on the final design of the concrete pad foundation.

# TABLES

**Table A1a**
**Actual Emissions Summary for Year 1[1]**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, California**

| | EIR Year 1 (Table 4.8-9) | | | | Updated Year 1 | | | | Change (Updated Year 1 - EIR Year 1) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **ROG** | **NOx** | **$PM_{10}$** | **$PM_{2.5}$** | **ROG** | **NOx** | **$PM_{10}$** | **$PM_{2.5}$** | **ROG** | **NOx** | **$PM_{10}$** | **$PM_{2.5}$** |
| Off-Road Equipment Emissions[1] (lbs) | 1,714 | 8,270 | 148 | 148 | 374 | 4,034 | 42 | 42 | -1,339 | -4,237 | -106 | -106 |
| On-Road Vehicle Emissions[2] (lbs) | 551 | 10,355 | 28 | 27 | 536 | 10,066 | 30 | 29 | -15 | -289 | 2 | 2 |
| Paving and Off-Gassing[3] (lbs) | 9.6 | -- | -- | -- | 9.6 | -- | -- | -- | No change from EIR assumptions; therefore, no change in emissions. | | | |
| **Total Emissions (lbs)** | **2,274** | **18,625** | **176** | **174** | **920** | **14,099** | **72** | **71** | **-1,354** | **-4,526** | **-104** | **-104** |
| Average Daily Emissions[4] (lbs/day) | 8.7 | 72 | 0.7 | 0.7 | 3.5 | 54.2 | 0.3 | 0.3 | -5.2 | -17 | -0.4 | -0.4 |
| BAAQMD Significance Threshold (lbs/day) | 54 | 54 | 82 | 54 | 54 | 54 | 82 | 54 | -- | -- | -- | -- |
| Exceeds Threshold (Y/N) | N | Y | N | N | N | Y | N | N | -- | -- | -- | -- |
| Excess Emissions (lbs/day) | -- | 18 | -- | -- | -- | 0.2 | -- | -- | -- | -17 | -- | -- |
| Excess Emissions Requiring Offsets[5] (tons/year) | -- | 2.3 | -- | -- | -- | 0.0 | -- | -- | -- | -2.3 | -- | -- |

**Notes:**

1. Actual Year 1 emissions for off-road based on data provided by the Project's construction contractors for 2020. These emissions reflect the use of renewable diesel in off-road equipment based on the Environmental Impact Report (EIR) assumptions. These emissions were previously provided to San Francisco Envrionmental Planning in MPM-9.

2. Actual Year 1 emissions for on-road reflect the control measure that 80% of haul trucks are engine model year 2012 or newer with no renewable diesel. This varies from the control measure in the EIR that equipment be 2010 or newer with renewable diesel. This alternative control measure was approved by San Francisco Environmental Planning (Johnston, 9-30-20).

3. Paving and off-gassing emissions taken from EIR "Mitigated Scenario" without modification.

4. Average Daily Emissions calculated using the same method as the FEIR as:
([Year 1 Offroad Equipment Emissions] + [EIR Year 1 Onroad Emissions]) / 260 days/year

5. Excess emissions calculated as:
([Average Daily Emissions] - [BAAQMD Significance Threshold]) * 260 days/year * 1 ton/2000 lbs

**Table A1b**
**Actual Emissions Summary for Year 2[1]**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, California**

| | EIR Year 2 (Table 4.8-9) | | | | Actual Year 2 | | | | Change (Updated Year 2 - EIR Year 2) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **ROG** | **NOx** | **$PM_{10}$** | **$PM_{2.5}$** | **ROG** | **NOx** | **$PM_{10}$** | **$PM_{2.5}$** | **ROG** | **NOx** | **$PM_{10}$** | **$PM_{2.5}$** |
| Off-Road Equipment Emissions[1] (lbs) | 1,958 | 8,355 | 154 | 154 | 570 | 6456 | 65 | 65 | -1,388 | -1,899 | -89 | -89 |
| On-Road Vehicle Emissions[2] (lbs) | 529 | 3,377 | 14 | 13 | 526 | 3,134 | 14 | 13 | -3 | -243 | 0 | 0 |
| Paving and Off-Gassing[2] (lbs) | -- | -- | -- | -- | -- | -- | -- | -- | No change from EIR assumptions; therefore, no change in emissions. | | | |
| **Total Emissions (lbs)** | **2,487** | **11,732** | **168** | **167** | **1,096** | **9,590** | **79** | **78** | **-1,391** | **-2,142** | **-89** | **-89** |
| Average Daily Emissions[3] (lbs/day) | 10 | 45 | 0.7 | 0.6 | 4.2 | 37 | 0.3 | 0.3 | -5.3 | -8 | -0.3 | -0.3 |
| BAAQMD Significance Threshold (lbs/day) | 54 | 54 | 82 | 54 | 54 | 54 | 82 | 54 | No Change | | | |
| Exceeds Threshold (Y/N) | N | N | N | N | N | N | N | N | No Change | | | |
| Excess Emissions (lbs/day) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Excess Emissions Requiring Offsets[4] (tons/year) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

**Notes:**

1. Actual Year 2 emissions for off-road based on data provided by the Project's construction contractors for 2021. These emissions reflect the use of renewable diesel in off-road equipment based on the Environmental Impact Report (EIR) assumptions. These emissions were previously provided to San Francisco Envrionmental Planning in MPM-13.

2. Actual Year 2 emissions for on-road reflect the control measure that 80% of haul trucks are engine model year 2012 or newer with no renewable diesel. This varies from the control measure in the EIR that equipment be 2010 or newer with renewable diesel. This alternative control measure was approved by San Francisco Environmental Planning (Johnston, 9-30-20).

3. Paving and off-gassing emissions taken from EIR "Mitigated Scenario" without modification.

4. Average Daily Emissions calculated using the same method as the FEIR as:
([Year 2 Offroad Equipment Emissions] + [EIR Year 2 Onroad Emissions]) / 260 days/year

5. Excess emissions calculated as:
([Average Daily Emissions] - [BAAQMD Significance Threshold]) * 260 days/year * 1 ton/2000 lbs

**Table A1c**
**Actual Emissions Summary for Year 3**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, California**

| | EIR Year 3 (Table 4.8-9) | | | | Updated Year 3 | | | | Year 3 (Difference) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **ROG** | **NOx** | **$PM_{10}$** | **$PM_{2.5}$** | **ROG** | **NOx** | **$PM_{10}$** | **$PM_{2.5}$** | **ROG** | **NOx** | **$PM_{10}$** | **$PM_{2.5}$** |
| Off-Road Equipment Emissions (lbs) | 1,795 | 7,437 | 140 | 140 | 72 | 805 | 10 | 10 | -1723 | -6,632 | -129 | -129 |
| On-Road Vehicle Emissions (lbs) | 729 | 6,986 | 25 | 23 | 729 | 6,986 | 25 | 23 | 0 | 0 | 0 | 0 |
| **Total Emissions (lbs)** | **2,525** | **14,423** | **165** | **163** | **801** | **7,791** | **35** | **34** | **-1,723** | **-6,632** | **-129** | **-129** |
| Average Daily Emissions (lbs/day) | 10 | 55 | 0.63 | 0.63 | 3.1 | 30 | 0.14 | 0.13 | -6.6 | -26 | -0.50 | -0.50 |
| BAAQMD Significance Threshold (lbs/day) | 54 | 54 | 82 | 54 | 54 | 54 | 82 | 54 | -- | -- | -- | -- |
| Exceeds Threshold (Y/N) | N | Y | N | N | N | N | N | N | -- | -- | -- | -- |
| Excess Emissions (lbs/day) | -- | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Excess Emissions Requiring Offsets (tons/year) | -- | 0.2 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

**Notes:**

1. Actual Year 3 emissions for off-road based on data provided by the Project's construction contractors for 2022. These emissions reflect the use of renewable diesel in off-road equipment based on the Environmental Impact Report (EIR) assumptions.

