REVISED DRAFT REMOVAL ACTION WORK PLAN

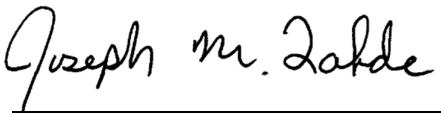
FORMER BERK OIL AND PACIFIC METAL CRAFT SITE
5614, 5622, AND 5636 SHULL STREET
BELL GARDENS, CALIFORNIA

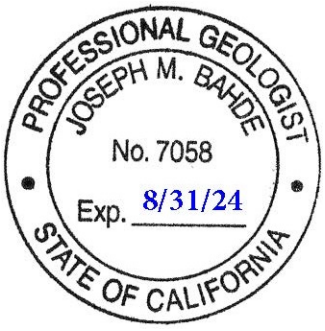
PROJECT NO.: CM20167712
DATE: AUGUST 29, 2023

WSP USA ENVIRONMENT & INFRASTRUCTURE INC.
3560 HYLAND AVENUE, SUITE 100
COSTA MESA, CALIFORNIA 92626-1438

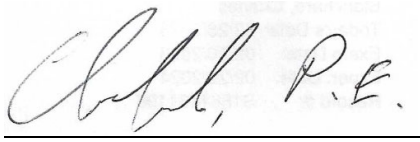
T: +1 949-642-0245
WSP.COM

SIGNATURES





Joseph M. Bahde, PG 7058
Principal Geologist



Charles E. Blanchard, PE C78928
Principal Engineer

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
µg/kg	microgram(s) per kilogram
µg/L	microgram(s) per liter
AHA	activity hazard analysis
AMEC	AMEC Environment & Infrastructure
ASTs	aboveground storage tanks
BaP	benzo(a)pyrene
Berk	former Berk Oil Company
BMPs	Best Management Practices
BTEX	benzene, toluene, ethylbenzene, and xylenes
BTV	background threshold value
Cal-haz	California hazardous (waste)
CCR	California Code of Regulations
CDPH	California Department of Public Health
City	City of Bell Gardens
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cis-1,2-DCE	cis-1,2-dichloroethene
CLS	Certified Lead Supervisor
COPC	chemical of potential concern
CPR	cardiopulmonary resuscitation
CQA	Construction Quality Assurance
CPT	cone penetration test
DCA	dichloroethane
DCE	dichloroethene
DCMP	Dust Control and Monitoring Plan
DGA	Data Gap Assessment
DHZ	deep hydrostratigraphic zone
DOSH	California Department of Occupational Safety and Health (aka Cal/OSHA)
DOT	United States Department of Transportation
DP	Decontamination Plan
DTSC	California Department of Toxic Substances Control
DTSC-SL	Department of Toxic Substances Control Screening Level
DWR	California Department of Water Resources
E&E	Ecology and Environment, Inc.

ECRG	Equitable Community Revitalization Grant
EPA	United States Environmental Protection Agency
ESA	environmental site assessment
ft/ft	feet per foot
GMW	groundwater monitoring well
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	high-efficiency particulate air
HHRA	human health risk assessment
HUD	United States Department of Housing and Urban Development
LAX	Los Angeles International Airport
mg/kg	milligram(s) per kilogram
mg/L	milligram(s) per liter
MHZ	middle hydrostratigraphic zone
MiHPT	membrane interface hydraulic profiling tool
NCP	National Contingency Plan
NEA	negative exposure assessment
NIOSH	National Institute for Occupational Safety and Health
non-haz	non-hazardous (waste)
non-RCRA	California hazardous (waste)
Odic	Odic Environmental
OSHA	United States Occupational Safety and Health Administration
PAHs	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PCE	tetrachloroethene
PEL	permissible exposure limit
PMC	former Pacific Metal Craft
PPE	personal protective equipment
PSG	passive soil gas
PT&R	Proven Technologies and Remedies
QA	quality assurance
QC	quality control
QSD	Qualified SWPPP Developer
RAO	removal action objective
RAW	Removal Action Work Plan
RCRA	Resource Conservation and Recovery Act

RCRA-haz	RCRA hazardous (waste)
RWQCB	California Regional Water Quality Control Board, Los Angeles Region
SAP	Sampling and Analysis Plan
SCAQMD	South Coast Air Quality Management District
SGA	Supplemental Groundwater Assessment
SHZ	shallow hydrostratigraphic zone
SIM	selective ion monitoring
site	former Berk Oil Company and PMC properties
SL	screening level
SMP	Soil Management Plan
SSA	Supplementary Site Assessment
STLC	Soluble Threshold Limit Concentration
SUZ	shallow unsaturated zone
SVE	soil vapor extraction
SWPPP	Stormwater Pollution Prevention Plan
TCA	trichloroethane
TCE	trichloroethene
TCLP	Toxic Characteristic Leaching Procedure
TEQ	Toxicity Equivalent Quotient
TP	Transportation Plan
TPH	total petroleum hydrocarbons
TPH-cc	total petroleum hydrocarbons as carbon chain
TSI	Targeted Site Investigation
USTs	underground storage tanks
VC	vinyl chloride
VOC	volatile organic compound
Wood	Wood Environment & Infrastructure Solutions, Inc.
WSP	WSP USA Environment & Infrastructure Inc.
yd^3	cubic yard

1 INTRODUCTION

The City of Bell Gardens (City) retained WSP USA Environment & Infrastructure Inc. (WSP; formerly Wood Environment & Infrastructure Solutions, Inc. [Wood]) to support investigation, remedial planning, and site cleanup for redevelopment of the former Berk Oil Company (Berk Oil) and Pacific Metal Craft (PMC) properties located in Bell Gardens, California (collectively the site; see Figures 1 and 2). This project is funded through an Equitable Community Revitalization Grant (ECRG) that the City received from the California Department of Toxic Substances Control (DTSC). Part of this effort includes preparing this draft Removal Action Work Plan (RAW) for removal of impacted soil at the site. The DTSC partnered with the California Regional Water Quality Control Board, Los Angeles Region (RWQCB) and designated the RWQCB as the Lead Agency overseeing the implementation of the ECRG, including the RAW. This RAW is considered a "draft" while the public participation activities described in Section 10 are being implemented, after which it will be finalized.

The former Bell Gardens Redevelopment Agency purchased the Berk Oil property in 1985 and the PMC property in 1992. The City's Successor Agency took ownership of the site in 2012. (These agencies are collectively referred to as the City). The undeveloped site has been vacant for approximately 30 years and is currently for sale. The City prefers that future site use consist of higher density, mixed-use development with affordable housing. According to the City of Bell Gardens *2021–2029 Housing Element Update* the planned redevelopment of the project site (the Shull Street Project) includes 100 affordable housing units; 82 for rent and 18 for sale (subject to land use entitlement considerations).

In 2021, a Supplemental Site Assessment (SSA) and a Human Health Risk Assessment (HHRA) were conducted to provide additional information to support mixed reuse planning for the site, including commercial and residential development. Prior site assessment activities were focused on commercial/industrial reuse of the site. Therefore, additional soil and soil vapor data were collected during the SSA to evaluate potential mixed use or residential development (unrestricted use) at the site. The results of the SSA and HHRA were summarized in the *Supplemental Site Assessment and Human Health Risk Assessment Report* dated January 28, 2022 (Wood, 2022a). The findings of the SSA and HHRA report indicated that soil removal was necessary to allow for unrestricted reuse of the site property. Subsequently, DTSC and RWQCB approved preparation of this RAW to evaluate removal action alternatives through the ECRG. The RAW content and methodologies follow DTSC guidance in Appendix C3 of *Proven Technologies and Remedies Guidance of Metals in Soil* (DTSC, 2008), hereafter collectively referred to as Proven Technologies and Remedies (PT&R).

This RAW was revised to incorporate comments provided by email, dated July 21, 2023, from RWQCB staff on the original draft RAW. It also provides updated information on soil, soil vapor, and groundwater conditions based on completion of the Data Gap Assessment (DGA) described in Section 2.5.3.

1.1 PURPOSE AND OBJECTIVES

The SSA and HHRA report (Wood, 2022a) concluded that soil impacted by polycyclic aromatic hydrocarbons (PAH), including benzo(a)pyrene (BaP) and lead should be removed from the site to allow for site redevelopment with unrestricted use. This RAW evaluates removal action alternatives, identifies the preferred and recommended removal action, describes proposed soil removal activities in detail, and provides necessary guidance and supplemental plans required for safe and successful field implementation of the proposed removal action.

1.2 SCOPE OF WORK

To meet project objectives, the following elements are to be included as part of this RAW:

- Description of the onsite contamination.
- Goals to be achieved by the removal action.
- Analysis of the alternative options considered for the proposed removal action.
- Administrative Record list.
- Statement that the RAW serves as an equivalent document to the Engineering Evaluation/Cost Analysis document required by the United States Environmental Protection Agency (EPA) National Contingency Plan (NCP) (EPA, 1990).
- Details of the preferred and recommended removal action and necessary guidance and supplemental plans for the safe and successful implementation of the proposed removal action:
  - Health and Safety Plan (HASP)
  - Quality Assurance (QA)/Quality Control (QC) Plan
  - Decontamination Plan (DP)
  - Dust Control and Monitoring Plan (DCMP)
  - Soil Management Plan (SMP)
  - Transportation Plan (TP)

While each of these elements is generally provided in this RAW, the selected excavation contractor will be responsible for developing the implementation schedule, preparing a site-specific HASP, SMP, and TP, and amending the QA/QC plan, DP, and DCMP (see Section 6.4, 6.5, and 6.6), and any other required supporting document(s), with site-specific details to support safe and effective removal of impacted soil from the site.

Upon the Lead Agency's approval of the draft RAW (the RWQCB-approved document subject to public review [see Section 10]), WSP will provide a bid and specification package for selection of a qualified excavation contractor through a competitive bidding process. Project implementation planning, including preparation the above-listed plan, would begin following the RWQCB's approval of the final version of the approved RAW (See Section 10).

1.3 SUMMARY DOCUMENTS

Project work scopes and site investigation results were summarized in several reports prepared by WSP or other consultants, including:

- Phase I Environmental Site Assessment (ESA) dated October 2008 (Odic Environmental [Odic], 2008).
- Targeted Site Investigation (TSI) Work Plan dated April 13, 2012 (AMEC Environment & Infrastructure [AMEC], 2012a)
- Phase I ESA dated April 30, 2012 (AMEC, 2012b).
- TSI Report dated April 30, 2012 (AMEC, 2012c.).
- Revised Sampling and Analysis Plan (SAP) dated December 30, 2020 (Wood, 2020).
- SSA and HHRA Report dated January 28, 2022 (Wood, 2022a).

- Supplemental Groundwater Assessment (SGA) Report dated May 13, 2022 (Wood, 2022b).
- Data Gap Assessment Work Plan for Soil, Soil Vapor and Groundwater (DGA Work Plan) (WSP, 2023a).
- Data Gap Assessment Report dated August 29, 2023 (DGA Report) (WSP, 2023b).

Key findings of these investigations are summarized in this draft RAW. Several of these documents may be included in the project-designated Administrative Record list.

2 SITE DESCRIPTION AND BACKGROUND

The site background was described in the SSA and HHRA Report (Wood, 2022a) and SGA Report (Wood 2022b) and is summarized below.

2.1 SITE HISTORY

The site occupies approximately 4.3 acres in a mixed commercial/industrial and residential area of the City (see Figures 1 and 2). The site is bordered on the north by Shull Street, on the west by an undeveloped area and the 710 Freeway, on the south by a Union Pacific Railroad right-of-way, and on the east by a mixed commercial/residential area. The Andeavor (formerly Tesoro) Vinvale Terminal is located south of the railroad right-of-way. Additionally, the Julia Russ Asmus Park, Bell Gardens Elementary School, and adjoining residential areas north of Shull Street are shown on Figure 2.

The Los Angeles County Assessor's Parcel Numbers for the site are 6227-034-900 through 6227-034-906 (also referenced herein as Parcels 900 through 906, respectively). The site parcel locations and numbers are shown on Figure 3. The site is currently vacant and is bordered by a combination of chain-link fence and cinder block walls. Buildings used during previous site operations have been demolished. Most portions of the site are either unpaved or covered with asphaltic concrete pavement approximately three to five inches thick. A concrete pad from the former PMC building is present in the southeastern portion of the site and several smaller concrete pads are present in other portions of the site. Surficial debris (e.g., rubbish/trash, asphalt, scrap metal, glass, wood, etc.), pieces of concrete, and loose soil from the demolition of former buildings/structures/foundations, and inactive subsurface utility lines remain at the site.

2.2 OPERATIONAL HISTORY

Berk Oil conducted asphalt mixing and oil distribution operations in the western portion of the site (at 5614 and 5622 Shull Street) from approximately 1965 through 1989. PMC occupied the eastern portion of the site (at 5636 Shull Street) from 1984 through the early 1990s and conducted metal and plastic parts fabrication. The street addresses and historical site operation areas are shown on Figure 3.

Previous site activities included the use of underground storage tanks (USTs) and aboveground storage tanks (ASTs) on the Berk Oil property and metal furnaces and degreasers on the PMC property. ASTs also may have been located on the PMC property (previous information is unclear). The USTs were used to store diesel fuel, waste oil, and asphalt. No information was available to AMEC (2012a, b) regarding historical use or products stored in ASTs. According to South Coast Air Quality Management District (SCAQMD) permit to operate records dated 1977 and 1982, equipment at the PMC property was described as "furnace crucible lead and type metal." SCAQMD records dated 1978 and 1985 also list the degreasers on the PMC property as using "other solvents" or tetrachloroethene (PCE). The 1977, 1978, and 1982 SCAQMD permits were issued to Precision Stainless Products, while the 1985 permit was issued to PMC.

PMC was cited for excessive discharge of oil to the ground from its treading machine and in an area surrounding an air pump (AMEC, 2012a, b). In addition, battery recycling may have occurred at the PMC property. Previous locations of the furnaces, degreasers, treading machine, and air pump at 5636 Shull Street are unknown, but are assumed to have been within the former PMC manufacturing building.

The site status and history presented in the TSI and ESA Reports (AMEC, 2012a, b) are summarized below, and the known locations of former site operation areas are shown on Figure 3.

Berk Oil Site – 5614 Shull Street (Parcels 900, 903, and 904)

- This portion of site is estimated to have remained undeveloped until 1938. By 1947, small structures in the west-central portion of Parcel 903 and an off-site structure just beyond the southwestern corner of the site were visible in aerial photographs. AMEC was unable to obtain information on historical operations conducted at the site prior to Berk Oil operations (AMEC, 2012a, b).
- Berk Oil conducted asphalt mixing and oil distribution operations at the site from approximately 1965 through 1989. Several structures described in previous site assessment reports are shown in a 1968 aerial photograph, including a maintenance shop along the southern boundary, the steam cleaning sump, the AST area, and two office buildings along the western boundary.
- Berk Oil also operated several USTs, including:
  - Two 10,000-gallon steel USTs for asphalt;
  - Two 7,000-gallon steel USTs for diesel fuel; and
  - One 700-gallon steel UST for waste oil.
- In 1985, this portion of the site was sold to the City, and by 1989, the facility was decommissioned and demolished.

Berk Oil Site – 5622 Shull Street (Parcels 901 and 902)

- This portion of the site remained undeveloped through at least 1938. House-sized features were visible in the middle of Parcels 901 and 902, and garage-sized, rectangular features were visible in the southeast corner of each parcel in a 1947 aerial photograph. AMEC was unable to obtain information on historical operations conducted on these parcels; however, previous site assessment reports suggest the house-sized features may have been ASTs (AMEC, 2012a, b).
- An aerial photograph from 1968 shows this portion of the site as vacant.
- Parcels 901 and 902 were reportedly owned by Berk Oil; however, the historical features noted above pre-date Berk Oil Company operations.
- The Odic phase I ESA (Odic, 2008) noted a building in the northern portion of Parcel 901. Although a foundation is still present on this part the site, AMEC was unable to obtain information identifying the historical use of this building (AMEC, 2012a, b).
- This portion of the site was occupied by Totem Trucking approximately from 1986 to 2007. Aerial photographs from 1989 and 2005 indicate the site was being used for storage of some type of product or container; the specific type(s) of items being stored was not discernable.