2. Actual Year 3 emissions for on-road reflect the control measure that 80% of haul trucks are engine model year 2012 or newer with no renewable diesel. This varies from the control measure in the EIR that equipment be 2010 or newer with renewable diesel. This alternative control measure was approved by San Francisco Environmental Planning (Johnston, 9-30-20).

3. Paving and off-gassing emissions taken from EIR "Mitigated Scenario" without modification.

4. Average Daily Emissions calculated using the same method as the FEIR as:
([Year 3 Offroad Equipment Emissions] + [EIR Year 3 Onroad Emissions]) / 260 days/year

5. Excess emissions calculated as:
([Average Daily Emissions] - [BAAQMD Significance Threshold]) * 260 days/year * 1 ton/2000 lbs

6. Prepared by Ramboll on January 26, 2024.

**Updated AQTR Table 12c**
**Project Operational CAP Emissions for Worst Case Operational Scenario With the Proposed Modification**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| | Hours of Operation per Piece of Equipment[2] (hrs/yr) | Project Emissions[1,2] | | | |
|---|---|---|---|---|---|
| | | ROG | $NO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| | | (tons/year) | | | |
| Steam Boiler 1 | 8760 | 0.60 | 2.3 | 0.82 | 0.82 |
| Steam Boiler 2 | 8760 | 0.60 | 2.3 | 0.82 | 0.82 |
| Emergency Generator[3] | 100 | 5.5E-04 | 0.016 | 6.6E-04 | 6.6E-04 |
| Standby Enclosed Flare 1 | 2700 | 0.30 | 9.8 | 2.0 | 2.0 |
| Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer | 6060 | 0.59 | 4.4 | 1.8 | 1.8 |
| Sludge Handling/Solids Odor Control | 8760 | 0.054 | -- | -- | -- |
| Utility Provided Electricity[4] | 8760 | -- | 4.9 | -- | -- |
| **Total Emissions (tons/yr)** | - | **2.1** | **24** | **5.5** | **5.5** |
| **Total Emissions (lbs/day)** | **-** | **12** | **130** | **30** | **30** |

**Notes:**

1. Operational emissions for the Project with the proposed modification were calculated by the BDFP Consultant Design Team for the Project, with the exception of electricity usage. Emissions from electricity usage was calculated using California's 2022 State Electricity Profile from the Energy Information Administration (EIA).

2. Operational Scenario 3 represents the worst case operational scenario. The worst-case operating scenario analyzed by the Biosolids Digester Facilities Project Consultant Team is identified as Operating Scenario 3 in the Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application. It assumes 70% of the digester gas is converted to renewable natural gas (RNG) and exported off site, 30% of the digester gas is combusted (flared) on-site, and that there is 8.3% methane in the tail gas.
3. Emergency generator emissions were calculated for a 20kW Tier 4 Interim engine, per information from the Project Sponsor. ROG emissions were calculated using NMHC conversion factors from the USEPA Conversion Factors for Hydrocarbon Emission Components document. ROG and VOC can be used interchangeably for CEQA analysis. As per BAAQMD policy, when NMHC+NOx emissions were reported together for the diesel emergency engine, the emissions were calculated as 5% NMHC and 95% NOx.
4. The BDFP is expected to use up to 1.6 MW of PG&E electricity annually.

**Abbreviations:**

CAP - criteria air pollutants
hrs - hours
lb - pounds
BDFP - Biosolids Digester Facilities Project
EIA - Energy Information Administration
$NO_X$ - nitrogen oxide compounds (NO + $NO_2$)
$PM_{10}$ - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - Reactive Organic Gas
SFPUC - San Francisco Public Utilities Commission

**References:**


Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

EIA. 2023. California 2022 State Electricity Profile. Available at: https://www.eia.gov/electricity/state/california/.

USEPA. 2010. Conversion Factors for Hydrocarbon Emission Components NR-002d. Available online at: https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P10081RP.TXT.

USEPA. 2016. Nonroad Compression-Ignition Engines: Exhaust Emission Standards. Available online at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OA05.pdf

**Updated AQTR Table 13c**
**Project Operational GHG Emissions**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| Source or Abatement Device | Hours of Operation per Piece of Equipment[2] (hrs/yr) | Project GHG Emissions[1,2,3,4] |
|---|---|---|
| | | MT $CO_2e$/yr |
| **Biogenic GHG Emissions** | | |
| Standby Enclosed Flare 1 | 2,700 | 7,804 |
| Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer | 6,060 | 6,762 |
| **Total Biogenic Emissions for Stationary Sources (MT $CO_2e$/yr)** | | **14,566** |
| **Non-Biogenic GHG Emissions** | | |
| Steam Boiler 1 | 8,760 | 7,332 |
| Steam Boiler 2 | 8,760 | 7,332 |
| Standby Enclosed Flare 1 | 2,700 | 39 |
| Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer | 6,060 | 34 |
| One Emergency Diesel Engine | 50 | 1.7 |
| Utility Provided Electricity[5] | - | 1,309 |
| **Total Non-Biogenic Emissions for Stationary Sources (MT $CO_2e$/yr)** | | **16,048** |
| **Averted Emissions from Biomethane Sent to PG&E Pipeline[6]** | **6060** | **-10,809** |

**Notes:**

1. Operational Scenario 3 represents the worst case operational scenario. The worst-case operating scenario analyzed by the Biosolids Digester Facilities Project Consultant Team is identified as Operating Scenario 3 in the Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application. It assumes 70% of the digester gas is converted to renewable natural gas (RNG) and exported off site to the PG&E pipeline, 30% of the digester gas is combusted (flared) on-site, and that there is 8.3% methane in the tail gas.
2. Hours of operation were estimated by the BDFP Consultant Design Team for the Project. Operational emissions were calculated using the same methodology and emission factors as the FEIR, as shown in the FEIR Appendix D.
3. Global warming potential values of 1 for $CO_2$, 21 for $CH_4$, and 310 for $N_2O$ are from 40 CFR Part 98 Table A-1 (2011 version) as referenced in the California Mandatory Reporting Regulation (MRR) were used to convert emissions to metric tones of carbon dioxide equivalents ($CO_2e$) in accordance with 40 CFR Part 98.2.
4. CO2 emissions from biogas combustion in the flares and thermal oxidizer are considered biogenic emissions by the California Air Resources Board (ARB); however, the CH4 and N2O emissions from these sources are considered non-biogenic emissions. Additionally, biomethane and biogas emissions from wastewater treatment facilities are exempt from compliance requirements under of the Cap-and-Trade Regulation, per Section 95852.2(a)(8)(B).
5. The BDFP is expected to use up to 1.6 MW of PG&E electricity annually.
6. Biomethane produced by the BDFP will be injected into the PG&E's natural gas pipeline. By making this renewable natural gas available to customers, the biomethane injection will thus avert potential emissions from burning fossil-fuel-derived natural gas. This calculation assumes only 70% of the digester gas is converted to RNG and exported off site (worst-case); in reality, more biomethane is expected to be produced and injected into the pipeline.

**Updated AQTR Table 13c**
**Project Operational GHG Emissions**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

**Abbreviations:**

ARB - California Air Resources Board
BAAQMD - Bay Area Air Quality Management District
BDFP - Biosolids Digester Facilities Project
CFR - Code of Federal Regulation
$CH_4$ - methane
$CO_2$ - carbon dioxide
$CO_2e$ - carbon dioxide equivalents
GHG - greenhouse gas
kW - kilowatt
MMBTU - one million British thermal unit
MRR - California Mandatory Reporting Regulation
MT - metric ton
MW - molecular weight
$N_2O$ - nitrogen dioxide
RNG - Renewable Natural Gas
PG&E - Pacific Gas & Electric
scf - standard cubic feet
SFPUC - San Francisco Public Utilities Commission
yr - year

**References:**

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

Cal. Code Regs. Tit. 17, § 95852.2. Available at: https://www.law.cornell.edu/regulations/california/17-CCR-95852.2.

Code of Federal Regulations (CFR). 2011. 40 CFR 98. Available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98.

**Updated AQTR Table 14**
**Summary of Net Project Operational CAP Emissions With the Proposed Modification**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| Emissions Scenario | | Project Emissions (lbs/day)[1,2] | | | |
|---|---|---|---|---|---|
| | | ROG | $NO_X$ | $PM_{10}$ | $PM_{2.5}$[3] |
| **Existing - 2014[4]** | **Total** | 28 | 118 | 9.3 | 9.3 |
| **Modified Project Operation - Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer** | **Total** | 12 | 130 | 30 | 30 |
| | **Net[4]** | **-16** | **12** | **21** | **21** |

| Emissions Scenario | | Project Emissions (tons/year)[1,2] | | | |
|---|---|---|---|---|---|
| | | ROG | $NO_X$ | $PM_{10}$ | $PM_{2.5}$[3] |
| **Existing - 2014[4]** | **Total** | 5.0 | 22 | 1.7 | 1.7 |
| **Modified Project Operation - Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer** | **Total** | 2.1 | 24 | 5.5 | 5.5 |
| | **Net[4]** | **-2.9** | **2.1** | **3.8** | **3.8** |

**Notes:**

1. The existing operational scenario is based on the emissions during the 2014 year of operation of the existing facility. The modified Project Operation represents worst case annual emissions, where 70% of the digester gas is upgraded to renewable natural gas (RNG) and 30% goes to a standby enclosed flare.
2. Hours of operation and operational emissions for the proposed modification were estimated by the BDFP Consultant Team for the Project.
3. Existing emissions are from AQTR Table 9.
4. The net operational emissions shown here are the existing 2014 emissions subtracted from the Project Emissions for each annual scenario.
5. Modified Project Operational emissions are from Updated AQTR Table 12c.

**Abbreviations:**

CAP - criteria air pollutants
$PM_{10}$ - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas
SFPUC - San Francisco Public Utilities Commission
USEPA - United States Environmental Protection Agency

**References:**

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

**Updated AQTR Table 15**
**Summary of Net Project Operational GHG Emissions[1]**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| Emissions Type | GHG Emissions ($MT CO_2e/yr$) | | |
|---|---|---|---|
| | **Existing 2014** | **EIR Project Full Operation 2045** | **Modified Project Full Operation** |
| Total Biogenic Emissions | 13,931 | 31,035 | 14,566 |
| Total Non-Biogenic Emissions | 234 | 207 | 16,048 |
| **Total Operational Emissions[2]** | **14,165** | **31,241** | **30,615** |
| Averted Emissions from Biomethane Sent to PG&E Pipeline[3] | -- | -- | -10,809 |
| **Net Operational Non-Biogenic Emissions (including Averted Emissions)[4]** | **--** | **-27** | **5,005** |
| **Total Operational Emissions (including Averted Emissions)** | **14,165** | **31,241** | **19,805** |

**Notes:**

1. The existing operational scenario is based on the emissions during the 2014 year of operation of the existing facility.

2. Hours of operation were estimated by the BDFP Consultant Design Team for the Project. Operational GHG emissions were calculated using the same methodology and emission factors as the FEIR, as shown in the FEIR Appendix D.

3. Global warming potential values of 1 for CO2, 25 for CH4, and 298 for N2O from 40 CFR Part 98 Table A-1 as referenced in the California Mandatory Reporting Regulation (MRR) were used to convert emissions to MT CO2e in accordance with 40 CFR Part 98.2.

2. The total operational emissions are calculated by summing biogenic and non-biogenic emissions.

3. Biomethane produced by the BDFP will be injected into the PG&E's natural gas pipeline. By making this renewable natural gas available to customers, the biomethane injection will thus avert potential emissions from burning fossil-fuel-derived natural gas.

4. The net operational non-biogenic emissions are the existing 2014 non-biogenic emissions subtracted from the Project emissions, and includes averted emissions from biomethane injected into the PG&E pipeline if applicable. For the project evaluated in the EIR, this would be Project emissions minus existing 2014 emissions; for the modified Project, this calculation would be Project emissions minus existing 2014 emissions and accounts for averted emissions.

**Abbreviations:**

BAAQMD - Bay Area Air Quality Management District
BDFP - Biosolids Digester Facilities Project
CAPCOA - California Air Pollution Control Officers Association
CFR - Code of Federal Regulations
$CH_4$ - methane
$CO_2$ - carbon dioxide
$CO_2e$ - carbon dioxide equivalents
GHG - Greenhouse gas
MRR - California Mandatory Reporting Regulation
MT - metric tons (1000 kilograms)
$N_2O$ - nitrogen dioxide
SFPUC - San Francisco Public Utilities Commission
yr - year

**References:**

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

Cal. Code Regs. Tit. 17, § 95852.2. Available at: https://www.law.cornell.edu/regulations/california/17-CCR-95852.2.

Code of Federal Regulations (CFR). 2011. 40 CFR 98. Available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98.

**Updated AQTR Table 16b**
**Project Operational TAC Emissions for Worst Case Operational Scenario With the Proposed Modification**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, California**

| Source | Chemical | Operating Scenario 3[1] | |
|---|---|---|---|
| | | Hours of Operation (hours/year)[2] | Emissions (lbs/year)[2] |
| Solids Odor Control | Chloroform | 8,760 | 33 |
| | Toluene | | 32 |
| | Hydrogen Sulfide | | 1,209 |
| Standby Enclosed Flare 1 | Benzene | 2700 | 37 |
| | Formaldehyde | | 271 |
| | PAHs (excluding Naphthalene) | | 0.70 |
| | Naphthalene | | 2.6 |
| | Acetaldehyde | | 10.0 |
| | Acrolein | | 2.3 |
| | Toluene | | 13 |
| | Xylenes | | 6.7 |
| | Ethylbenzene | | 335 |
| | Hexane | | 6.7 |
| Steam Boiler 1 | 2-Methylnaphthalene | 8760 | 0.0052 |
| | 3-Methylcholanthrene | | 2.0E-04 |
| | Acenaphthene | | 2.0E-04 |
| | Acenaphthylene | | 2.0E-04 |
| | Anthracene | | 2.6E-04 |
| | Benz(a)anthracene | | 2.0E-04 |
| | Benzene | | 0.45 |
| | Benzo(a)pyrene | | 1.3E-04 |
| | Benzo(b)fluoranthene | | 2.0E-04 |
| | Benzo(g,h,i)perylene | | 1.3E-04 |
| | Benzo(k)fluoranthene | | 2.0E-04 |
| | Chrysene | | 2.0E-04 |
| | Dibenzo(a,h)anthracene | | 1.3E-04 |
| | 1,4-Dichlorobenzene | | 0.26 |
| | Fluoranthene | | 6.5E-04 |
| | Fluorene | | 6.1E-04 |
| | Formaldehyde | | 16 |
| | Hexane | | 390 |
| | Indeno(1,2,3-cd)pyrene | | 2.0E-04 |
| | Naphthalene | | 0.13 |
| | Phenanthrene | | 0.0037 |
| | Pyrene | | 0.0011 |
| | Toluene | | 0.74 |
| | Polycyclic Aromatic Hydrocarbons (as B(a)P equivalent) | | 0.11 |