Pacific Metal Crafts site – 5636 Shull Street (Parcels 905 and 906)

- This portion of the site remained undeveloped until 1952, when Cell Form, Inc., constructed a building for manufacturing cardboard/plastic moldings for gasoline tanks.
- The Douglas Muffler Company purchased this portion of the site in 1955 and occupied the site through 1966 and conducted manufacturing and welding. Odic noted a row of possible pumps or storage containers east of the steam cleaning sump on Parcel 906 (Odic, 2008).
- Metal Surfaces and Precision Stainless Products are listed in the City's building records dated 1976 and 1978 (AMEC, 2012b). This portion of the site was used to manufacture

stainless steel tubing; two furnaces and a degreaser were reportedly operated at that time.

- PMC occupied this portion of the site in 1984 for metal and plastic parts fabrication. Historical records indicate that PMC operated a degreaser containing PCE.
- Fire damaged one structure in February 1990. PMC reportedly was unable to obtain funding to remediate or rebuild after the fire. This portion of the site was purchased by the City in 1992. Historical documents suggest that PMC continued operating at the site until 1996/1997 and the remaining structures were demolished in 1998.

2.3 PREVIOUS SOIL REMOVALS AND INVESTIGATIONS

Several assessments were conducted at the site between 1985 and 2001. These previous assessments identified an area of petroleum hydrocarbon- and chlorinated volatile organic compound (VOC)-impacted soil and groundwater in the southwestern portion of the site, which was attributed to the operation of the former Berk Oil steam cleaning sump. Smaller areas of impacted soil were also identified (e.g., former Berk Oil USTs and slurry excavation areas). Beginning in 1989, site structures were demolished and impacted soil excavated and removed from the site. Previous soil removals included:

- A total of 1,423 tons of impacted soil were excavated from the former steam cleaning sump and transported offsite.
  - Some impacted soil was left in place.
  - The excavation was partially backfilled to a depth of 15 feet. The remaining portion of the excavation was backfilled to current grade sometime between 2000 and 2007 (the source of backfill is unknown).
- Approximately 137 cubic yards of impacted soil were excavated from the former waste oil UST and transported offsite.
- The area beneath of the former asphalt and diesel tanks were excavated to depths of approximately 11 and 12 feet, respectively.
- The former slurry area was excavated to depths between 3 and 5 feet.

The former steam cleaning sump and other areas of impacted soil removal listed above, as interpreted by The Source Group, Inc. (2010), are shown on Figure 3.

In 2001, Ecology and Environment, Inc. (E&E) collected surface and shallow subsurface soil samples throughout the site. The results of site-wide sampling (E&E, 2001) also indicated areas of impacted soil on the former PMC portion of the site. The previous site assessment results, where available, were described in the Phase I ESA (AMEC, 2012b), SSA and HHRA Report (Wood, 2022a), and SGA Report (Wood, 2022b). Previous sampling locations are shown on Figure 4.

In 2012, AMEC implemented a soil and soil vapor investigation as part of the TSI conducted on behalf of DTSC (AMEC, 2012c). In 2019, Wood conducted supplemental characterization at the site in support of DTSC's Interstate I-710 Corridor Community-wide Brownfields Assessment Grant (DTSC, 2017). These investigations were conducted to evaluate the suitability of the site for industrial use. Based on the cumulative results of these site assessments, the status of each parcel comprising the site was as follows (Wood, 2019):

- Parcel 900 (Berk Oil – 5614 Shull Street): suitable for industrial use.
- Parcel 901 (Berk Oil – 5622 Shull Street): suitable for industrial use.
- Parcel 902 (Berk Oil – 5622 Shull Street): suitable for industrial use.
- Parcel 903 (Berk Oil – 5614 Shull Street): risk management needed in the area around the former steam-cleaning sump.

- Parcel 904 (Berk Oil – 5614 Shull Street): risk management needed in the area around the former steam-cleaning sump.
- Parcel 905 (PMC – 5636 Shull Street): suitable for industrial use.
- Parcel 906 (PMC – 5636 Shull Street): soil removal recommended in the southeastern corner of the parcel.

As described above, conditions across most of the site (Parcels 900, 901, 902, and 905) were suitable for future industrial land reuse accompanied with a land use covenant and deed restriction. Additionally, a vapor barrier and monitoring system beneath future slab-on-grade structures were identified as potentially necessary to impede potential movement of VOCs from the subsurface to indoor air.

2.4 SUPPLEMENTAL SITE ASSESSMENT AND HUMAN HEALTH RISK ASSESSMENT

In 2021, a SSA was conducted to provide additional data to support mixed reuse planning for the site, including commercial and residential development. As previously described, prior site assessment activities were focused on commercial/industrial reuse of the site. Therefore, additional soil and soil vapor data were collected during the SSA to evaluate potential mixed use or residential development (unrestricted use) at the site. SSA sampling locations are shown on Figure 5.

As described in the SSA and HHRA Report (Wood, 2022a) a passive soil gas (PSG) survey was initially completed to provide additional information on overall site conditions. The PSG survey data were also used to identify other areas where historical releases may have occurred and to guide the selection of locations for additional subsurface sampling activities. A total of 63 PSG samplers (PSG1 through PSG63) were placed in a site-wide, two-dimensional spatial grid in the upper 3 feet of soil to evaluate concentrations of total petroleum hydrocarbons (TPH) between C9-C15, VOCs, and selected PAHs in shallow soil. Subsequently, an active soil gas survey was conducted to confirm VOC concentrations reported by the PSG survey. Soil vapor probes were installed at 14 locations (borings ASG-1 through ASG-11 and ASG-3A/B/C) with intakes at approximately 5- and 15-foot depths. The soil vapor probes were co-located near PSG locations where elevated concentrations of VOCs, TPH (C9-C15), and/or PAHs were reported. A total of 28 primary soil vapor samples and three duplicate samples were collected and analyzed for TPH (C9-C15) and VOCs using EPA Method 8260B.

SSA soil sampling activities were conducted to evaluate site-wide concentrations of chemicals of potential concern (COPCs) and to further delineate areas of known chemical impacts. In addition, background soil samples were collected from offsite locations to evaluate background (naturally occurring) levels of PAHs. The SSA included:

- A total of 66 soil samples and seven duplicate samples were collected and analyzed for PAHs using EPA Method 8270 Selective Ion Monitoring (SIM); the soil samples were collected from depths ranging between 0.5 and 8 feet.
- A total of 71 soil samples and nine duplicate samples were collected and analyzed for lead using EPA Method 6010B; the soil samples were collected from depths ranging between 0.5 and 5 feet.
- A total of 15 soil samples and two duplicate samples were collected and analyzed for TPH carbon chain (TPH-cc; C8 to C44) using EPA Method 8015M; the soil samples were collected from depths ranging between 0.5 and 10 feet.

Summary tables for previous sampling results are included in Appendix A.

In addition, a total of 15 background soil samples and one duplicate sample were collected from the Julia Russ Asmus Park and Bell Gardens Elementary School located north of the

site (see Figure 6). The soil samples were collected from depths of either 3 or 5 feet and were analyzed for PAHs using EPA Method 8270 SIM (Appendix A).

A HHRA was performed pursuant to the SAP (Wood, 2020) to evaluate both commercial/industrial and residential (mixed) land reuse scenarios to support site redevelopment decisions and remedial designs. Data from the SSA along with the results from the 2001, 2012, and 2019 site assessments were evaluated for use in the HHRA, as appropriate. To assess the remedial option of excavation of contaminated soil, both current and post-excavation scenarios were evaluated for risk (Wood, 2022a).

Lead was the only metal detected at concentrations exceeding the DTSC's residential screening level (DTSC-SL) of 80 mg/kg. Several PAHs (including BaP) were also detected at concentrations exceeding screening levels (SLs), which include EPA regional screening levels (RSLs). However, since PAHs from natural and anthropogenic sources are common contaminants at sites throughout California, PAH results for each soil sample were converted to a BaP toxicity equivalent quotient (TEQ), which accounts for all the carcinogenic PAHs together as one value, to assess potential risk from carcinogenic PAHs. The BaP TEQ results were compared to the DTSC calculated background threshold value (BTV) for soil in southern California of 0.90 mg/kg (DTSC, 2020). Based on the results of the SSA activities and the HHRA evaluation (Wood, 2022a), concentrations of BaP TEQ exceeding the BTV of 0.90 mg/kg and lead exceeding 80 mg/kg in the soil beneath the site require Response Action. BaP TEQ and lead concentrations are shown on Figures 7 and 8, respectively. Since BaP- and lead-impacted soils were comingled in several areas of the site, the recommended Response Action to achieve post-excavation residential or unrestricted use of soil (clean closure) at the site is excavation and offsite disposal (see Figure 9).

In addition, there is a potential for vapor intrusion (PCE and trichloroethylene [TCE] in soil vapor) into future buildings at the site. Based on the soil vapor concentrations observed and the dispersed locations throughout the site, the recommended Response Action to prevent vapor intrusion into future buildings at the site was a physical barrier (Wood, 2022a). However, the RWQCB requested additional site studies to evaluate potential vapor intrusion issues and mitigation measures, including soil vapor extraction (SVE). Likewise, the RWQCB requested additional groundwater studies. Collectively, these studies are referred to as the Data Gap Assessment (DGA). Soil, soil vapor and groundwater data obtained during the DGA are summarized in Section 2.5.3.

Based on the results of SSA activities and the HHRA evaluation (Wood, 2022a), the status of each parcel comprising the site for BaP- and/or lead-impacted soil area under residential site use scenario is:

- Parcel 900 (Berk Oil site – 5614 Shull Street): suitable for unrestricted use
- Parcel 901 (Berk Oil site – 5622 Shull Street): soil removal
- Parcel 902 (Berk Oil site – 5622 Shull Street): suitable for unrestricted use
- Parcel 903 (Berk Oil site – 5614 Shull Street): soil removal
- Parcel 904 (Berk Oil site – 5614 Shull Street): soil removal
- Parcel 905 (PMC site – 5636 Shull Street): suitable for unrestricted use
- Parcel 906 (PMC site – 5636 Shull Street): soil removal

Based on the data collected and evaluated to date, and as detailed in the SSA and HHRA report (Wood, 2022a), post excavation soil conditions across the site would be suitable for residential (unrestricted) development. This proposed soil excavation Response Action does not include potentially impacted soil vapor and/or groundwater present beneath the site. Site groundwater and soil vapor conditions, along with other supplemental studies, are described below in Section 2.5.

2.5 GROUNDWATER INVESTIGATIONS

2.5.1 PREVIOUS ASSESSMENTS

During previous site assessments, groundwater was encountered beneath the site at depths of 20 to 25 feet (shallow water-bearing zone) and 50 to 60 feet (deeper water-bearing zone). A summary of groundwater investigations conducted from 1994 to 2019 is presented below:

- In 1994, a total of eight groundwater monitoring wells (GMWs) were installed at the site; five GMWs (MW01, MW02, MW03, MW07, and MW08) were installed in the shallow water-bearing zone and three GMWs (MW04, MW05, and MW06) were installed in the deeper water-bearing zone (see Figure 4). The groundwater gradient in the shallow zone was approximately 0.005 to 0.022 feet per foot (ft/ft) directed toward the south-southwest and the groundwater gradient in the deeper zone was approximately 0.005 ft/ft directed toward the south.
- In 2001, groundwater sampling activities were conducted at the site. GMWs MW02 through MW06 were sampled. GMWs MW07 and MW08 could not be located and MW01 was damaged and could not be sampled.
- In 2019, a geophysical survey was conducted at the site and six of the eight GMWs were located. Grab groundwater samples were collected from GMWs MW03, MW04, and MW05 using a disposable bailer; GMWs MW06, MW07, and MW08 were dry.
- In 2019, a total of four membrane interface hydraulic profiling tool (MiHPT) probes (MiHPT-1 though MiHPT-4) were advanced to total depths between approximately 53 to 73 feet using cone penetration test (CPT) equipment (see Figure 4). The MiHPT profiling was conducted to provide information on subsurface sediment types, hydraulic conditions, and areas of potential VOC and/or TPH impacts. Two potential water-bearing zones were identified between depths of 25 and 30 feet and depths of 45 and 50 feet. The MiHPT profiles did not indicate the presence of VOCs or TPH at levels above the detection limits of the field screening tools. Three temporary wells (SB-1 through SB-3), consisting of 1-inch-diameter polyvinyl chloride well casing with a 5-foot-long screen interval were installed in an attempt to collect groundwater samples from the subsurface in and around the former steam-cleaning sump (see Figure 4). A groundwater sample was successfully collected from boring SB-2. However, no groundwater was observed in borings SB-1 or SB-3 after three hours.

2.5.2 SUPPLEMENTAL GROUNDWATER ASSESSMENT

Between December 2021 and March 2022, an SGA was conducted by WSP at the site. This investigation included additional MiHPT and CPT profiling, grab groundwater sampling, and well redevelopment and sampling activities.

A total of four MiHPT/CPT probes (MiHPT-5 through MiHPT-8) were advanced to total depths ranging between approximately 73 and 83 feet (see Figure 4). Seven of the eight MiHPT profiles did not indicate the presence of VOCs or TPH at levels above the detection limits of the field screening tools. A mixed plume of VOCs and petroleum hydrocarbons was interpreted at MiHPT-8 between depths of 20 and 36 feet. Grab groundwater samples were collected from saturated sediments encountered in all four MiHPT/CPT borings (MiHPT-5 through MiHPT-8) at depths of approximately 74 feet. No VOCs were reported in the groundwater samples collected from MiHPT-5 and MiHPT-6; detections of several analytes were reported the groundwater samples collected from MiHPT-7 and MiHPT-8 (located in the southern portion of the site; see Figure 4).

Existing GMWs MW03, MW04, MW06, MW07, and MW08 were located during this investigation; GMWs MW01, MW02, and MW05 could not be located (see Figure 4). GMW re-development activities were conducted at MW03 and MW06; sufficient groundwater for GMW redevelopment activities was not present in MW04, MW07, and MW08. Following GMW re-development activities, depth to groundwater was measured in MW03 and MW06 at 29.64 and 67.67 feet below top of casing, respectively. Laboratory analysis of groundwater samples collected from GMWs MW03 and MW06 indicated that TCE and cis-1,2-dichloroethene (cis-1,2-DCE) were reported in the sample collected from MW03 at concentrations of 0.66 and 2.3 micrograms per liter (µg/L), respectively, and no reportable VOCs were present in the sample collected from MW06.