**Updated AQTR Table 16b**
**Project Operational TAC Emissions for Worst Case Operational Scenario With the Proposed Modification**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, California**

| | | | |
|---|---|---|---|
| Steam Boiler 2 | 2-Methylnaphthalene | 8760 | 0.0052 |
| | 3-Methylcholanthrene | | 2.0E-04 |
| | Acenaphthene | | 2.0E-04 |
| | Acenaphthylene | | 2.0E-04 |
| | Anthracene | | 2.6E-04 |
| | Benz(a)anthracene | | 2.0E-04 |
| | Benzene | | 0.45 |
| | Benzo(a)pyrene | | 1.3E-04 |
| | Benzo(b)fluoranthene | | 2.0E-04 |
| | Benzo(g,h,i)perylene | | 1.3E-04 |
| | Benzo(k)fluoranthene | | 2.0E-04 |
| | Chrysene | | 2.0E-04 |
| | Dibenzo(a,h)anthracene | | 1.3E-04 |
| | 1,4-Dichlorobenzene | | 0.26 |
| | Fluoranthene | | 6.5E-04 |
| | Fluorene | | 6.1E-04 |
| | Formaldehyde | | 16 |
| | Hexane | | 390 |
| | Indeno(1,2,3-cd)pyrene | | 2.0E-04 |
| | Naphthalene | | 0.13 |
| | Phenanthrene | | 0.0037 |
| | Pyrene | | 0.0011 |
| | Toluene | | 0.74 |
| | Polycyclic Aromatic Hydrocarbons (as B(a)P equivalent) | | 0.11 |
| Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer | 2-Methylnaphthalene | 8760 | 4.2E-04 |
| | Acenaphthene | | 1.6E-05 |
| | Acenaphthylene | | 1.6E-05 |
| | Acetaldehyde | | 1.3 |
| | Acrolein | | 0.78 |
| | Anthracene | | 2.1E-05 |
| | Benz(a)anthracene | | 1.6E-05 |
| | Benzene | | 2.4 |
| | Benzo(a)pyrene | | 1.0E-05 |
| | Benzo(b)fluoranthene | | 1.6E-05 |
| | Benzo(g,h,i)perylene | | 1.0E-05 |
| | Benzo(k)fluoranthene | | 1.6E-05 |
| | Chrysene | | 1.6E-05 |
| | Dibenzo(a,h)anthracene | | 1.0E-05 |
| | Dichlorobenzene | | 0.021 |
| | Ethylbenzene | | 2.8 |
| | Fluoranthene | | 5.2E-05 |
| | Fluorene | | 4.9E-05 |
| | Formaldehyde | | 6.2 |
| | Hexane | | 33 |
| | Indeno(1,2,3-cd)pyrene | | 1.6E-05 |
| | Naphthalene | | 0.10 |
| | Phenanthrene | | 3.0E-04 |
| | Pyrene | | 8.7E-05 |
| | Toluene | | 11 |
| | Xylenes | | 7.9 |
| | Polycyclic Aromatic Hydrocarbons (as B(a)P equivalent) | | 0.038 |
| Emergency Generator | Diesel PM | 100 | 1.3 |

**Updated AQTR Table 16b**
**Project Operational TAC Emissions for Worst Case Operational Scenario With the Proposed Modification**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, California**

**Notes:**

1. Emissions from the Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer represents the worst case operational scenario.
2. Hours of operation and operational emissions were estimated by the BDFP Consultant Team for the Project.

**Abbreviations:**

BAAQMD: Bay Area Air Quality Management District
BDFP - Biosolids Digester Facilities Project
lbs: pounds
PAHs: polycyclic aromatic hydrocarbons
PM - particulate matter
SFPUC - San Francisco Public Utilities Commission
TOG - total organic gas

**References:**

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

**Updated AQTR Table 20c**

**Toxicity Values[1] - Project Operational Sources With the Proposed Modification**

**SFPUC Biosolids Digester Facilities Project**

**San Francisco, California**

| Source | Chemical | CAS Number | Cancer Potency Factor (CPF)[2] | Chronic Reference Exposure Level (REL)[2] | Acute Reference Exposure Level (REL)[2] |
|---|---|---|---|---|---|
| | | | [mg/kg-day]$^{-1}$ | (µg/m$^3$) | (µg/m$^3$) |
| Solids Odor Control | Chloroethane | -- | -- | -- | -- |
| | Chloroform | 67663 | 1.9E-02 | 300 | 150 |
| | Chloromethane | -- | -- | -- | -- |
| | Methylene chloride | -- | -- | -- | -- |
| | Toluene | 108883 | 0 | 420 | 5,000 |
| | Hydrogen Sulfide | 7783064 | 0 | 10 | 42 |
| Standby Flares | Benzene | 71432 | 0.10 | 3.0 | 27 |
| | Formaldehyde | 50000 | 0.021 | 9.0 | 55 |
| | PAHs (excluding Naphthalene) | 1151 | 3.90 | 0.0 | 0 |
| | Naphthalene | 91203 | 0.12 | 9.0 | 0 |
| | Acetaldehyde | 75070 | 0.010 | 140 | 470 |
| | Acrolein | 107028 | 0 | 0.35 | 2.5 |
| | Toluene | 108883 | 0 | 420 | 5,000 |
| | Xylenes | 1330207 | 0 | 700 | 22,000 |
| | Ethylbenzene | 100414 | 0.0087 | 2,000 | 0 |
| | Hexane | 110543 | 0 | 7,000 | 0 |
| Two Backup Steam Boilers (2 standby) | 2-Methylnaphthalene | 91-57-6 | 0 | 0 | 0 |
| | 3-Methylcholanthrene | 56495 | 22 | 0 | 0 |
| | 7,12-Dimethylbenz(a)anthracene | -- | -- | -- | -- |
| | Acenaphthene | 83-32-9 | 0 | 0 | 0 |
| | Acenaphthylene | 208-96-8 | 0 | 0 | 0 |
| | Anthracene | 120-12-7 | 0 | 0 | 0 |
| | Benz(a)anthracene | 56553 | 0.39 | 0 | 0 |
| | Benzene | 71432 | 0.10 | 3.0 | 27 |
| | Benzo(a)pyrene | 192972 | 0 | 0 | 0 |
| | Benzo(b)fluoranthene | 205992 | 0.39 | 0 | 0 |
| | Benzo(g,h,i)perylene | 191-24-2 | 0 | 0 | 0 |
| | Benzo(k)fluoranthene | 207089 | 0.39 | 0 | 0 |
| | Butane | -- | -- | -- | -- |
| | Chrysene | 218019 | 0.039 | 0 | 0 |
| | Dibenzo(a,h)anthracene | 53703 | 4.1 | 0 | 0 |
| | 1,4-Dichlorobenzene | 106467 | 0.040 | 800 | 0 |
| | Ethane | -- | -- | -- | -- |
| | Fluoranthene | 206-44-0 | 0 | 0 | 0 |
| | Fluorene | 86-73-7 | 0 | 0 | 0 |
| | Formaldehyde | 50000 | 0.021 | 9.0 | 55 |
| | Hexane | 110543 | 0 | 7,000 | 0 |
| | Indeno(1,2,3-cd)pyrene | 193395 | 0.39 | 0 | 0 |
| | Naphthalene | 91203 | 0.12 | 9.0 | 0 |
| | Pentane | -- | -- | -- | -- |
| | Phenanthrene | 85018 | 0 | 0 | 0 |
| | Propane | -- | -- | -- | -- |
| | Pyrene | 129-00-0 | 0 | 0 | 0 |
| | Toluene | 108883 | 0 | 420 | 5,000 |