The results of the SGA did not indicate the presence of groundwater conditions that would require mitigation measures beyond those outlined in the SSA. Based on the results of the SGA and the relatively low concentrations of VOCs detected in both the shallow and deeper water-bearing zones, it is unlikely that active groundwater remediation would be required at the site. Nonetheless, the RWQCB requested additional investigation of current groundwater conditions beneath the site (Section 3.5.3)

2.5.3 DATA GAP ASSESSMENT

The RWQCB, as the Lead Agency overseeing the implementation of the ECRG project, requested additional soil and soil vapor sampling at greater depths throughout the site. The RWQCB also requested installation and sampling of new GMWs. Subsequently, WSP prepared the *Data Gap Assessment Work Plan for Soil, Soil Vapor, and Groundwater* (DGA Work Plan) dated February 13, 2023. The scope of work described in the DGA Work Plan (WSP, 2023a) included:

- Eight locations designated VP-1 through VP-8 were identified for installation and sampling of soil vapor probes at approximate depths of 15, 30, 45, and 60 feet to assess VOCs in soil vapor beneath the site. Boring/vapor probe locations included:
  - VP-1 in the central portion of the site near the former aboveground storage tank area.
  - VP-2, VP-3, and VP-4 in the southern portion of the site (VP-2 near the former maintenance shop; VP-3 near previous sample locations PSG60 and SV-17 where the highest concentrations of VOCs were detected in previous soil vapor samples; VP-4 near previous sample locations MiHPT-8 and ASG-8 where elevated VOCs and TPH were detected in soil and soil vapor).
  - VP-5 and VP-6 within the footprint and beneath the inverts of the former 10,000-gallon asphalt tanks and the former steam cleaning sump excavation backfill areas, respectively (VP-5 is also located near previous soil vapor probe ASG-3B where elevated concentrations of PCE and TCE were detected in the 5-foot depth soil vapor sample).
  - VP-7 and VP-8 along the eastern property boundary of the site beneath the concrete pad from the former PMC building (AQMD records indicate a degreaser using PCE was previously located on the PMC property).
- Collection of soil samples for laboratory analysis was proposed at approximate depths of 5, 10, 15, 20, 30, 40, 50, and 60 feet in each boring (duplicate soil samples were collected from each boring at the 20-foot depth).
- Construction of GMWs MW-1 through MW-4 in the deeper water-bearing zone at VP-1 through VP-4.

The DGA Work Plan (WSP, 2023a) was approved by the RWQCB on February 17, 2023. Soil, soil vapor, and groundwater sampling results are summarized in Sections 2.5.3.1, 2.5.3.2 and

2.5.3.3, respectively. Summary tables from the DGA Report (WSP, 2023b) are included in Appendix A.

2.5.3.1 *SOIL SAMPLING RESULTS*

Soil samples were collected during installation of VP-1 through VP-8 and analyzed to address the data gaps described above in Section 2.5.3. Pursuant to the DGA Work Plan (WSP, 2023a), selected soil samples were analyzed for the following:

- VOCs using EPA Method 8260B
- TPH-cc using EPA Method 8015B(M)
- Title 22 metal (metals) using EPA Method 6010B/7471B
- PAHs using EPA Method 8270 SIM

Before field work began, WSP recommended that soil samples from suspected fill areas also be analyzed for polychlorinated biphenyls (PCBs) using EPA Method 8082 and asbestos using EPA Method 600/R-93-116 to be consistent with DTSC's October 2001 Advisory on clean import fill material in residential/acceptable commercial land. The RWQCB approved the addition of these analytes to the soil sampling program via email dated March 30, 2023.

A total of 72 soil samples (64 primary samples and 8 duplicates) were collected and analyzed for VOCs. The results of these analyses are summarized below:

- PCE, TCE, cis-1,2-DCE, 1,1,1-trichoroethane (1,1,1-TCA), and vinyl chloride (VC) were the only chlorinated VOCs detected.
  - PCE was detected in 9 of the 72 soil samples analyzed at concentrations between 0.86 and 3.1 micrograms per kilogram (µg/kg). It was detected only in samples from VP-3, VP-4, and VP-5 and was not detected in samples from the other VP borings.
  - TCE was only detected in the 10-foot depth soil samples from VP-5 at a concentration of 2.1 µg/kg.
  - Cis-1,2-DCE was detected in 8 of the 72 soil samples analyzed at concentrations between 0.86 and 270 µg/kg. The highest concentration was detected in the 30-foot depth sample from VP-4.
  - 1,1,1-TCA was detected in 4 of the 72 soil samples (all from VP-3) at concentrations from 0.78 to 52 µg/kg.
  - VC was detected only in the 30- and 40-foot depth soil samples from VP-3 at concentrations of 1.3 and 1.1 µg/kg, respectively.
- Concentrations of chlorinated VOCs in all soil samples, where detected, were below DTSC (2020) and EPA (2023) SLs for residential land use.
- Elevated concentrations of benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in the 30- and 40-foot depth soil samples from VP-4. Benzene concentrations reported in VP-4 at 30 feet and 40 feet (1,700 and 470 µg/kg, respectively) were the only soil sample results that exceeded the residential SLs (VP-4 at 30-foot depth also exceeded the commercial SL).

A total of 72 soil samples (64 primary samples and 8 duplicates) were collected and analyzed for TPHcc. Elevated concentrations of TPHcc were detected in soil samples from VP-6, but none exceeded the SL for residential soil.

A total of 45 soil samples (40 primary samples and 5 duplicates) were collected and analyzed for metals. Lead was detected in one soil sample at a concentration exceeding the DTSC-SL of 80 milligrams per kilogram (mg/kg) for residential use (15-foot depth sample from VP-6 at a concentration of 117 mg/kg). Concentrations of all other metals were

below SLs and concentrations of arsenic were below the Southern California Ambient Arsenic SL value of 12 mg/kg.

A total of 54 soil samples (48 primary samples and 6 duplicates) were collected and analyzed for PAHs. BaP was detected in four soil samples at concentrations exceeding the residential SL of 0.11 mg/kg as summarized below:

- BaP was detected in the 5-foot depth soil sample from VP-2 at a concentration of 0.16 mg/kg.
- BaP was detected in the 10-foot depth soil sample from VP-5 at a concentration of 0.47 mg/kg.
- BaP was detected in the 20-foot depth soil sample and its duplicate from VP-6 at concentrations of 0.22 and 0.31 mg/kg.

While concentrations of BaP exceeded the residential soil SL of 0.11 mg/kg in five soil samples, none exceeded the site-specific BaP TEQ cleanup goal of 0.90 mg/kg (soil removal goal; see Section 4.2).

A total of 27 soil samples (24 primary samples and 3 duplicates) were collected from VP-2, VP-5, and VP-6 and analyzed for PCBs and asbestos. Aroclor-1254 was detected in two soil samples (5- and 15-foot depth samples from VP-6) at concentrations of 86 and 54 mg/kg, respectively, which are below the residential soil SL. Asbestos was not detected in any of the samples analyzed.

Data gap soil sampling locations are shown on Figure 5. Sampling results are presented in the DGA Report (WSP, 2023b).

2.5.3.2 *SOIL VAPOR SAMPLING RESULTS*

As described in Section 2.5.3, VP-1 through VP-8 were proposed to be completed with soil vapor probes installed at approximate depths of 15, 30, 45, and 60 feet to assess soil vapor conditions beneath the site. However, because of interbedded lean clay and silty sand between approximate depths of 25 and 48 feet, some probe depths were modified to avoid low permeability (clay rich) sediments.

A total of 28 soil vapor samples (25 primary and 3 duplicates) were collected and analyzed for VOCs (no flow conditions were reported at probes VP-1-32 and VP-1-44, VP-2-46.5, VP-3-30, VP-3-47.5, VP-5-31, and VP-6-31). Soil vapor sampling results are summarized below:

- Detected chlorinated VOCs included PCE, TCE, 1,1-dichloroethane (1,1-DCA), 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, 1,1,1-trichloroethane (1,1,1-TCA), 1,1,2-TCA, and VC.
  - PCE was detected in 27 of the 28 soil vapor samples at concentrations between 11 and 55,700 micrograms per cubic meter (µg/m^3). The highest concentration was detected in sample VP-4-30.
  - TCE was detected in 20 soil vapor samples at concentrations between 9 and 1,870 µg/m^3. The highest concentration was detected in sample VP-5-15.
  - 1,1-DCA was detected in VP-6-15 and its duplicate at concentrations of 55 and 58 µg/m^3.
  - 1,1-DCE was detected in 10 soil vapor samples at concentrations between 25 and 235,000 µg/m^3. The highest concentration was detected in sample VP-4-30.
  - Cis-1,2-DCE was detected in 17 soil vapor samples at concentrations between 12 and 291,000 µg/m^3. The highest concentration was detected in sample VP-4-30.
  - Trans-1,2-DCE was detected in 6 soil vapor samples at concentrations between 15 and 184 µg/m^3. The highest concentration was detected in sample VP-4-49.
  - 1,1,1-TCA and 1,1,2-TCA were only detected in VP-3.

- 1,1,1-TCA was detected in the 15- and 58-foot depth samples at concentrations of 9,070 and 126 µg/m^3, respectively.
- 1,1,2-TCA was detected in the 15-foot depth sample at a concentration of 31 µg/m^3.

- VC was detected in VP-6-15 and its duplicate at concentrations of 1,380 and 1,540 µg/m^3.

- Relatively high concentrations of BTEX (and several other VOC petroleum constituents) were detected in the 30-, 49-, and 60-foot depth soil vapor samples from VP-4. Concentrations of individual BTEX constituents were highest in VP-4-30, ranging between 2,460,000 and 44,200,000 µg/m^3 (benzene was reported in VP-4-30 at a concentration of 2,620,000 µg/m^3).

Data gap soil vapor sampling locations are shown on Figure 5. Sampling results are presented in the DGA Report (WSP, 2023b).

2.5.3.3 *GROUNDWATER SAMPLING SUMMARY*

Pursuant to RWQCB request, four new GMWs designated MW-1 through MW-4 were installed and sampled to provide current and more complete information on groundwater conditions at the site. Existing GMW MW06 was also brought back into service. All five GMWs sampled are screened in the deeper water-bearing zone (Section 3.3). Groundwater samples were collected and analyzed for the following:

- VOCs using EPA Method 8260B
- Metals using EPA Method 6010B/7470A
- TPHcc using EPA Method 8015B(M)

TCE, cis-1,2-DCE, toluene, and o-xylene were detected in the primary and duplicate groundwater samples from GMW MW-4 and cis-1,2-DCE was also detected in samples from GMWs MW-2, MW-3, and MW-06. None of the reported concentrations of these VOCs exceeded maximum contaminant levels (MCLs) for drinking water. Barium and molybdenum were the only metals detected in the groundwater samples. Barium concentrations were below the MCL (molybdenum does not have an MCL). TPH diesel range (C10-C28) was reported in samples from MW-1, MW-3, and MW-4 (primary and duplicate samples) at concentrations between 62 and 130 µg/L. Total TPH (C6-C44) was reported in samples from MW-1 and MW-4 (primary and duplicate samples) at concentrations between 52 and 97 µg/L.

DTA groundwater sampling locations are shown on Figure 5. Sampling results are presented in the DGA Report (WSP, 2023b).

2.5.3.4 *DATA GAP ASSESSMENT SAMPLING SUMMARY*

Results from the DGA soil sampling are generally consistent with previously reported results and support implementation of the proposed site remedy to remove BaP and lead impacted soil. BaP was not detected in any of the soil samples at concentrations exceeding the site-specific cleanup goal for BaP TEQ of 0.90 mg/kg (soil removal goal). Likewise, as described in the DGA Report (WSP, 2023b), the isolated detection of lead at depth in the 15-foot depth sample from VP 6 is not expected to impact unrestricted site reuse goals.

Results from the DGA soil vapor sampling are generally consistent with previously reported results and support implementation of the proposed SVE pilot test. VOCs are generally dispersed throughout the site at relatively low concentrations (although concentrations of one or more VOCs exceed residential and/or commercial reuse criteria at most sampled locations). The highest concentrations of VOCs were detected in soil vapor samples from VP-3 and VP-4 in the southeastern portion of the site, which is consistent with previously reported results. Petroleum-related VOCs (primarily BTEX) detected in VP-4 are consistent with the elevated VOC/TPH profile reported in MiHPT-8. As noted in the Supplemental

Groundwater Assessment Report (Wood, 2022b), the historical and ongoing presence of light non-aqueous phase liquid at the Vinvale Terminal south/southeast of the site suggests a contribution of petroleum hydrocarbons from off-site, which may account for the elevated VOC/TPH profile reported in MiHPT-8 interpreted to be a mixed plume of VOCs and petroleum hydrocarbons between depths of 20 and 36 feet. An offsite source of petroleum hydrocarbons is also indicated by the vertical distribution of contaminants at VP-4; specifically, the low or non-detect concentrations in shallower samples do not indicate a nearby near-surface source while the higher concentrations at greater depths are consistent with lateral transport at depth. WSP is preparing separate plans for implementing soil vapor extraction at the site.

3 ENVIRONMENTAL SETTING

The geologic and hydrogeologic settings were presented in the SSA and HHRA Report (Wood, 2022a) and SGA Report (Wood 2022b) and are summarized below.

3.1 SITE TOPOGRAPHY AND SURFACE WATER

Ground surface in the site area has an elevation of approximately 110 feet above mean sea level and slopes generally southward. Locally, however, surface water flows northward from the site to Shull Street where it is collected into the storm drain. During a recent site visit in March 2023 after heavy rain, an area of storm water ponding was observed in the central portion of the site.

The north-to-south trending concrete-lined channel of the Los Angeles River is located approximately 600 feet west of the site (Figure 2), on the opposite side of the 710 Freeway, and the northeast-to-southwest trending concrete-lined channel for the Rio Hondo River is located approximately 1.5 miles east of the site. These river channels merge approximately 2 miles south of the site.

3.2 REGIONAL GEOLOGY AND HYDROGEOLOGY

The site is in the Los Angeles Basin in a region known as the Peninsular Ranges. The Los Angeles Basin is in a low-elevation coastal plain surrounded by the Santa Monica Mountains on the north, the Repetto Hills, Puente Hills, and Santa Ana Mountains on the east, the San Joaquin Hills on the south, and the Pacific Ocean on the west. The site is generally underlain by a veneer of non-indurated alluvial deposits. The alluvial deposits are primarily mixtures of clay, silt, sand, and occasional gravel emplaced by the meandering Los Angeles River. This approximately 100-foot-thick section of Holocene alluvial and fluvial deposits in the site area are underlain by late-Pleistocene-age marine and non-marine sediments of the Lakewood Formation and early Pleistocene marine sediments of the San Pedro Formation (California Department of Water Resources [DWR, 1961).

The site lies within the Central Basin Pressure Area, which includes a sequence of regionally extensive confined aquifers separated by laterally extensive, low permeability confining layers. The approximately 100-foot thick alluvial and fluvial deposits beneath the site area include the Bellflower aquiclude. The Exposition and Gage aquifers located in the Lakewood Formation are present at approximate depths of 100 and 300 feet, followed by the Hollydale aquifer located in the uppermost portion of the San Pedro Formation (depth greater than 300 feet) (DWR, 1961).

3.3 SITE GEOLOGY AND HYDROGEOLOGY

As described in the DGA Report (WSP, 2023b), soil borings drilled at the project site encountered silty sand/sand mixture, with some poorly graded sands from surface to depths of approximately 20 to 25 feet. Interbedded layers of sand/silty sand and silty clay separated by clay were encountered between approximate depths of 20 to 25 feet and 50 to 55 feet, followed by poorly graded sands between approximate depths of 50 to 55 feet and 60 feet. A clayey sand/sand clay mixture, with poorly graded sands, was encountered between approximate depths of 60 to 80 feet.

Groundwater was encountered beneath the site at approximate depths of 20 to 25 feet and 70 feet (shallow and deeper water bearing zones, respectively). These saturated zones were interpreted to correspond to possible perched zones within the Bellflower aquitard, which overlies the Exposition aquifer. As described in Section 2.5.1, eight GMWs (MW01

through MW08) were installed at the site in 1994. GMWs MW01, MW02, MW03, MW07, and MW08 were installed in the shallow water bearing zone, and GMWs MW04, MW05, and MW06 were installed in the deeper water bearing zone. Groundwater flow beneath the site in the shallow water bearing zone was reportedly toward the south-southwest under a hydraulic gradient that ranged from approximately 0.005 to 0.022 ft/ft. Groundwater flow in the deeper water bearing zone was reportedly toward the south under a hydraulic gradient of 0.005 ft/ft (John L. Hunter and Associates, Inc.,1994).