| | | | | | |
|---|---|---|---|---|---|
| Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer | 2-Methylnaphthalene | 91576 | 0 | 0 | 0 |
| | 3-Methylchloranthrene | -- | -- | -- | -- |
| | 7,12-Dimethylbenz(a)anthracene | -- | -- | -- | -- |
| | Acenaphthene | 83329 | 0 | 0 | 0 |
| | Acenaphthylene | 208968 | 0 | 0 | 0 |
| | Acetaldehyde | 75070 | 0.010 | 140 | 470 |
| | Acrolein | 107028 | 0 | 0.35 | 2.5 |
| | Anthracene | 120127 | 0 | 0 | 0 |
| | Benz(a)anthracene | 56553 | 0.39 | 0 | 0 |
| | Benzene | 71432 | 0.10 | 3.0 | 27 |
| | Benzo(a)pyrene | 192972 | 0 | 0 | 0 |
| | Benzo(b)fluoranthene | 205992 | 0.39 | 0 | 0 |
| | Benzo(g,h,i)perylene | 191242 | 0 | 0 | 0 |
| | Benzo(k)fluoranthene | 207089 | 0.39 | 0 | 0 |
| | Butane | -- | -- | -- | -- |
| | Chrysene | 218019 | 0.039 | 0 | 0 |
| | Dibenzo(a,h)anthracene | 53703 | 4.1 | 0 | 0 |
| | Dichlorobenzene | 106467 | 0.04 | 800 | 0 |
| | Ethane | -- | -- | -- | -- |
| | Ethylbenzene | 100414 | 0.0087 | 2000 | 0 |
| | Fluoranthene | 206440 | 0 | 0 | 0 |
| | Fluorene | 86737 | 0 | 0 | 0 |
| | Formaldehyde | 50000 | 0.021 | 9.0 | 55 |
| | Hexane | 110543 | 0 | 7,000 | 0 |
| | Indeno(1,2,3-cd)pyrene | 193395 | 0.39 | 0 | 0 |
| | Naphthalene | 91203 | 0.12 | 9.0 | 0 |
| | Pentane | -- | -- | -- | -- |
| | Phenanthrene | 85018 | 0 | 0 | 0 |
| | Propane | -- | -- | -- | -- |
| | Pyrene | 129000 | 0 | 0 | 0 |
| | Toluene | 108883 | 0 | 420 | 5,000 |
| | Xylenes | 1330207 | 0 | 700 | 22,000 |
| | Polycyclic Aromatic Hydrocarbons (as B(a)P equivalent) | 1151 | 3.9 | 0 | 0 |
| Emergency Generator | Diesel PM | 9901 | 1.1 | 5 | 0 |

**Notes:**

1. Values presented in this table reflect values used in this analysis for the proposed modification. If a chemical does not have a cancer potency factor, acute reference level, or chronic reference level, it was not included in the analysis.
2. The cancer potency factors, chronic reference levels, and acute reference levels were obtained from Cal/EPA 2023.
3. The acute effect for DPM is evaluated based on individual constitutes included in the speciation profile for diesel TOG, which is shown in Appendix E.
4. The chemical shown has a cancer potency factor and/or chronic reference level; however, it is not shown here because cancer risk and chronic hazard index are calculated using the cancer potency factor and chronic reference level from DPM instead of the individual chemicals in the speciation profile for diesel on-road and off-road TOG.
5. The value for Benzo(a)pyrene was selected to represent PAHs for this analysis as a conservative approach, since it has the highest cancer potency factor.

**Abbreviations:**

BAAQMD - Bay Area Air Quality Management District
Cal/EPA - California Environmental Protection Agency
CAS - chemical abstract services
CPF - cancer potency factor
kg - kilogram
$m^3$ - cubic meter
mg - milligram
PAH - polycyclic aromatic hydrocarbon
PM - particulate matter
REL - reference exposure level
SFPUC - San Francisco Public Utilities Commission
µg - microgram

**Reference:**

BAAQMD. 2021. Regulation 2: Permits, Rule 5: New Source Review of Toxic Air Contaminants, Table 2-5-1: Toxic Air Contaminant Trigger Levels. December 15. Available online at https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20211215_rg0205-pdf.pdf?rev=ddf72e12b699400e953b9b8dc24d2c34

Cal/EPA. 2023. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. October. Available at: https://ww2.arb.ca.gov/sites/default/files/classic/toxics/healthval/contable10062023.pdf

**Updated AQTR Table 22**
**Net Project Cancer Risk at MEISR With the Proposed Modification[1]**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| Phase | Source | Lifetime Excess Cancer Risk[2] |
|---|---|---|
| | | Scenario 2 (Operational Emissions Only) |
| | | in a million |
| **Project Construction** | Off-road Construction Equipment | -- |
| | On-road Construction Vehicles | -- |
| | **Total** | **--** |
| **Modified Project Operation** | Two Boilers (One Standby) | 0.0020 |
| | Emergency Diesel Engine | 0.0051 |
| | Standby Flares | 0.0041 |
| | Worst-case Biogas Upgrading System | 4.2E-04 |
| | Solids Odor Control System | 0.0018 |
| | **Total** | **0.013** |
| **Existing Operation** | Waste Gas Burners (A7003 and A7004)[3] | (0.017) |
| | Cogeneration Engine (S10)[4] | (0.003) |
| | Industrial Boilers (S8201, S8202, and S8203)[5] | (0.001) |
| | **Total** | **(0.022)** |
| **Net Project Lifetime Excess Cancer Risk[6]** | | **(0.009)** |

**Notes:**

1. The proposed modified Project off-site MEISR for lifetime excess cancer risk for Scenario 2 is located at coordinates 553,200m and 4,178,680m.
2. This table presents the lifetime excess cancer risk from Project operation at the off-site MEISR locations. Scenario 2 considered exposure to operational emissions for 30 years.
3. The existing waste gas burners were not modeled for the CRRP-HRA. The toxic air contaminant (TAC) emissions for the existing waste gas burners were calculated using the emission factors used by the BDFP Consultant Team to calculate the TAC emissions for the Project waste gas burners. The $PM_{2.5}$ emissions from the existing flares were calculated using the $PM_{10}$ emission factor from AP-42, Table 2.4-5, and total 2014 digester gas throughput to the flares, as provided by SFPUC. These emissions were used to calculate the cancer risk from the existing waste gas burners.
4. The cogeneration engine was not modeled for the CRRP-HRA. The organics emissions from the cogeneration engine are from the 2015 BAAQMD Source Emissions for the Plant (No. 568). The organics emissions were speciated based on the ARB 2015 organics speciation profile for reciprocating internal combustion engines that run on natural gas (Organic Profile 719). These emissions were used to calculate the cancer risk from the existing cogeneration engine.
5. The industrial boilers (S8201, S8202, and S8203) were modeled for the CRRP-HRA; however, the modeling was refined to account for a more realistic existing emissions baseline. The organics emissions from the boilers are from the 2015 CER, and PAHs were combined using BAAQMD Toxic Air Contaminant Trigger Levels Table 2-5-1. These emissions were used to calculate the adjusted existing cancer risk from the existing boilers. Existing risks differ from the AQTR due to the difference in MEISR location.
6. Net Project operation is the difference between the excess cancer risk from the Project and the excess cancer risk from the existing operation sources that will be replaced with the Project.

**Abbreviations:**

ARB - California Air Resources Board

BAAQMD - Bay Area Air Quality Management District

BDFP - Biosolids Digester Facilities Project

CER - Conceptual Engineering Report

CRRP - Community Risk Reduction Plan

HRA - health risk assessment

**References:**

BAAQMD Source Emissions Plant #568. June 3, 2015.

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

California Air Resources Board (ARB). 2015. Organic Chemical Profiles for Source Categories. February 11. Available at: http://arb.ca.gov/ei/speciate/speciate.htm. Accessed September 2015.

**Updated AQTR Table 24**
**Chronic and Acute Health Impacts from Project Operation at MEISR and MEI With the Proposed Modification[1]**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| Phase | Source | $PM_{2.5}$ Concentration[2] | Chronic HI[3] | Acute HI[4] |
|---|---|---|---|---|
| | | µg/m$^3$ | -- | -- |
| Modified Project Operation | Two Boilers (one standby) | 0.17 | 1.8E-04 | 6.5E-04 |
| | Emergency Diesel Engine | 0.0064 | 1.5E-05 | -- |
| | Standby Flares | 0.012 | 3.5E-05 | 0.0012 |
| | Biomethane Upgrading System | 0.18 | 1.0E-04 | 1.8E-04 |
| | Solids Odor Control System | -- | 0.015 | 0.21 |
| | **Total** | **0.37** | **0.015** | **0.22** |
| Existing Operation | Waste Gas Burners (A7003 and A7004)[5] | (0.12) | NC | NC |
| | Cogeneration Engine (S10)[6] | (0.068) | NC | NC |
| | Industrial Boilers (S8201, S8202, and S8203)[7] | (0.014) | NC | NC |
| | **Total** | **(0.20)** | **NC** | **NC** |
| **Total Health Impacts from Project Operation** | | **0.17** | **0.015** | **0.22** |

**Notes:**

1. This table presents the chronic and acute health impacts from the proposed Project operational sources with the proposed modification at the off-site MEISR and MEI. PM2.5 and chronic HI are for the year with the maximum impact and the acute HI is for the maximum one-hour impact. Therefore, sources of operation only show a contribution to the health impact if they are operating during the maximum year or maximum one-hour impact.
2. The Project off-site MEISR for the Project operational PM2.5 concentration with the proposed modification is located at UTM coordinates 553,880m and 4,177,240m.
3. The Project off-site MEISR for operational chronic HI with the proposed modification is located at coordinates 553,880m and 4,177,240m.
4. The Project off-site MEISR for operational acute HI with the proposed modification is located at coordinates 553,380m and 4,177,440m.
5. The existing waste gas burners were not modeled for the CRRP-HRA. The toxic air contaminant (TAC) emissions for the existing waste gas burners were calculated using the emission factors used by the BDFP Consultant Team to calculate the TAC emissions for the Project waste gas burners. The PM2.5 emissions from the existing waste gas burners were calculated using the PM10 emission factor from AP-42, Table 2.4-5, and total 2014 digester gas throughput to the waste gas burners, as provided by SFPUC.
6. The cogeneration engine was not modeled for the CRRP-HRA. The organics emissions from the cogeneration engine are from the 2015 BAAQMD Source Emissions for the Plant (No. 568). The organics emissions were speciated based on the ARB 2015 organics speciation profile for reciprocating internal combustion engines that run on natural gas (Organic Profile 719). These emissions were used to calculate the cancer risk from the existing cogeneration engine.
7. The industrial boilers (S8201, S8202, and S8203) were modeled for the CRRP-HRA; however, the modeling was refined to account for a more realistic existing emissions baseline. The organics emissions from the boilers are from the 2015 CER, and PAHs were combined using BAAQMD Toxic Air Contaminant Trigger Levels Table 2-5-1. These emissions were used to calculate the adjusted existing cancer risk from the existing boilers.

**Abbreviations:**

ARB - California Air Resources Board
BAAQMD - Bay Area Air Quality Management District
BDFP - Biosolids Digester Facilities Project
CER - Conceptual Engineering Report
CRRP - Community Risk Reduction Program
HI - hazard index
HRA - health risk assessment
m - meter
m$^3$ - cubic meter
MEI - maximally exposed individual
MEISR - maximally exposed individual sensitive receptor
NC - not calculated
PAH - polycyclic aromatic hydrocarbon
PM - particulate matter
SFPUC - San Francisco Public Utilities Commission
UTM - Universal Transverse Mercator
TAC - toxic air contaminant
µg - microgram

**References:**

BAAQMD Source Emissions Plant #568. June 3, 2015.

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

California Air Resources Board (ARB). 2015. Organic Chemical Profiles for Source Categories. February 11. Available at: http://arb.ca.gov/ei/speciate/speciate.htm. Accessed September 2015.

**Updated AQTR Table 26**
**Cumulative Lifetime Excess Cancer Risk at MEISR With the Proposed Modification[1]**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| Source | Lifetime Excess Cancer Risk[2,3] |
|---|---|
| | Scenario 2 (Operational Emissions Only) |
| | in a million |
| Net Project Risk[4] (Operation - Existing) | -0.009 |
| Cumulative Projects[5] | 0.12 |
| Citywide HRA Background[6,7] | 57 |
| **Total** | **57** |

**Notes:**

1. The Project MEISR for Scenario 2 with the proposed modification is located at coordinates 553,200m and 4,178,680m.

2. Excess lifetime cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a unitless probability. The cancer risk attributed to the emissions associated with the Project was calculated based on the modeled annual average pollutant concentrations, the intake factor for resident child, the Cancer Potency Factors (CPF) for all toxic pollutants emitted, and the Age Sensitivity Factors (ASF).

3. This table presents the long-term health impacts from Project operation at the off-site MEISR locations. Scenario 2 considered exposure to operational emissions for 30 years.

   Calculation: $Risk_{inh} = \Sigma Risk_{inh,i} = \Sigma C_i \times CF \times IF_{inh} \times CPF_i \times ASF$

   Where:

   $Risk_{inh}$: Cancer Risk; the incremental probability of an individual developing cancer as a result of inhalation exposure to a potential carcinogen

   $Risk_{inh,i}$: Cancer Risk for Chemical i

   $C_i$: Modeled Annual Average Concentration in air for Chemical i ($\mu g/m^3$)

   CF: Conversion Factor (mg/µg)

   $CPF_i$: Cancer Potency Factor for Chemical i (mg chemical/kg body weight-day)

   ASF: Age Sensitivity Factor

4. The adjusted cancer risk from the existing operational sources that will be replaced with the Project was subtracted from the risk from Scenario 2 to calculate net Project cancer risks for both scenarios.

5. The excess lifetime cancer risk from additional projects at the Southeast Plant (SEP) and in the surrounding area (within 1,000 meters) that will be under construction during the construction and operation of the BDFP were estimated. Since the publication of the FEIR, the Gateway Draft EIR has been published; as discussed with SF Planning, Gateway operational cancer risks were not included due to the distance between the Gateway MEIR and the modified project MEIR.

6. The background cancer risk from existing nearby stationary sources was obtained from the 2020 Citywide HRA.

**Abbreviations:**

ASF - Age Sensitivity Factor
BDFP - Biosolids Digester Facilities Project
CPF - cancer potency factor
CRRP - Community Risk Reduction Plan
DPF - diesel particulate filter
HRA - health risk assessment
MEISR - maximally exposed individual sensitive receptor
OEHHA - Office of Environmental Health Hazard Assessment
SEP - Southeast Plant
SFPUC - San Francisco Public Utilities Commission
m - meter

**References:**

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

**Updated AQTR Table 27**
**Cumulative $PM_{2.5}$ Concentration at MEISR With the Proposed Modification[1]**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| Source | Maximum Annual $PM_{2.5}$ Concentration ($\mu g/m^3$) |
|---|---|
| | Operation |
| Net Project[2] | 0.17 |
| Cumulative Projects[3] | 8.3E-02 |
| Citywide HRA Background[4] | 8.5 |
| **Total** | **8.7** |

**Notes:**

1. The Project off-site MEISR for the Project operational PM2.5 concentration with the proposed modification is located at UTM coordinates 553,880m and 4,177,240m.