A conceptual site model prepared for the nearby Vinvale Terminal located south of the site (see Figure 2) identifies three major water-bearing zones beneath the Terminal:

- Shallow hydrostratigraphic zone (SHZ) at a depth of 50-90 feet;
- Middle hydrostratigraphic zone (MHZ) at a depth of 100-175 feet; and
- Deep hydrostratigraphic zone (DHZ) at a depth of 270-320 feet.

Localized perched zones are present within the shallow unsaturated zone (SUZ), which extends from the surface to a depth of approximately 50 feet. In addition, upper and lower subzones have been identified in the SHZ and MHZ. The SHZ is the first (shallowest) continuously saturated water-bearing zone and occurs as extensive lenses of sandy and/or gravelly fine-grained material within the Bellflower aquitard. The confined MHZ and DHZ correspond to the Exposition and Hollydale aquifers, respectively, and are separated by low-permeability zones (Stantec Consulting Services Inc., 2016).

3.4 SITE CLIMATOLOGICAL SETTING

The climate of the Los Angeles area is Mediterranean, characterized by warm, dry summers and cool, moist winters. Based on meteorological data collected between 1944 and 2010 at Los Angeles International Airport (LAX), the annual mean temperature in the site vicinity was 63 degrees Fahrenheit (°F), with minimum and maximum monthly mean temperatures of 55° and 70° F, respectively. Temperature extremes for the period of record ranged from 27 to 110° F (Western Regional Climate Center, 2020).

Annual precipitation in the site vicinity is variable. For the LAX weather station, the mean annual precipitation is approximately 12 inches per year with annual minimum and maximum rainfall values ranging from approximately 3 to 29.5 inches, respectively. Since 1944, the 24-hour maximum recorded rainfall total was 5.6 inches. Prevailing winds at LAX and the site vicinity are generally from the west-southwest, with frequent afternoon sea breezes of 10 to 15 miles per hour (Western Regional Climate Center, 2020).

4 REMOVAL ACTION GOALS AND OBJECTIVES

Development of removal action objectives (RAOs) was based on the current environmental conditions and reasonably anticipated future use of the site. Based on the RAOs, removal goals were developed that establish specific concentrations of BaP and lead in soil that are protective of both human health and the environment.

As described in Section 2.4, this proposed soil excavation Response Action does not include potentially impacted soil vapor and/or groundwater present beneath the site. These media will be evaluated in subsequent documents.

4.1 REMOVAL ACTION OBJECTIVES

As described below in Section 5.0, soil excavation with offsite disposal is the preferred and recommended removal action to address BaP- and/or lead-impacted soil, based on effectiveness and feasibility of implementation. The RAW provides necessary guidance and supplemental plans for the safe and successful implementation of the proposed removal action. The overall objective of this RAW is to reduce the threat to human health and the environment and provide a permanent solution that reduces the toxicity, mobility, and volume of BaP- and lead-impacted soil at the site.

The specific RAOs for this RAW are as follows:

- Minimize or eliminate the potential for migration of BaP and lead from impacted soil.
- Remove BaP- and lead-impacted soil at concentrations exceeding cleanup goals.
- Allow for site redevelopment with unrestricted reuse by reducing human heath-based risks associated with BaP- and lead-impacted soil by removing soil with:
  - BaP TEQ above the site BTV of 0.90 mg/kg; see Figure 7); and
  - Lead concentrations above the residential DTSC-SL of 80 mg/kg (see Figure 8).
- Protect workers involved in RAW implementation activities from exposures to BaP and lead.
- Prevent public exposure during RAW implementation activities.

4.2 REMOVAL GOALS

Based on the estimates provided in the SSA (Wood, 2022a), the goals of the RAW are to remove approximately 5,275 cubic yards (yd^3) of soil containing BaP TEQ greater than the site BTV of 0.90 mg/kg and/or lead concentrations greater than the residential DTSC-SL of 80 mg/kg.

5 ALTERNATIVES EVALUATION

The purpose of this section of the RAW is to identify and screen potential response action alternatives that may best achieve the RAOs and goals described in Section 4.0.

5.1 IDENTIFICATION AND ANALYSIS OF CLEANUP ALTERNATIVES

Site characteristics were evaluated in accordance with the PT&R (DTSC, 2008). The evaluation indicates that this site is appropriate for application of the PT&R approach and that the containment/capping or excavation/disposal actions are the two most appropriate cleanup alternatives to be considered for further analysis. The BaP- and lead-impacted soil meet all the favorable PT&R criteria for these cleanup alternatives and do not exhibit characteristics that may limit the use of the PT&R approach.

This RAW provides a site-specific evaluation of the no further action, containment/capping, and excavation/disposal alternatives. Focusing on these PT&R alternatives is consistent with the NCP (EPA, 1990), which provides that, "the number of alternatives evaluated for a site should be reasonable; the number of alternatives evaluated should be based on the scope, characteristics, and complexity of the site; and detailed analyses need only be conducted on a limited number of alternatives that represent viable approaches to the cleanup". In accordance with this guidance, the "No Further Action" alternative will be used for comparative purposes.

This RAW serves as an equivalent document to the Engineering Evaluation/Cost Analysis document required by the NCP (EPA, 1990). The exception was that costs associated with alternative option 2 below were not evaluate, as detailed below in Section 5.2.

5.1.1 ALTERNATIVE 1 – NO FURTHER ACTION

As required by the PT&R (DTSC, 2008) and NCP (EPA, 1990), the No Further Action alternative has been included to provide a baseline for comparisons among other alternatives. The No Further Action alternative would essentially leave the site as is, with no additional costs incurred, and would not require any action to be implemented.

5.1.2 ALTERNATIVE 2 – SOIL CONTAINMENT/CAPPING-IN-PLACE

To allow for future site use, this alternative would involve the emplacement of a capping medium on top of BaP- and lead-impacted soil. For this application where the surface of the capping medium is required to be at grade, the capping process would consist of excavating the footprint of impacted soil areas to a depth of approximately 2 feet, placement of a 2-foot-thick engineered soil cover along the base of the excavation or the installation of a geo-membrane on the base of the excavation, followed by placement of clean imported soil to the final grade. This alternative requires long-term institutional controls, including restrictive site use, inspection and maintenance, and regulatory oversight to verify that the capping medium remains intact.

This alternative may reduce the potential for movement of BaP and lead from impacted soils; however, it does not minimize or eliminate it. Further, this alternative does not remove BaP- and lead-impacted soils to the greatest degree possible or allow for site redevelopment with unrestricted reuse. In summary, this alternative does not meet the RAOs and therefore is not retained for further evaluation.

5.1.3 ALTERNATIVE 3 – EXCAVATION/DISPOSAL

This alternative would involve excavation of BaP- and lead-impacted soils followed by transportation of the impacted soil offsite to appropriate, permitted facilities for treatment and/or disposal. Typically, soil is excavated using heavy equipment (e.g., excavator, backhoe, and front-loader), loaded into trucks, and transported to permitted offsite treatment and/or disposal facilities. Collection and laboratory analysis of confirmation soil samples for lead and PAH would be conducted within the excavation area to verify that RAOs have been met.

To achieve RAOs, BaP- and lead-impacted soil would be excavated to the depths required to remove soil containing BaP TEQs greater than the site BTV of 0.90 mg/kg and lead concentrations greater than the residential DTSC-SL of 80 mg/kg. The planned excavation areas, depths and volumes are shown on Figure 10. This alternative would be immediately effective in reducing the concentration, mobility, and volume of impacted soils and with proper implementation methods would meet all RAOs.

5.2 EVALUATION CRITERIA

Typically, removal action alternatives are evaluated using the nine criteria for use in the remedy selection identified by the NCP (40 Code of Federal Regulations [CFR] 300.430 [e][9][iii][A-I]) to provide a qualitative ranking of the alternatives and the basis for recommendation of a preferred alternative. Consistent with the PT&R guidance, each removal action alternative was evaluated based on two of these criteria: effectiveness and implementability.

PT&R guidance suggests that cost also be included as a criterion. This criterion typically evaluates the relative cost of each technology based on estimated fixed capital for construction or initial implementation and ongoing operational and maintenance costs. Since the PT&R alternative evaluation resulted in one removal action alternative (as detailed below in Section 5.3), excluding the No Further Action alternative, there are no alternatives for which to compare relative costs. Therefore, the cost component of an Engineering Evaluation/Cost Analysis is not required for alternative evaluation and is not included in the RAW. However, estimated costs for Alternative 3 – excavation/disposal are provided in Section 5.5.3.

5.2.1 EFFECTIVENESS

In the effectiveness evaluation, the following factors are considered:

- **Overall Protection of Human Health and the Environment** – this criterion evaluates whether the removal alternative provides adequate protection for human health and the environment and can meet the RAOs.
- **Short-Term Effectiveness** – This criterion evaluates the effects of the removal alternative during the construction and implementation phase until RAOs are met. It accounts for the protection of workers and the community during removal activities and environmental impacts from implementing the removal action.
- **Long-Term Effectiveness and Permanence** – This criterion addresses issues related to the management of residual risk remaining onsite after the removal action has been performed and has met the RAOs. The primary focus is on the controls that may be required to manage risk posed by treatment residuals and/or untreated wastes.
- **Reduction of Toxicity, Mobility, or Volume** – This criterion evaluates whether the removal technology employed results in significant reduction in toxicity, mobility, or volume of any hazardous substance.

5.2.2 IMPLEMENTABILITY

This criterion evaluates the technical and administrative feasibility of implementing a proposed removal alternative, as well as the availability of the necessary equipment and services. This evaluation includes the ability to design and perform a removal alternative, ability to obtain services and equipment, monitor the performance and effectiveness of technologies, obtain necessary permits and approval from agencies, and gain acceptance by the regulatory agencies and the community.

5.3 ANALYSIS OF REMOVAL ACTION ALTERNATIVES

5.3.1 ALTERNATIVE 1 - NO FURTHER ACTION

The No Further Action alternative would not require implementing any cleanup alternative at the site, and no costs would be incurred. Consequently, no activities would disturb site soil, and no short-term risk to site workers or the community would result from implementing this alternative.

However, under the No Further Action alternative, the impacts from the presence of BaP- and lead-impacted soil would not be addressed and there would be no reduction in the potential toxicity, mobility, or volume of impacted soil. Therefore, this alternative does not meet the effectiveness criterion and acceptance by the Lead Agency and community would likely be unattainable. Thus, this alternative is considered not acceptable.

5.3.2 ALTERNATIVE 2 - SOIL CONTAINMENT/CAPPING-IN-PLACE

The Soil Containment/Capping-in-Place alternative would be immediately effective in significantly reducing the mobility of impacted soils, but not in reducing the concentration or volume of impacted soil at the site. Potential short-term risks to onsite workers, public health, and the environment resulting from dust or particulates generated during excavation and soil-handling activities, and installation of impervious cap can be mitigated using personal protective equipment (PPE) for onsite workers and engineering controls, such as dust suppression, for the local community. However, this alternative would not allow for high density, mixed-use development of the site with affordable housing.

5.3.3 ALTERNATIVE 3 – EXCAVATION/DISPOSAL

The Excavation/Disposal alternative would be immediately effective in significantly reducing the concentration, mobility, and volume of impacted soils at the site, and with proper implementation methods, would meet all project RAOs. Potential short-term risks to onsite workers, public health, and the environment resulting from dust or particulates generated during excavation and soil-handling activities can be mitigated using PPE for onsite workers and engineering controls, such as dust suppression, for the local community.

Long-term risks would also be eliminated because soils containing BaP TEQs greater than the site BTV of 0.90 mg/kg and lead concentrations that exceed the residential DTSC-SL of 80 mg/kg would be removed from the site, allowing for unrestricted use. Thus, preparation and implementation of an Operation and Maintenance Plan is not necessary for the Excavation/Disposal alternative.

Excavation with offsite disposal is a well-proven, readily implementable technology that is commonly used for similar sites. The equipment and labor required to implement this alternative are readily available. Regulatory and community acceptance is considered high

for this alternative, provided that appropriate engineering controls are implemented to protect the local community.

Cost

The preliminary estimated cost for the Excavation/Disposal alternative is around $3,000,000 and is included as Appendix B. This estimate is for budgetary planning purposes only. Final costs will depend on the excavated soil waste classification (non-hazardous through RCRA hazardous), which cannot be completed until the selected qualified excavation contractor is prepared to implement the removal work. The assumptions used in estimating soil removal action costs are provided in Sections 6.1 and 6.4.

5.4 SELECTED ALTERNATIVE

Based on the comparative evaluation, Alternative 3 – Excavation/Disposal, is the preferred and recommended removal action alternative for the site.

6 REMOVAL ACTION IMPLEMENTATION

As discussed in Section 5.0, excavation with offsite disposal is the preferred and recommended removal action alternative to address BaP- and lead-impacted soil at the site. Implementation of the removal action or "project" (the whole of an action) consists of a series of separate tasks:

- Excavation location profile selection;
- Contractor requirements;
- Permits and site preparation;
- Excavation methodology;
- Control measures;
- Air monitoring during excavation; and
- Field variances and reporting.

Sections 6.1 through 6.7 presented below detail these tasks and the associated activities.

6.1 EXCAVATION LOCATION PROFILE SELECTION

Based on the soil sampling results described in Sections 2.4 and 2.5, and a comparison with the site RAOs (BaP TEQ of 0.90 mg/kg and residential DTSC-SL for lead of 80 mg/kg), an estimated 5,000 yd^3 of BaP- and lead-impacted soil have been identified for removal from the site. The approximate areas of BaP- and lead-impacted soil to be excavated, which covers over approximately 50,200 square feet (more than 1 acre), as well as the estimated excavation depths, are shown on Figures 9 and 10.

As shown on Figure 10, the site has been sub-divided into 3 excavation areas informally referred to as Areas 1, 2, and 3. These areas are described below.

Area 1, located in Parcel 901 (and portion of Parcel 902), encompasses an area of 6,342 square feet. Area 1 was subdivided into removal grids 1A, 1B, 1C, and 1D where excavation depths vary between 2, 4, and 6 feet. Area 1 consists primary of BaP impacted soil, though the southeastern portion (removal grid 1D) contains lead at concentrations between 80 and 319 mg/kg (Figure 8).

Area 2, located in Parcel 903 (and a portion of Parcel 906) encompasses an area of 27,294 square feet. Area 2 was subdivided into removal grids 2A through 2F where excavation depths vary between 2 and 4 feet. Area 2 consists primary of lead impacted soil, though some removal grids in the southern portion of Area 2 contains concentrations BaP exceeding cleanup goals (Figure 7).

Area 3, located in Parcel 906, encompasses an area of 21,065 square feet. Area 3 was subdivided into removal grids 3A and 3B where excavation depths vary between 4 and 2 feet, respectively. Area 3 consists of BaP impacted soil (Figure 7).

It is anticipated that lead concentrations will determine soil waste classifications. BaP is not regulated federally or in California and concentrations detected in soil (highest around 50 mg/kg) are not considered excessively high and therefore would not trigger a fish bioassay test. Thus, BaP impacted soil is expected to be classified as a non-hazardous (non haz) waste.

Lead concentrations reaching or exceeding 50 mg/kg will require Soluble Threshold Limit Concentration (STLC) analysis and lead concentrations reaching or exceeding 100 mg/kg will require both STLC and Toxic Characteristic Leaching Procedure (TCLP) analysis. Soil with lead STLC result greater than or equal to 5 milligrams per liter (mg/l) will be classified as non-RCRA, California hazardous (Cal-haz). If the TCLP result are greater than or equal to 5 mg/l but less than 7.5 mg/l, then the soil will be classified as RCRA hazardous (RCRA-haz) for direct landfill. A TCLP result exceeding 7.5 mg/l must be stabilized (treated). No soil sample result from the site exceeded 1,000 mg/kg, which would have automatically triggered a non-RCRA hazardous waste classification (the highest concentration of lead detected in soil at the site was 650 mg/kg).