2. The PM2.5 concentration from the existing operational sources was adjusted from the value calculated in the San Francisco Community Risk Reduction Plan (Citywide HRA) by modeling the existing operational sources in their actual locations and adding buliding downwash. These sources will be replaced with the Project; therefore, this adjusted value was subtracted from the Project concentration to calculate a net Project concentration.

3. The chronic health impacts of additional projects at the Southeast Plant (SEP) and in the surrounding area that will be under construction during the construction and operation of the BDFP were estimated. The construction of the modeled cumulative projects was assumed to occur during the both construction and operation of the Project, so the health impacts were added to both Project construction and operational impacts. Since the publication of the FEIR, the Gateway Draft EIR has been published; as discussed with SF Planning, the operational PM2.5 concentration from the Gateway project was included in the cumulative analysis.

4. The background PM2.5 concentration from existing nearby stationary sources was obtained from the Citywide HRA.

**Abbreviations:**

BDFP - Biosolids Digester Facilities Project

CRRP - Community Risk Reduction Plan
DPF - diesel particulate filter

HRA - health risk assessment

m - meter

$m^3$ - cubic meter

MEISR - maximally exposed individual sensitive receptor

PM - particulate matter

SEP - Southeast Plant

SFPUC - San Francisco Public Utilities Commission

UTM - Universal Transverse Mercator

µg - microgram

**Updated AQTR Table 28**
**Cumulative Chronic Hazard Index at MEISR With the Proposed Modification[1]**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| Source | Chronic Hazard Index[2] |
|---|---|
| | Operation |
| Project | 0.015 |
| Cumulative Projects[3] | 0.0038 |
| Citywide HRA Background[4] | -- |
| **Total** | **0.019** |

**Notes:**

1. The Project off-site MEISR for operational chronic HI with the proposed modification is located at coordinates 553,880m and 4,177,240m. Sources of operation only show a contribution to the health impact if they are operating during the maximum year of chronic HI impact.

2. The potential for exposure to result in adverse chronic non-cancer effects is evaluated by comparing the estimated annual average air concentration (which is equivalent to the average daily air concentration) to the non-cancer chronic Reference Exposure Level (REL) for each chemical. When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient. To evaluate the potential for adverse chronic non-cancer health effects from simultaneous exposure to multiple chemicals, the hazard quotients for all chemicals are summed, yielding a hazard index (HI).

   Calculation: Chronic HI = $\Sigma$Chronic $HQ_i$ = $\Sigma$ [$C_i$ / $cREL_i$ ]

   Where:

   HI: Hazard Index

   $HQ_i$: Hazard Quotient for Chemical i

   $C_i$: Average Daily Air Concentration for Chemical i ($\mu g/m^3$)

   $cREL_i$: Non-cancer Chronic Reference Exposure Level for Chemical i ($\mu g/m^3$)

3. The chronic health impacts of additional SFPUC projects at the Southeast Plant (SEP) and in the surrounding area that will be under construction during the construction and operation of the BDFP were estimated. The construction of the modeled surrounding projects will occur during the construction and operation of the Project, so the health impacts were added to both Project construction and operational impacts. Since the publication of the FEIR, the Gateway Draft EIR has been published; as discussed with SF Planning, operational chronic HI from the Gateway project was included in the cumulative analysis.

4. The San Francisco Citywide HRA does not estimate cumulative chronic HI; therefore, this was not included in the cumulative chronic HI evaluation.

**Abbreviations:**

BDFP - Biosolids Digester Facilities Project

CRRP - Community Risk Reduction Plan

DPF - diesel particulate filter

HI - hazard index

HRA - health risk assessment

m - meter

MEISR - maximally exposed individual sensitive receptor

REL - reference exposure level

SEP - Southeast Plant

SFPUC - San Francisco Public Utilities Commission

**Updated AQTR Table 29**
**Cumulative Acute Hazard Index at MEI With the Proposed Modification[1]**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| Source | Acute Hazard Index[2] |
|---|---|
| | Operation |
| Project | 0.22 |
| Cumulative Projects[3] | -- |
| Citywide HRA Background[3] | -- |
| **Total** | **0.22** |

**Notes:**

1. The Project off-site MEISR for operational acute HI with the proposed modification is located at coordinates 553,380m and 4,177,440m. The acute HI is based on a one-hour maximum air concentration so it is evaluated for all receptors as opposed to only sensitive receptors.

2. The potential for exposure to result in adverse acute effects is evaluated by comparing the estimated one-hour maximum air concentration of a chemical to the acute REL for each chemical. When calculated for a single chemical, the comparison yields an hazard quotient. To evaluate the potential for adverse acute health effects from simultaneous exposure to multiple chemicals, the hazard quotients for all chemicals are summed, yielding a hazard index.

   Calculation: Acute HI = $\Sigma$Acute $HQ_i$ = $\Sigma$ [$C_i$ / $aREL_i$ ]

   Where:

   HI: Hazard Index

   $HQ_i$: Hazard Quotient for Chemical i

   $C_i$: Estimated One-Hour Maximum Air Concentration for Chemical i ($\mu g/m^3$)

   $aREL_i$: Noncancer Acute Reference Exposure Level for Chemical i ($\mu g/m^3$)

3. Since the acute HI is based on a one-hour maximum air concentration, it is not typically evaluated on a cumulative basis for CEQA analyses. The BAAQMD CEQA Guidelines do not have a cumulative threshold for acute HI; therefore, the acute HI for cumulative projects was not analyzed. Additionally, the San Francisco Community Risk Reduction Plan (Citywide HRA) does not estimate a background acute HI.

**Abbreviations:**

BAAQMD - Bay Area Air Quality Management District
CEQA - California Environmental Quality Act
CRRP - Community Risk Reduction Plan
DPF - diesel particulate filter
HI - hazard index
HRA - health risk assessment
m - meter
MEI - maximally exposed individual
REL - reference exposure level
SFPUC - San Francisco Public Utilities Commission
UTM - Universal Transverse Mercator

**Updated AQTR Table E-3**
**Modeling Parameters for Project Operational Sources**
**SFPUC Biosolids Digester Facilities Project**
**San Francisco, CA**

| Source[1] | Source Type | Number of Sources | Stack Height Above Grade | Stack Temperature | Stack Velocity | Stack Diameter (nominal) |
|---|---|---|---|---|---|---|
| | | | m | K | m/s | m |
| Steam Boiler 1 | Horizontal Point | 1 | 9.91 | 522.0 | 18.33 | 0.61 |
| Steam Boiler 2 | Horizontal Point | 1 | 9.91 | 522.0 | 18.33 | 0.61 |
| Standby Enclosed Flare 1 | Point | 1 | 12.19 | 1,144.3 | 10.50 | 2.74 |
| Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer | Point | 1 | 12.19 | 1,144.3 | 3.77 | 1.52 |
| Sludge Handling/Solids Odor Control | Point | 3 | 12.80 | 283.2 | 15.67 | 0.81 |

**Notes:**

1. The BDFP Consultant Design Team provided the source list, number of sources, source locations, stack height, stack temperature, stack velocity, and stack diameter to be used for air dispersion modeling in AERMOD.

**Abbreviations:**

AERMOD - United States Environmental Protection Agency Regulatory Air dispersion Model

BDFP - Biosolids Digester Facilities Project

K - Kelvin

m - meter

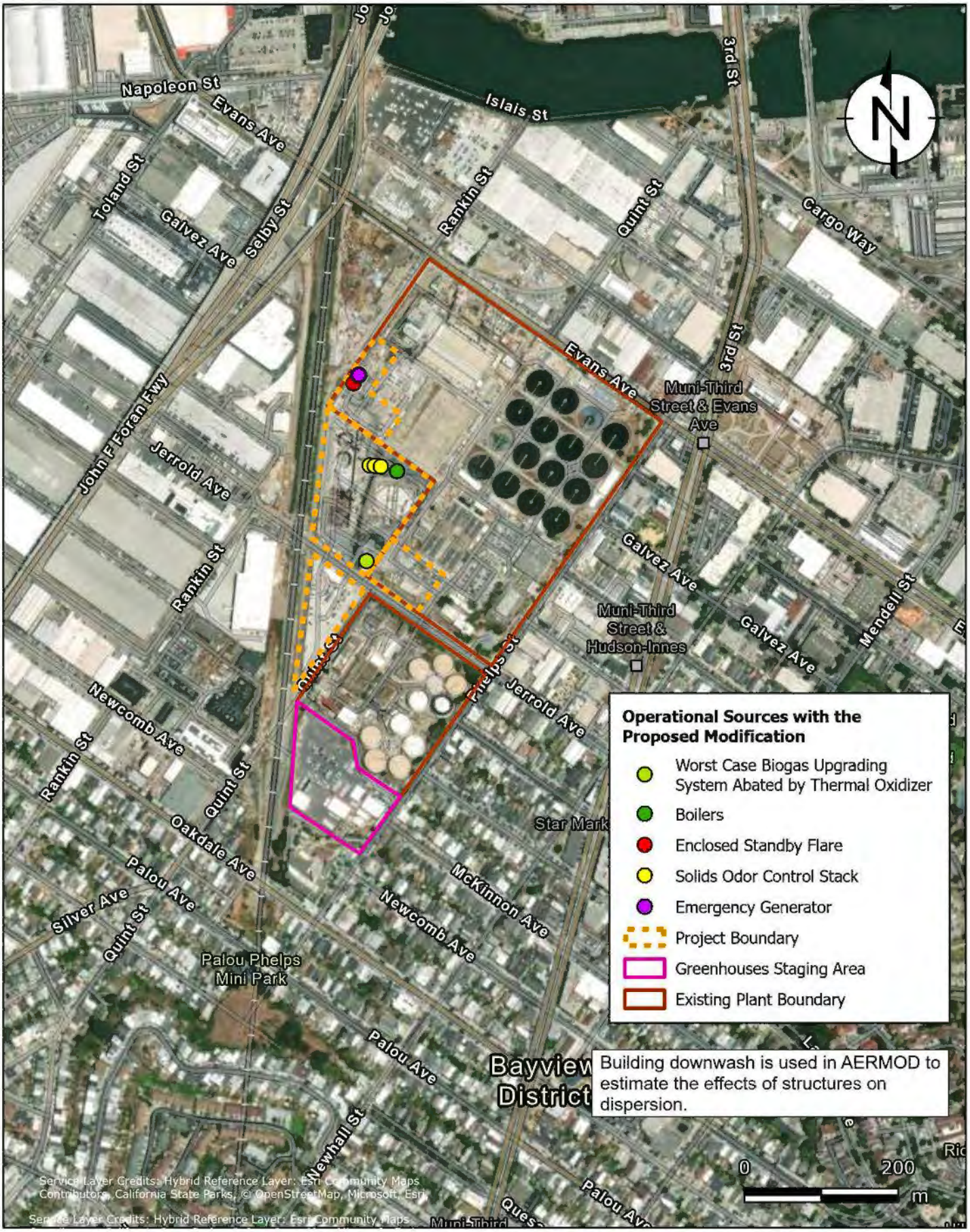
m/s - meters per second

SFPUC - San Francisco Public Utilities Commission

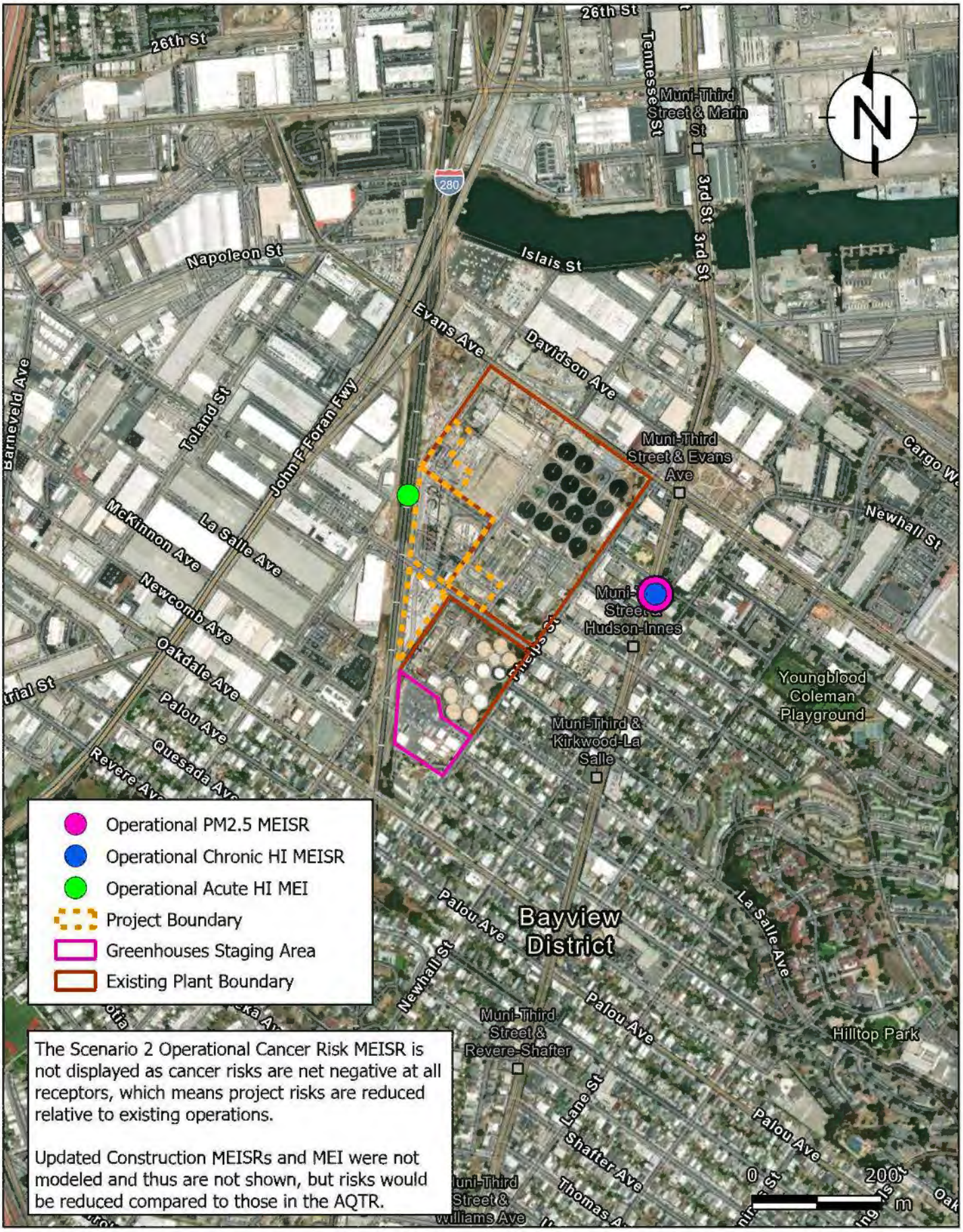
**References:**

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

# FIGURES




| | | |
|---|---|---|
| RAMBOLL<br>Date: 12/6/2023 | **Operational Source Model Setup**<br>SFPUC Biosolids Digester Facilities Project with the Proposed Modification<br>San Francisco, CA | FIGURE<br>**3**<br>03-36893A |




RAMBOLL

Date: 12/6/2023

**Locations of MEIs and MEISRs from Operational Emissions**

SFPUC Biosolids Digester Facilities Project with the Proposed Modification

FIGURE **6**

03-36893A