Soil sampling results extrapolated across the approximate areas of lead-impacted soil from which samples were collected suggest that lead concentrations greater than 320 mg/kg may be profiled as RCRA-haz waste, while concentrations between 80 and 319 mg/kg may be profiled as Cal-haz waste. Thus, the estimated 912 yd^3 of soil to be excavated from removal grid 2C may be classified as a RCRA-haz waste. Portions of lead-impacted soil in removal grids 1D, 2B, and 2F (estimated 408 yd^3) may be classified as a Cal-haz waste. The remaining estimated 3,955 yd^3 of excavated soil is expected to be a non-haz waste. Removal grid volumes and extrapolated waste category estimates are included in Appendix B.

As shown on Figures 8 and 10, some isolated soil samples reported lead concentration in near-surface soil (0.5-foot depths) in the southern portion of Parcel 906 (ASG-10E and ASG-10F) at concentrations of 110 and 120 mg/kg. Some limited soil removal may be needed in these areas. Likewise, backfill materials may require additional chemical and geotechnical evaluation once exposed. This work will be done once the surficial debris has been removed (Section 6.3) and these areas exposed. Additionally, the costs for imported soil to backfill removal areas is not included herein. WSP will coordinate with the City and developer the need for bringing in clean import materials to backfill the removal areas. There may be sufficient materials available onsite for grading and re-contouring the surface to support proposed development.

6.2 CONTRACTOR REQUIREMENTS

The City will be responsible for implementing contractor selection procedures to procure a fully integrated environmental service contractor capable of implementing soil excavation, transportation, and disposal services (“excavation contractor”) described in this RAW. WSP will assist the City by preparing a bid and specification package to assist with competitive bidding process. The selected excavation contractor’s staff and field personnel will be trained in accordance with 29 CFR 1910.120 and Title 8 California Code of Regulations (CCR) § 5192 for hazardous waste workers and will comply with the requirements of Title 8 CCR § 1532.1 and Appendices. As applicable, the contractor’s staff will be trench/excavation certified per United States Occupational Safety and Health Administration (OSHA) requirements.

The contractor will also designate a Certified Lead Supervisor (CLS) pursuant to California Department of Public Health (CDPH) requirements (Section 6.5). The CLS's responsibilities will include:

- The authority to observe and enforce sufficient fugitive dust suppression and mitigation measures related to potential lead emissions by the excavation contractor.
- The CLS shall understand the appropriate methods and standards for testing and sampling for lead in soil and have the ability to interpret the lead testing results. Standards include CDPH and EPA regulatory standards for soil (Title 17 CCR § 35033, § 35035, and § 35036). In particular, the CLS shall be familiar with regulations governing the abatement of lead-contaminated soil (United States Department of Housing and

Urban Development [HUD] Guidelines: Chapter 12, and Title 17 CCR § 36000 and § 36100.)

- The CLS shall have knowledge of the applicable abatement methods and their limitations. Knowledge shall include California Department of Occupational Safety and Health (DOSH) Lead in Construction Exposure Assessment Requirements; HUD Guidelines: Chapter 9 and Appendix 13.4; Title 8 CCR 1532.1; and DOSH Hazardous Communications (T8 CCR § 1509, T8 CCR § 3203, and T8 CCR § 5194) (DOSH, 2018a, b). The CLS shall also know when to apply HUD requirements and when to use the CDPH Title 17 requirements (40 CFR Part 745 and 24 CFR, Part 35, et al.)
- The CLS shall be able to select the appropriate clearance inspection procedures and protocols (HUD Guidelines: Chapter 15 and Appendices 7.3 and 13.1-13.4). Knowledge shall include the ability to calculate areas and distance (HUD Guidelines: Appendix I) and the analytical methods for assessing the amount of lead in soil (EPA Method SW-846).
- The CLS shall understand how to characterize, store, and dispose of hazardous waste. In particular, the CLS shall understand the waste characterization procedures and how to interpret the test results (HUD Guidelines: Chapter 10 and Title 22 CCR).
- The CLS shall be able to perform air monitoring. This includes knowledge of NIOSH requirements for minimum and maximum employee air monitoring sampling volumes (HUD Guidelines; Appendix 13.4 and NIOH 7082) and how to select the appropriate respiratory protection based on air monitoring results (HUD Guidelines: Chapter 9 and Title 8 CCR § 1532.1)
- The CLS shall be able to select the appropriate respiratory protection based on air monitoring results (HUD Guidelines: Chapter 9 and Title 8 CCR § 1532.1).

The excavation contractor's waste transportation drivers and technicians shall be certified in cardiopulmonary resuscitation (CPR) and have OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training. All drivers shall meet the United States Department of Transportation (DOT) requirements of DOT 8-Hour HM-181, 215G, and 232, Training for Hazardous Materials Transportation, DOT Security Awareness Training for Hazardous Materials.

The selected contractor will be responsible for permitting, site preparation, excavation and management of impacted soil, and implementation of control measures and air monitoring. If requested, WSP can assist with contractor oversight and final reporting, as noted below.

6.3 PERMITTING AND SITE PREPARATION

The selected contractor will obtain onsite access clearance from the City and any necessary permits from the City of Bell Gardens and/or other applicable jurisdictional agency before performing any excavation or backfill activities. Engineering controls will be implemented to protect the local community (Section 6.5). Each excavation area will be delineated with flags/stakes by a City representative and/or the excavation contractor before conducting excavation activities. All utility clearances should be coordinated with Underground Service Alert (also known as Dig-Alert); there are no known active onsite utilities.

Shallow debris, loose and disturbed soil, building foundations, and asphalt/pavement surfaces will need to be removed to expose subsurface soils. The building foundations and areas of asphalt/pavement and underlying base material should be sent to an approved recycling facility, if appropriate. Areas of loose and disturbed soil located primarily in the northcentral and southwestern portions of the site (which may include rubbish/trash from illegal dumping) will need to be profiled and managed for removal accordingly. Work area

protection measures such as fencing and warning signs will need to be installed and maintained.

6.4 EXCAVATION METHODOLOGY

The locations and limits of the proposed excavations based on engineering constructability (excavation volumes) are shown on Figures 9 and 10. Impacted soil will be excavated to depths ranging from approximately 2 to 6 feet; a total of approximately 4,926 yd^3 will be excavated and removed offsite for disposal. Prior to conducting the removal action, the selected excavation contractor will prepare a SMP that details how the proposed excavation and backfilling activities will be conducted. The SMP will be developed based on the site-specific information provided, historical documentation, and the contractor's experience with similar excavation activities. The SMP will include, at a minimum, the following elements:

- SCAQMD Rule 403 site preparation (e.g., signs, fencing, windscreens, etc.), notifications, and recordkeeping/reporting.
- Stormwater Pollution Prevention Plan (SWPPP) site preparation (i.e., implementation of Best Management Practices [BMPs] for prevention of stormwater run-off), notifications, and recordkeeping/reporting.
- Methodology for waste profiling of soil for offsite disposal (e.g., in situ, stockpiles, etc.). The SMP shall state that waste profile sampling will be conducted as detailed in the QA/QC Plan (or following City-approved modifications if appropriate).
- General excavation methodology (i.e., stockpiling, wetting, tire track-out soil and dust control, direct loadout, other).
- Excavation staging (e.g., the order in which the separate areas will be excavated).
- Locations of the following and how the locations will change during the excavation of the separate areas:
  - Clean zones.
  - Contaminated (work) zone(s).
  - Decontamination area(s).
  - Site ingress/egress.
  - Stabilized construction entrance(s).
  - Stockpiles.
- Separate methodologies for handling and short-term storage of potential non-haz, Cal-haz, and RCRA-haz soil. Methodologies should include the following:
  - Storage (e.g., bins, stockpiles, roll-off bins).
  - Labelling.
  - Tracking of soil.
- Separate methodologies for transportation and disposal of potential non-haz, Cal-haz, and RCRA-haz soil. Methodologies should include the following:
  - Documentation (e.g., manifests).
  - DOT requirements.
- Methodology for soil stabilization (e.g., shoring, sloping).

The site preparation activities, excavation of impacted soil, excavation backfilling, and compaction and/or recontouring will require the use of a water truck, an excavator and/or

backhoe, and a front-end loader. The transportation offsite (export) of materials generated during site preparation and of impacted soil and the import of backfill material will require the use of semi-truck trailer end dump trucks. It is unknown at this time whether imported soil will be needed to backfill the excavation areas. Nonetheless, import and compaction of clean backfill material is considered in this report for conservative purposes.

The total estimated schedule is 44 days (9 weeks) based on the following assumptions (subject to change pending subcontractor selection):

- Project site preparation – 5 days
- Export of materials generated during site preparation – 265 trips with semi-truck trailer end dump trucks for 7 days
- Impacted soil excavation, soil stockpiling, and soil loading for export – 5 days
- Impacted soil export – 400 trips with semi-truck trailer end dump trucks over 10 days
- Backfill material import – 400 trips with semi-truck trailer end dump trucks over 10 days
- Excavation backfilling, compaction, and/or recontouring – 5 days
- Equipment demobilization and project site restoration (BMP installation and restoration depending on City of Bell Gardens grading permit requirements, as appropriate) for 2 days

Removal of impacted soil and transport of clean backfill is estimated to take 20 days, assuming up to 40 semi-truck trailer trips per day carrying 24 tons of soil per truck. City representatives have reviewed the proposed transportation route and found no road weight capacity limitations (see Section 7). Consistent with City regulations, construction noise will be limited to the hours from 8:00 AM to 7:00 PM (construction is not anticipated to happen after 5:00 PM).

Once the target soil volume has been removed at each excavation area, confirmation soil samples will be collected from each excavation area in accordance with the QA/QC Plan included in Appendix C. It is anticipated that WSP staff will collect confirmation soil samples from approximate 30-foot by 30-foot sampling grid. However, should this activity be assigned to the excavation contractor, the SMP shall state that confirmation sampling will be conducted as detailed in the QA/QC Plan (or following City-approved modifications if appropriate).

Once it has been verified that the excavation of BaP- and lead-impacted soils has been completed at each excavation area, the excavation contractor will either backfill the excavation area with clean, imported soil (some shallow removal areas may not be backfilled) or recontour the removal areas so they do not present a trip/fall/entrapment hazard. The need for import soil will be coordinated with the City and developer. If needed, all imported backfill soil will be evaluated in accordance with the DTSC *Information Advisory for Clean Imported Fill Material* dated October 2001 (DTSC, 2001a). Analytical results will be provided to the Lead Agency for review and approval prior to importing backfill soil on site. The SMP shall state that sampling activities will be conducted to confirm that imported backfill soil does not contain compounds at concentrations that exceed residential DTSC-SLs (e.g., is "clean"), as detailed in the QA/QC Plan.

The excavation contractor will place the imported backfill soil in the excavations, compact the backfilled soil to a minimum of 90 percent relative compaction (pending grading permit requirements), and conduct compaction testing, as necessary.

6.5 CONTROL MEASURES

Control measures to be implemented during site preparation and soil removal activities include measures for the prevention of stormwater runoff, equipment decontamination, and particulate emissions (dust) control and monitoring.

Because the soil excavation project will disturb over 1 acre of soil, the contractor shall obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development of a SWPPP by a certified Qualified SWPPP Developer (QSD).

The DP establishes a consistent approach for checking cleanliness of equipment being mobilized to the site and institutes protocols for decontaminating equipment that encounters impacted soil. Equipment that encounters impacted soil will be decontaminated before it is removed from the site. Use of compressed air and dry sweeping of lead impacted soil are both prohibited. Wet removal, wet wiping, or high-efficiency particulate air (HEPA) vacuuming of dry materials is the preferred method of decontamination for all equipment. Equipment will be visually inspected by the Contractor's Construction Quality Assurance (CQA) Engineer or a designated CQA observer to verify that the equipment is free of gross contamination and will check each truck before it leaves the site. All loads will be covered and secured before leaving the site. A fire hydrant is located near the northeast corner of the site (see Figure 6). Small, disposable equipment intended for one-time use, including PPE, will be packaged for appropriate disposal. Additional details are provided in the DP included in Appendix D.

This project will be subject to the SCAQMD Rule 403 for fugitive dust and Rule 1466 for dust from soils with toxic air contaminants. The DCMP specifies the measures to be taken to minimize the generation of fugitive dust and the monitoring that will be performed to document dust levels. The DCMP also identifies the responsibilities of the CLS. Real-time monitoring instruments preapproved by the SCAQMD Executive Office will be used so that conditions can be modified to be protective of onsite workers and to minimize potential offsite movement of dust, as warranted. Dust and vapor control and monitoring will be performed in accordance with federal, state, and local requirements (specifically in accordance with SCAQMD requirements). A copy of the DCMP is included in Appendix E.

6.6 AIR MONITORING DURING EXCAVATION

Air monitoring strategies and methodologies will be implemented during the removal action to achieve the following goals:

- Strict adherence to Title 8 CCR § 1532.1 may require Level C PPE (respiratory protection) until the contractor proves (usually by personal air monitoring) that workers are not exposed above the Permissible Exposure Limit (PEL). Once a negative exposure assessment (NEA) has been demonstrated, it may be possible to downgrade the PPE.
- Identify and measure the air contaminants generated during the soil removal and decontamination activities to assign the appropriate PPE and safety measures.
- Provide feedback to site personnel regarding potential hazards from exposure to hazardous air contaminants generated through excavation activities.
- Identify and measure air contaminants at points outside of the soil removal and decontamination exclusion zones (typically at the property line). Air monitoring will be conducting during work activities to measure potential exposure of sensitive receptors

to COPCs resulting from removal activities and to monitor the dust control measures being implemented.

Air monitoring strategies and methodologies are provided in the DCMP (Appendix E) and are consistent with SCAQMD Rules 403 and 1466.

Although the selected excavation contractor will likely have a SCAQMD Rule 1166 Various Locations Permit, it is not anticipated that these excavation activities will be subject to SCAQMD Rule 1166 due to the non-volatile nature of the impacted soil.

6.7 FIELD VARIANCES AND ANTICIPATED REPORTING

Variances from the RAW will be discussed with the Lead Agency before any action is taken, except for emergencies (when an immediate response is required). The Lead Agency will be notified if an emergency response is implemented. The field variances will be documented in the Removal Action Completion Report to be prepared at the end of the project.

6.8 CONTINGENCIES

As described in Section 2.1, some inactive subsurface utility lines may remain at the site. Because there is a chance these utility lines may be uncovered during earthwork, the selected contractor will have a contingency in place for evaluating the condition of subsurface utility lines and whether they may have contributed to any localized soil impacts.

As described in Section 2.5.2, existing GMWs MW01, MW02, and MW05 could not be located. Because there is a chance these GMWs may be uncovered during earthwork, the selected contractor will have a contingency in place for evaluating the condition of uncovered GMWs. A GMW may be brought back online as part of the groundwater monitoring program, may be converted to a vapor extraction well for use in the separate SVE remedy program, or may be destroyed if unusable (following appropriate permit requirements).

As described in Section 6.3, shallow debris, loose and disturbed soil, building foundations, and asphalt/pavement surfaces will need to be removed to expose subsurface soils as part of the remedy. The selected contractor will have a contingency in place to observe for any stained, odorous, and/or disturbed soils exposed during earthwork that may indicate unknown area of soil impact. This suspect soil will be evaluated for chemical impact accordingly.

7 TRANSPORTATION PLAN

As discussed in Sections 6.1 and 6.4, the selected excavation contractor will be responsible for waste profiling. Following receipt of analytical results from soil samples submitted for waste profiling and selection of certified disposal facilities, the excavation contractor will prepare a TP for approval by the City and/or Lead Agency. The TP shall be prepared in accordance with the DTSC *Interim Final Guidance for Developing Transportation Plans for Removal or Remedial Actions* dated December 5, 2001 (DTSC, 2001b), and will include (at a minimum) the following elements:

- Characteristics, waste classification, and destination of soil to be transported offsite;
- Approximate number of soil-hauling vehicles per day, anticipated load weight per soil-hauling vehicle, and the total number of days required for export of impacted soil and import of clean backfill soil;
- Transportation route for all soil-hauling vehicles;
- Site traffic control description, including site ingress and egress routes and management of traffic (i.e., signage, delineators, and flagging); and
- Proposed record keeping procedures.

The transportation plan will route truck traffic to avoid local residential roads and crossing traffic lanes. It is anticipated that the truck traffic will be directed east along Shull Street to Eastern Avenue, south along Eastern Avenue past the merger with Garfield Avenue to Firestone Boulevard, then west along Firestone Boulevard to 710 Freeway (see Figure 11). City representatives have reviewed the proposed transportation route and find no road weight capacity limitations.

8 HEALTH AND SAFETY PLAN

The excavation contractor will prepare, and perform all work under, a site-specific HASP. The HASP will comply with applicable OSHA regulations, particularly those in Title 8 California Code of Regulations § 5192 and § 1532.1, and other applicable federal, state, and local laws, regulations, and statutes. A copy of the HASP will be kept onsite during field activities. The HASP will include an activity hazard analysis (AHA) for each anticipated field activity. The AHAs may be modified in the field to suit field conditions or address unanticipated concerns. The HASP will also include a compliance plan for employees who may potentially be exposed to lead, consistent with the requirements of Title 8 California Code of Regulations § 1532.1.

OSHA has created an application named E-hasp2, to facilitate developing Health & Safety Plans that meet all Federal OSHA's requirements. The application may be downloaded at:

https://www.osha.gov/dep/etools/ehasp/index.html

Note that some California regulations and requirements may be more stringent and should be incorporated in final HASP before it is approved. No work shall be performed until the HASP has met the approval of the CITY and/or Lead Agency.

9 CALIFORNIA ENVIRONMENTAL QUALITY ACT DOCUMENTATION

The City will work with the RWQCB, the designated Lead Agency providing oversight of the cleanup, to comply with California Environmental Quality Act (CEQA) requirements to finalize and implement the RAW. Generally, this project is likely not exempt from CEQA under Categorical Exemption, Title 14, California Code of Regulations, § 15330, because the removal action is anticipated to cost over $2 million. Thus, the Lead Agency will prepare an Initial Study to determine whether the project may have a significant effect on the environment. If the Initial Study shows that there is no substantial evidence that the project may have a significant effect, the Lead Agency will prepare a Negative Declaration. Alternatively, if the Initial Study shows that the project may have a significant effect, the Lead Agency may request an Environmental Impact Report. Because the overall RAO is to remove BaP- and lead-impacted soil and allow for site redevelopment with unrestricted reuse, the Lead Agency is anticipated to prepare a Negative Declaration for the project.

10 PUBLIC PARTICIPATION

The City will work with the RWQCB, the designated Lead Agency providing oversight of the cleanup, to comply with public participation requirements before finalizing and implementing the RAW. Public participation activities will be implemented by the Lead Agency or City to notify and solicit input from the community. At the discretion of the regulatory agency overseeing cleanup, public participation for the draft RAW (the RWQCB-approved document subject to public review) may include the following activities:

- Preparation of a Community Profile Report.
- Development a site mailing list to notify the community.
- Conducting a Baseline Community Survey.
- Preparation and distribution a fact sheet to notify the community of the site and proposed removal actions.
- Preparation of a Public Participation Plan.
- A 30-day public comment period to solicit comments from the community on the draft RAW, if the project has generated interest.
- A community meeting if there is community interest.
- Preparation of written response to comments.

The City will work with the RWQCB, the designated Lead Agency providing oversight of cleanup to comply with the public comment and CEQA process. Changes resulting from public comments or CEQA shall be incorporated into the draft final version of the draft RAW as an addendum or similar and submitted for subsequent approval by the RWQCB as the Lead Agency. Upon RWQCB approval of the draft final version, the final version of the approved RAW will be prepared

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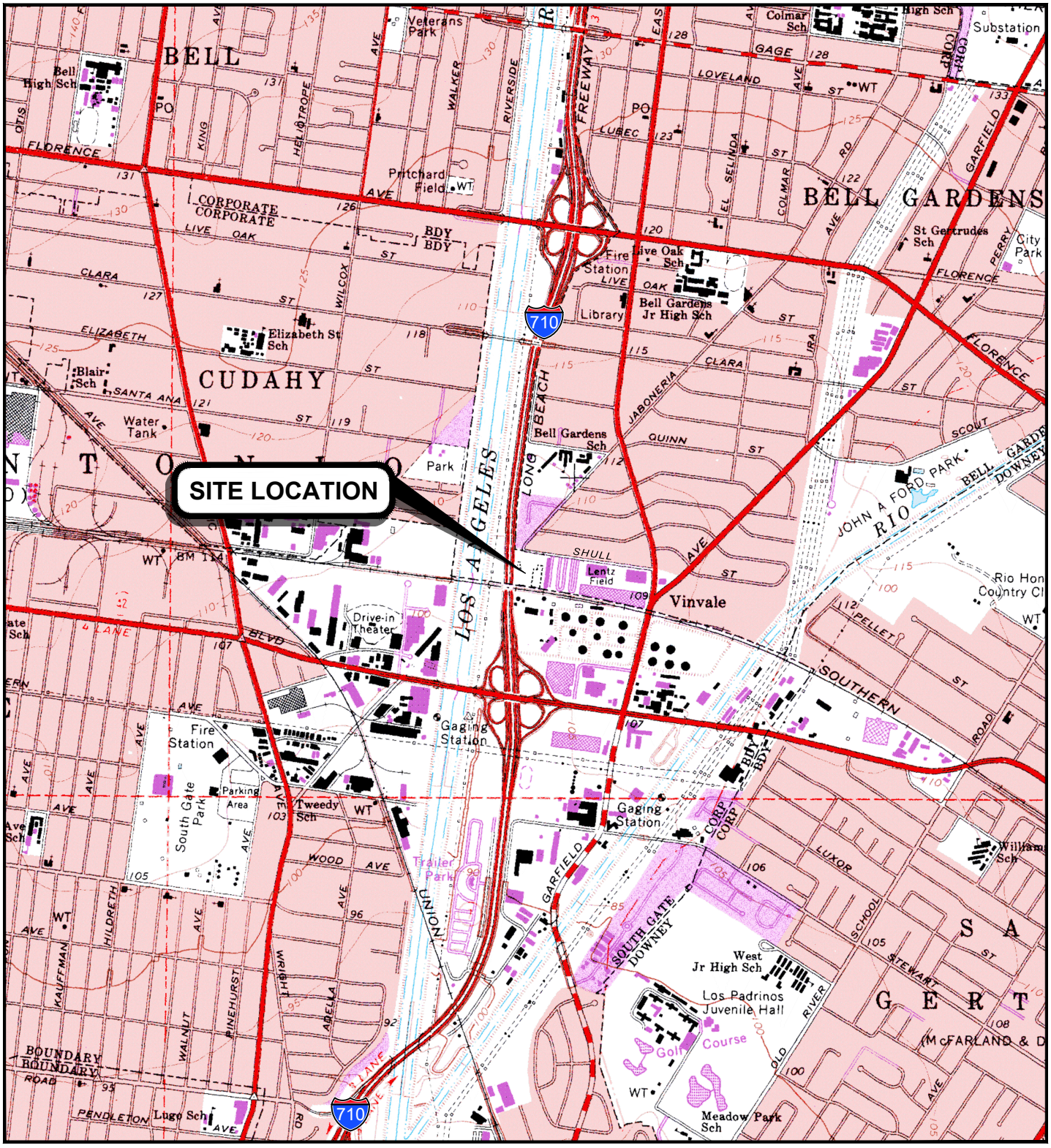
FIGURES



REFERENCE:

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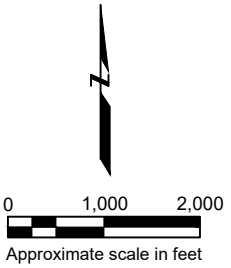
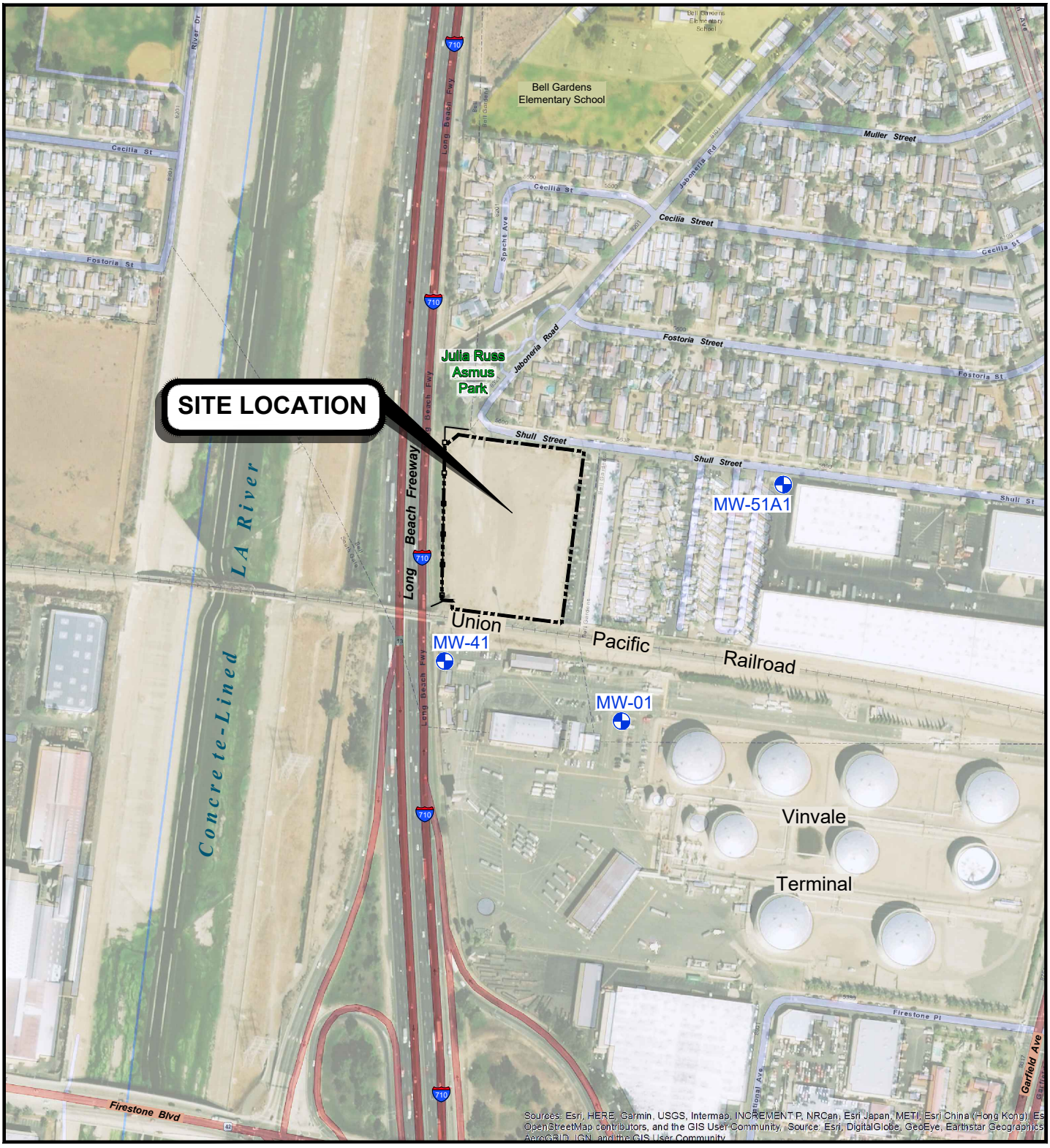


SITE LOCATION MAP
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/25/2023	Project No. CM20167712
wsp		Figure 1

Plot Date: 8/25/2023 11:45:09 AM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Site Location Map.dwg, Site Loc



Explanation

MW-51A1 Selected nearby Vinvale Terminal groundwater monitoring well

Property line

Fence

0 200 400

Approximate scale in feet

REFERENCE:

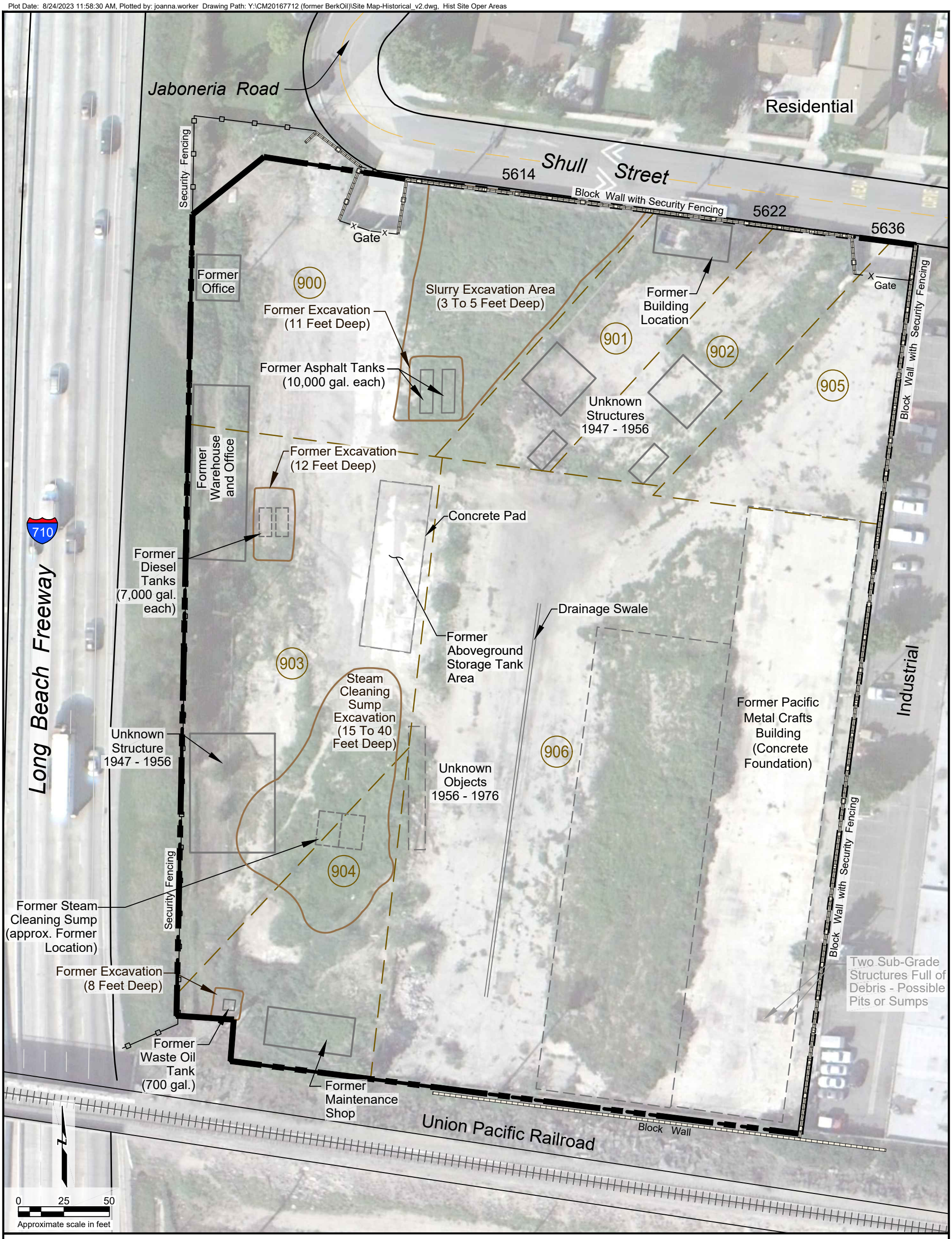
From Esri World Street Map sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, Digital Globe, GeoEye, Earthstar Geographics, AeroGRID IGN, OpenStreetMap contributors, and the GIS User Community.

SITE VICINITY MAP
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/23/2023	Project No. CM20167712
wsp		Figure 2

Plot Date: 8/23/2023 2:55:51 PM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Site Vicinity Map_v2.dwg, Vicinity w Vinvale wells

Plot Date: 8/24/2023 11:58:30 AM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Site Map-Historical_v2.dwg, Hist Site Oper Areas



Explanation

- Property line
- Parcel boundary
- 906 — Parcel number
- 5614 — Street address
- Approximate limits of former excavation

Note:

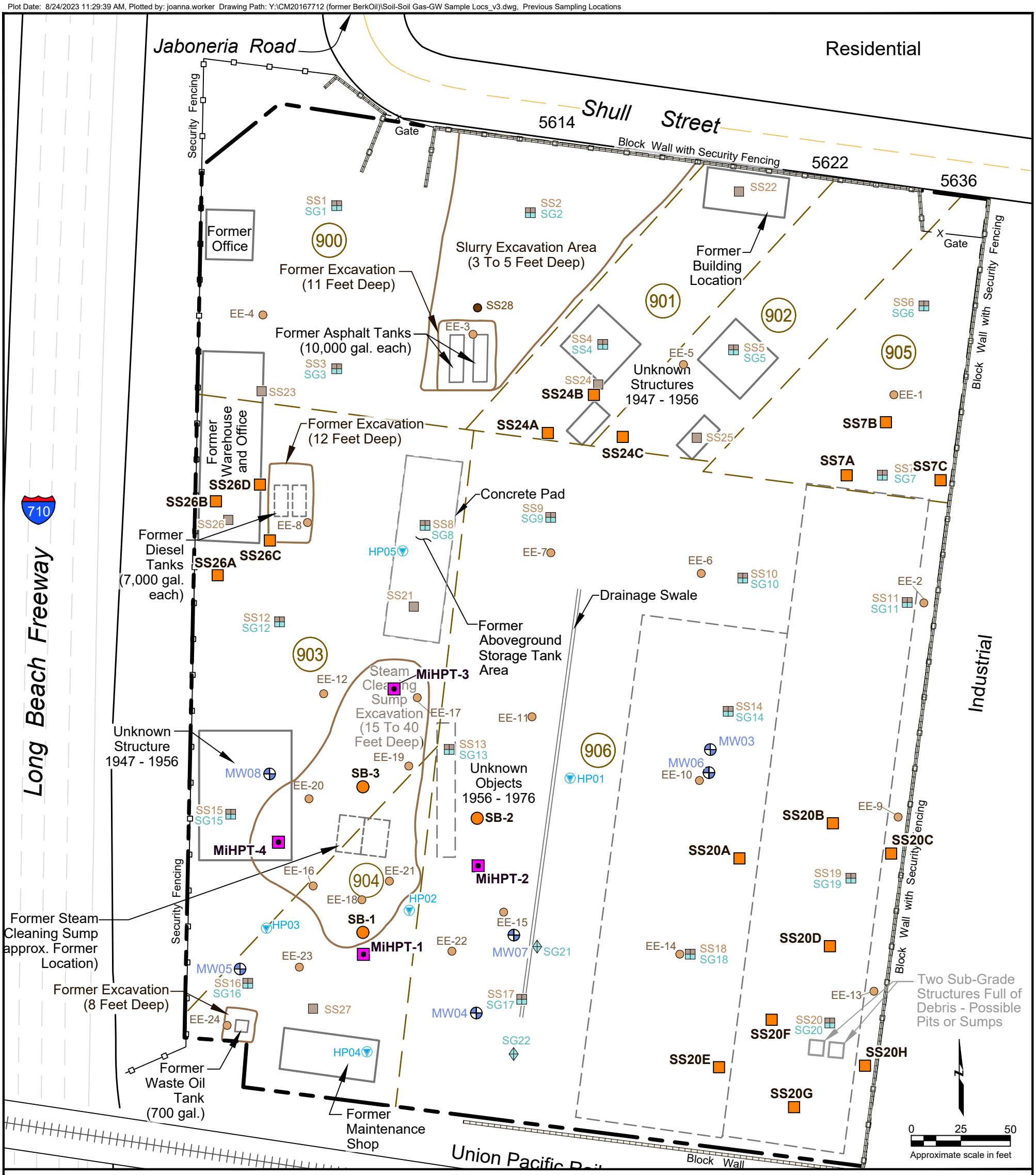
All site feature locations are approximate.

Basemap and site features modified from a figure by The Source Group, Inc., dated 3/2009. Aerial photo from BING Maps, © Microsoft Corporation, imagery © Microsoft - available exclusively by DigitalGlobe.

HISTORICAL SITE OPERATION AREAS AND PARCEL NUMBERS
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/24/2023	Project No. CM20167712
wsp		Figure 3

Plot Date: 8/24/2023 11:29:39 AM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Soil-Soil Gas-GW Sample Locs_v3.dwg, Previous Sampling Locations



Explanation

- **SB-3** Soil boring location (Wood, 2019)
- **SS26D** Step-out soil sampling location (Wood, 2019)
- **MiHPT-4** Membrane interface hydraulic profiling tool (MiHPT) location (Wood, 2019)
- SS20 / SG20 TSI soil and soil gas sampling location (AMEC, 2012)
- SG22 TSI soil gas sampling location (AMEC, 2012)
- SS27 TSI soil sampling location (AMEC, 2012)
- SS28 TSI test boring location (AMEC, 2012)
- EE-24 Boring (E & E, 2001)
- MW08 Groundwater monitoring well (Hunter, 1994)
- HP05 Hydropunch boring (Hunter, 1994)
- Property line
- Parcel boundary
- 906 Parcel number
- Approximate limits of former excavation

Notes:

1. All site features are approximate.
2. TSI = Targeted Site Investigation.
3. 2001, 2012, and 2019 soil vapor sampling locations shown.

Basemap and site features modified from a figure by The Source Group, Inc., dated 3/2009. Aerial photo from Esri World Imagery- Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, dated 4-2020.

PREVIOUS
SAMPLING LOCATIONS
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/24/2023	Project No. CM20167712
wsp		Figure 4

Plot Date: 8/24/2023 11:28:49 AM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Supplemental SiteAssessSamples_v3.dwg, SSA-Data Gap_Soil-SV

Jaboneria Road
Residential
Shull Street
5614
5622
5636
Security Fencing
Gate
Block Wall with Security Fencing
Gate
Block Wall with Security Fencing
Former Office
900
901
902
905
906
903
904
Former Excavation (11 Feet Deep)
Slurry Excavation Area (3 To 5 Feet Deep)
Former Building Location
Former Asphalt Tanks (10,000 gal. each)
Unknown Structures 1947 - 1956
Former Excavation (12 Feet Deep)
Former Warehouse and Office
Former Diesel Tanks (7,000 gal. each)
Steam Cleaning Sump Excavation (15 To 40 Feet Deep)
Unknown Structure 1947 - 1956
Unknown Objects 1956 - 1976
Former Steam Cleaning Sump (approx. Former Location)
Former Aboveground Storage Tank Area (Concrete Pad)
Drainage Swale
Former Excavation (8 Feet Deep)
Former Waste Oil Tank (700 gal.)
Former Maintenance Shop
Two Sub-Grade Structures Full of Debris - Possible Pits or Sumps
Long Beach Freeway
710
Industrial
Union Pacific Railroad
Block Wall
PSG1 PSG2 PSG3 PSG4 PSG5 PSG6 PSG7 PSG8 PSG9 PSG10 PSG11 PSG12 PSG13 PSG14 PSG15 PSG16 PSG17 PSG18 PSG19 PSG20 PSG21 PSG22 PSG23 PSG24 PSG25 PSG26 PSG27 PSG28 PSG29 PSG30 PSG31 PSG32 PSG33 PSG34 PSG35 PSG36 PSG37 PSG38 PSG39 PSG40 PSG41 PSG42 PSG43 PSG44 PSG45 PSG46 PSG47 PSG48 PSG49 PSG50 PSG51 PSG52 PSG53 PSG54 PSG55 PSG56 PSG57 PSG58 PSG59 PSG60 PSG61 PSG62
ASG-1 ASG-2 ASG-2A ASG-2B ASG-2D ASG-3 ASG-3A ASG-3B ASG-3C ASG-3D ASG-4 ASG-5 ASG-6 ASG-7 ASG-8 ASG-9 ASG-10 ASG-10A ASG-10B ASG-10B1 ASG-10C ASG-10D ASG-10F ASG-11
SS26A SS26B SS26B-5 SS26D SS26E SS26F SS26G SS26H SS26I SS26J SS26K SS26L SS26M SS26N SS26O SS26P SS26Q
SS24A SS24B SS24C
SS7A SS7B SS7C
SS20A SS20B SS20C SS20D SS20E SS20F SS20G SS20H SS20I
0 25 50
Approximate scale in feet

Explanation

- **ASG-11** — Soil and soil gas sampling location (Wood, 2021)
- **ASG-10D, SS26Q** — Step-out soil sampling locations (Wood, 2021)
- **PSG63** — Passive soil gas sampling location (Wood, 2021)
- SS26D — Previous step-out soil sampling location (Wood, 2019)
- Property line
- Parcel boundary
- 906 — Parcel number
- Approximate limits of former excavation

Note:

All site features are approximate.

Basemap and site features modified from a figure by The Source Group, Inc., dated 3/2009. Aerial photo from Esri World Imagery- Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, dated 4-2020.

SUPPLEMENTAL SITE ASSESSMENT
SOIL and SOIL VAPOR SAMPLING LOCATIONS
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/24/2023	Project No. CM20167712
wsp		Figure 5

Plot Date: 8/25/2023 11:56:06 AM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Backgrnd Samples_Park-School area.dwg, Background Soil Samples

BG-15
BG-13/14
Bell Gardens Elementary School
BG-11/12
Residential
Cecilia Street
Jaboneria Road
Specht Avenue
Residential
Residential
Cecilia Street
Residential
Residential
BG-9/10
Storm Water Channel
Fostoria Street
BG-7/8
BG-5/6
Julia Russ Asmus Park
Jaboneria Road
Residential
Long Beach Freeway
BG-1/2
BG-3/4
Residential
Security Fencing
Gate
5614
Shull Street
Block Wall with Security Fencing
5622
5636
PSG1
PSG2
PSG3
PSG4
SS1 SG1
SS2 SG2
SS22
ASG-2D PSG5
PSG6
PSG7
Gate
Former Office
900
Slurry Excavation Area (3 To 5 Feet Deep)
Former Building Location
902
905
Former Excavation (11 Feet Deep)
PSG8
PSG9
SS28
ASG-2A
901
ASG-2B
SS6 SG6
Security Fencing
0 40 80
Approximate scale in feet

Explanation

- BG-15 — Offsite background soil sampling location (Wood, 2021)
- ASG-2D — Soil and soil gas sampling location (Wood, 2021)
- PSG12 — Passive soil gas sampling location (Wood, 2021)
- Targeted Site Investigation (TSI) locations (AMEC, 2012):
  - SS6 SG6 — Soil and soil gas sample
  - SS22 — Soil sample
  - SS28 — Test boring
- Approximate limits of former excavation
- Property line
- Parcel boundary
- 900 — Parcel number
- 5614 — Street address
- Fire hydrant

Note:

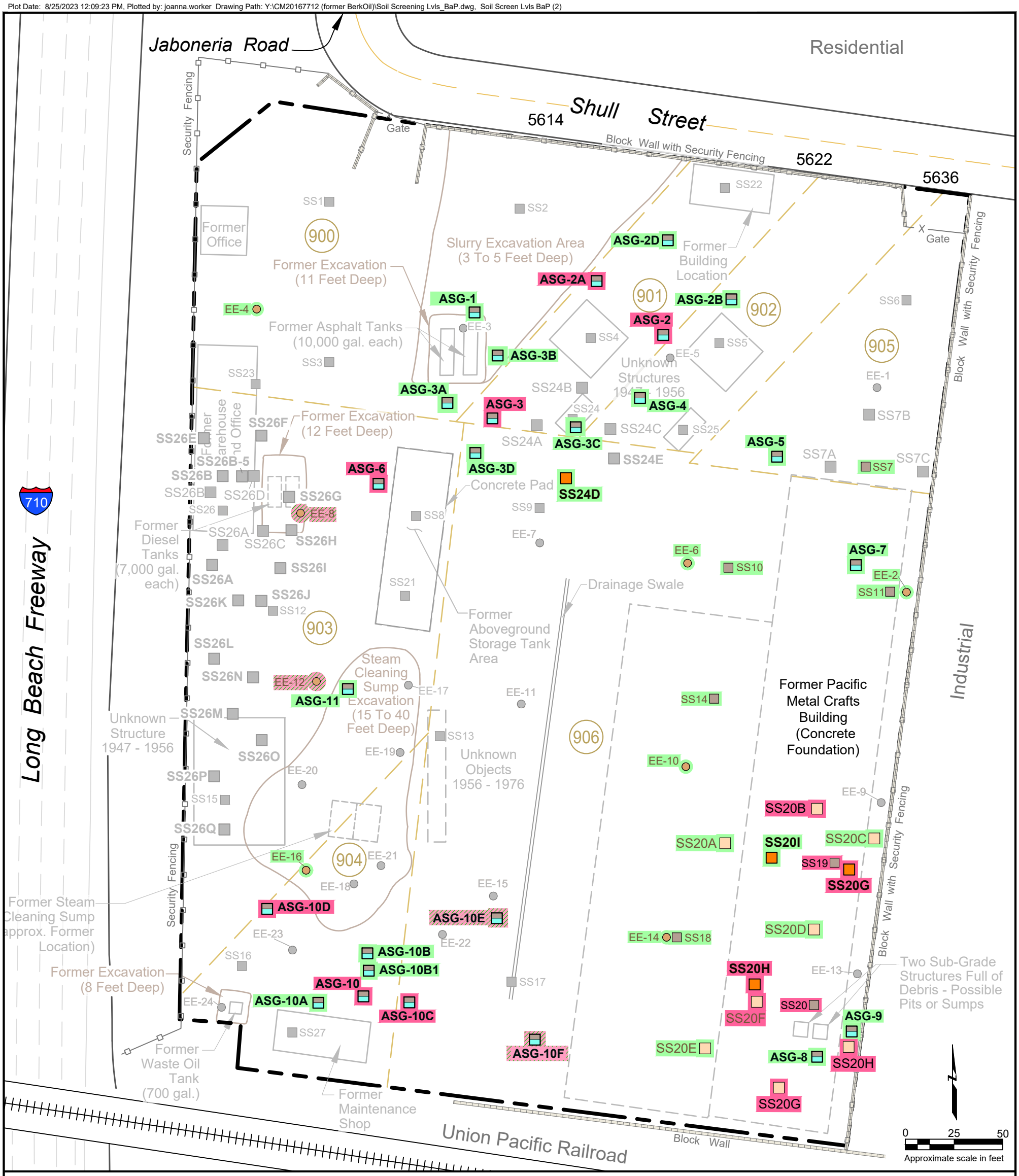
All site features are approximate.

Basemap and site features modified from a figure by The Source Group, Inc., dated 3/2009. Aerial photo from Esri World Imagery- Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, dated 4-2020, and aerial photos dated 5-9-2018.

BACKGROUND
SOIL SAMPLING LOCATIONS
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/25/2023	Project No. CM20167712
wsp		Figure 6

Plot Date: 8/25/2023 12:09:23 PM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Soil Screening Lvls_BaP.dwg, Soil Screen Lvls BaP (2)



Explanation

- **SS24D** — Step-out soil sampling location (Wood, 2021)
- **ASG-11** — Soil and soil gas sampling location (Wood, 2021)
- SS20H — Previous step-out soil sampling location (Wood, 2019)
- SS20 — TSI soil sampling location (AMEC, 2012)
- EE-16 — Boring (E & E, 2001)
- Location with Benzo(a)Pyrene toxicity equivalent quotient (B(a)P TEQ) <0.90 milligrams per kilogram (mg/kg)
- Location with B(a)P TEQ non-detect; but reporting limit exceeds 0.90 mg/kg
- Location with B(a)P TEQ >0.90 mg/kg
- Property line
- Parcel boundary
- 906 — Parcel number
- Approximate limits of former excavation

Notes:

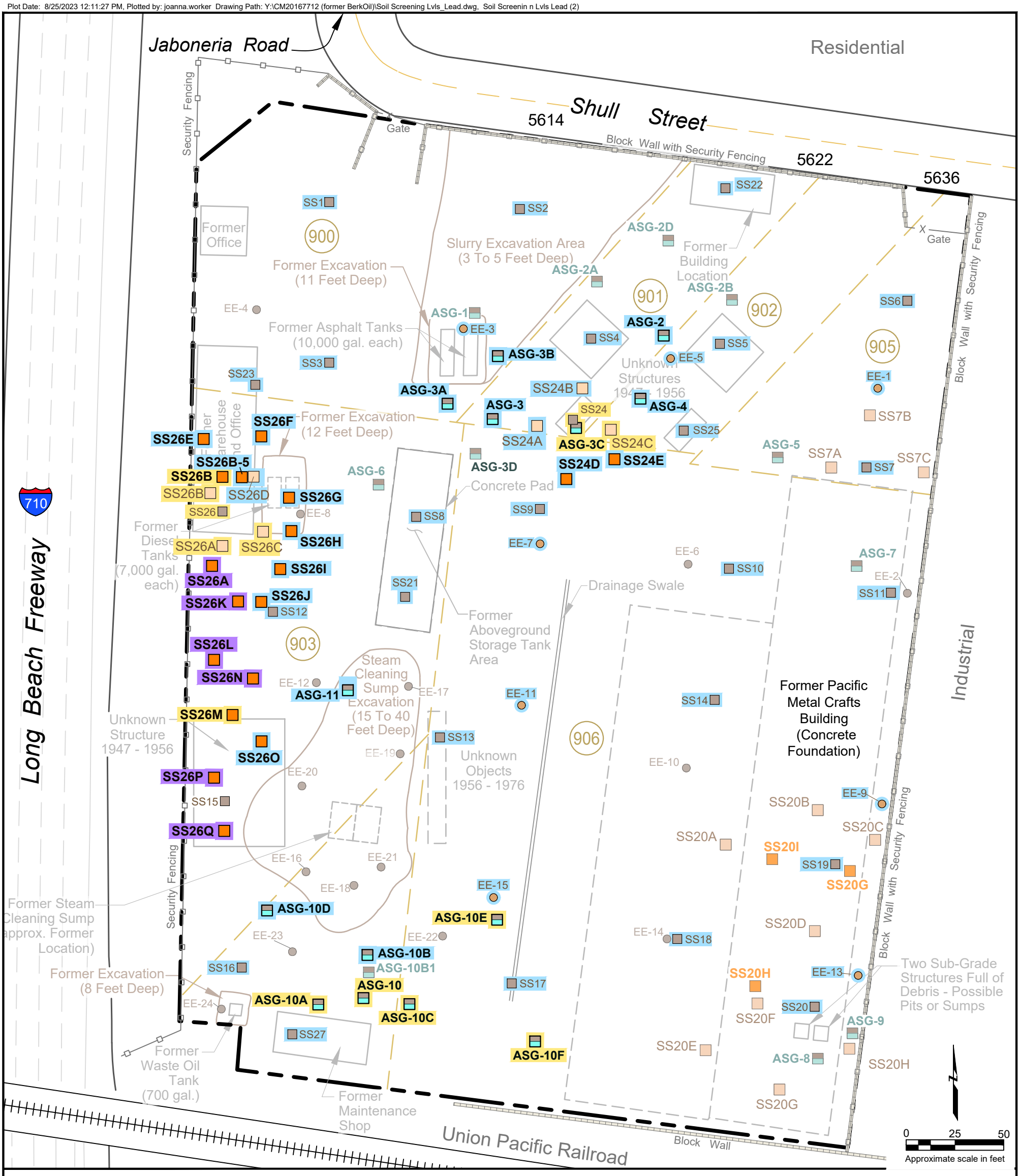
1. Gray symbols indicate that location was not sampled for B(a)P TEQ.
2. All site features are approximate.
3. TSI = Targeted Site Investigation

Basemap and site features modified from a figure by The Source Group, Inc., dated 3/2009. Aerial photo from Esri World Imagery- Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, dated 4-2020.

SOIL SCREENING LEVELS FOR BENZO(a)PYRENE TOXICITY EQUIVALENT QUOTIENT
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/25/2023	Project No. CM20167712
wsp		Figure 7

Plot Date: 8/25/2023 12:11:27 PM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Soil Screening Lvls_Lead.dwg, Soil Screenin n Lvls Lead (2)



Explanation

- **SS26M** — Step-out soil sampling location (Wood, 2021)
- **ASG-11** — Soil and soil gas sampling location (Wood, 2021)
- SS26D — Previous step-out soil sampling location (Wood, 2019)
- SS27 — TSI soil sampling location (AMEC, 2012)
- EE-15 — Boring (E & E, 2001)
- Location with lead <80 milligrams per kilogram (mg/kg); below residential soil screening level
- Location with lead 81 to 319 mg/kg; exceeds residential soil screening level but below commercial/industrial soil screening level
- Location with lead ≥320 mg/kg; exceeds commercial/industrial soil screening level
- Property line
- Parcel boundary
- 906 — Parcel number
- Approximate limits of former excavation

Notes:

1. Gray symbols indicate that location was not sampled for lead.
2. All site features are approximate.
3. TSI = Targeted Site Investigation.

Basemap and site features modified from a figure by The Source Group, Inc., dated 3/2009. Aerial photo from Esri World Imagery- Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, dated 4-2020.

SOIL SCREENING LEVELS FOR LEAD
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/25/2023	Project No. CM20167712
wsp		Figure 8

Plot Date: 8/25/2023 12:15:54 PM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Lead-PAH-Impacted Soil limits.dwg, Lead-PAH-impacted Soil (2)

Jaboneria Road

Residential

Shull Street

Security Fencing

Gate

Block Wall with Security Fencing

Former Office

900

Former Excavation (11 Feet Deep)

Slurry Excavation Area (3 To 5 Feet Deep)

Former Building Location

902

X Gate

Block Wall with Security Fencing

Former Asphalt Tanks (10,000 gal. each)

901

4'

2'

905

Unknown Structures 1947 - 1956

6'

4'

Former Excavation (12 Feet Deep)

Former Warehouse and Office

2'

Concrete Pad

710

Long Beach Freeway

Former Diesel Tanks (7,000 gal. each)

2'

ASG-7

SG11

Drainage Swale

903

Former Aboveground Storage Tank Area

Steam Cleaning Sump Excavation (15 To 40 Feet Deep)

4'

Unknown Structure 1947 - 1956

906

Unknown Objects 1956 - 1976

2'

SS20B

Former Pacific Metal Crafts Building (Concrete Foundation)

SS26Q

904

Security Fencing

Former Steam Cleaning Sump approx. Former Location)

2'

Block Wall with Security Fencing

Former Excavation (8 Feet Deep)

4'

Two Sub-Grade Structures Full of Debris - Possible Pits or Sumps

4'

Former Waste Oil Tank (700 gal.)

2'

Former Maintenance Shop

Industrial

Union Pacific Railroad

Block Wall

0 25 50

Approximate scale in feet

Explanation

- Proposed soil sample location
- SS26Q — Selected previous soil sample location
- Estimated limits of lead and/or polycyclic aromatic hydrocarbon impacted soil
- 6' — Estimated excavation depth in feet
- Approximate limits of Backfill Areas
- Property line
- Parcel boundary
- 906 — Parcel number

Note:

All site features are approximate.

Basemap and site features modified from a figure by The Source Group, Inc., dated 3/2009. Aerial photo from Esri World Imagery- Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, dated 4-2020.

ESTIMATED LIMITS OF LEAD and/or POLYCYCLIC AROMATIC HYDROCARBON IMPACTED SOIL
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/25/2023	Project No. CM20167712
wsp		Figure 9

Plot Date: 8/25/2023 12:04:16 PM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Lead-PAH-Impacted Soil limits.dwg, Limits Impacted Soil

Jaboneria Road

Residential

Shull Street

Security Fencing

Gate

Block Wall with Security Fencing

Area 1
6,342.14 sq ft

Former Office

900

Former Excavation
(11 Feet Deep)

Slurry Excavation Area
(3 To 5 Feet Deep)

2,302.51 sq ft

Former Asphalt Tanks
(10,000 gal. each)

Former Building Location

902

901

905

X Gate

Block Wall with Security Fencing

1A (2')

2,577.31 sq ft

(4')

1B

Unknown Structures
1947 - 1956

1C (6')

1D (4')

942.82 sq ft

Former Excavation
(12 Feet Deep)

Former Warehouse and Office

860.95 sq ft

Concrete Pad

710

1,440.93 sq ft

(2')
2B

Former Diesel Tanks
(7,000 gal. each)

2A (2')

11,847.66 sq ft

Drainage Swale

903

Former Aboveground Storage Tank Area

Long Beach Freeway

6,153.46 sq ft

2C (4')

Steam Cleaning Sump Excavation
(15 To 40 Feet Deep)

Area 2
27,293.67 sq ft

Unknown Structure
1947 - 1956

906

Unknown Objects
1956 - 1976

Area 3
21,061.37 sq ft

7,284.09 sq ft

3B (2')

Industrial

Former Pacific Metal Crafts Building (Concrete Foundation)

9,064.97 sq ft

904

Security Fencing

Former Steam Cleaning Sump approx. Former Location

2D (2')

4,731.46 sq ft

Former Excavation
(8 Feet Deep)

811.03 sq ft

2E (4')

2,177.78 sq ft

3A (4')

Block Wall with Security Fencing

Two Sub-Grade Structures Full of Debris - Possible Pits or Sumps

Former Waste Oil Tank
(700 gal.)

2F (2')

Former Maintenance Shop

Union Pacific Railroad

Block Wall

N

0 25 50

Approximate scale in feet

Explanation

- **Area 3** — Excavation area
- **3B** — Removal grid
- (6') — Estimated excavation depth in feet
- Confirmation sampling grid
- Lead sampling area
- Approximate limits of Backfill Areas (former excavations)

Note:

All site features are approximate.

Basemap and site features modified from a figure by The Source Group, Inc., dated 3/2009.
Aerial photo from Esri World Imagery- Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, dated 4-2020.

ESTIMATED LIMITS OF
IMPACTED SOIL
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/25/2023	Project No. CM20167712
wsp		Figure 10

Transport Route Directions From Site

1. Turn Right onto Shull Street heading east (0.4 mile)
2. Turn Right onto Eastern Avenue heading south (0.1 mile).
3. Stay to the Right, continue onto Garfield Avenue. (0.3 mile).
4. Turn Right onto Firestone Boulevard heading west (0.2 mile).
5. Turn Right onto Northbound 710 Freeway Onramp (0.2 mile).
6. Merge onto Northbound 710 Long Beach Freeway.

REFERENCE:

From Esri World Street Map sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, OpenStreetMap contributors, Maxar, Earthstar Geographics, and the GIS User Community.

TRANSPORTATION ROUTE MAP
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

By: jrw	Date: 08/25/2023	Project No. CM20167712
wsp		Figure 11

Plot Date: 8/25/2023 12:18:38 PM, Plotted by: joanna.worker Drawing Path: Y:\CM20167712 (former BerkOil)\Transport Rt Map.dwg, Transport Route

APPENDIX

A SUMMARY TABLES OF SAMPLING RESULTS

Table 1

Analytical Results for Volatile Organic Compounds in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in micrograms per kilogram (µg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	PCE	TCE	cis-1,2-DCE	1,1,1-TCA	Vinyl chloride	Acetone	Benzene	Ethyl-benzene	Toluene	m,p-Xylene	o-Xylene	1,2-DCB	Others [2]
VP-1	VP-1-5	5	03/31/23	<0.78	<1.6	<0.78	<0.78	<0.78	<16	**1.5**	<0.78	<0.78	<1.6	<0.78	<0.78	ND
	VP-1-10	10		<0.82	<1.6	<0.82	<0.82	<0.82	<16	<0.82	<0.82	<0.82	<1.6	<0.82	<0.82	ND
	VP-1-15	15		<0.97	<1.9	<0.97	<0.97	<0.97	**24**	<0.97	<0.97	<0.97	<1.9	<0.97	<0.97	ND
	VP-1-20	20		<0.83	<1.7	<0.83	<0.83	<0.83	<17	<0.83	<0.83	<0.83	<1.7	<0.83	<0.83	ND
	VP-1-DUP			<1.0	<2.0	<1.0	<1.0	<1.0	<20	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	ND
	VP-1-30	30		<0.85	<1.7	<0.85	<0.85	<0.85	**20**	**0.99**	<0.85	<0.85	<1.7	<0.85	<0.85	ND
	VP-1-40	40		<0.77	<1.5	<0.77	<0.77	<0.77	<15	**3.0**	<0.77	**1.2**	<1.5	<0.77	<0.77	ND
	VP-1-50	50		<0.75	<1.5	<0.75	<0.75	<0.75	<15	<0.75	<0.75	<0.75	<1.5	<0.75	<0.75	ND
	VP-1-60	60		<0.96	<1.9	<0.96	<0.96	<0.96	<19	<0.96	<0.96	<0.96	<1.9	<0.96	<0.96	ND
VP-2	VP-2-5	5	04/04/23	<0.91	<1.8	<0.91	<0.91	<0.91	<18	**4.0**	<0.91	**2.7**	<1.8	<0.91	<0.91	ND
	VP-2-10	10		<0.78	<1.6	<0.78	<0.78	<0.78	<16	<0.78	<0.78	<0.78	<1.6	<0.78	<0.78	ND
	VP-2-15	15		<1.0	<2.0	<1.0	<1.0	<1.0	**85**	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	ND
	VP-2-20	20		<0.64	<1.3	<0.64	<0.64	<0.64	**33**	**1.0**	<0.64	**0.75**	<1.3	<0.64	<0.64	ND
	VP-2-DUP			<0.74	<1.5	<0.74	<0.74	<0.74	**37**	**1.3**	<0.74	**0.91**	<1.5	<0.74	<0.74	ND
	VP-2-30	30		<0.86	<1.7	<0.86	<0.86	<0.86	**36**	**3.0**	<0.86	**1.8**	<1.7	<0.86	**3.6**	ND
	VP-2-40	40		<0.76	<1.5	<0.76	<0.76	<0.76	**33**	**1.7**	<0.76	**0.97**	<1.5	<0.76	**7.3**	ND
	VP-2-50	50		<0.64	<1.3	<0.64	<0.64	<0.64	<13	<0.64	<0.64	<0.64	<1.3	<0.64	<0.64	ND
	VP-2-60	60		<0.94	<1.9	<0.94	<0.94	<0.94	<19	<0.94	<0.94	<0.94	<1.9	<0.94	<0.94	ND
VP-3	VP-3-5	5	03/28/23	**2.9**	<1.9	<0.93	**52**	<0.93	**29 J**	<0.93	<0.93	<0.93	<1.9	<0.93	<0.93	ND
	VP-3-10	10		<0.90	<1.8	<0.90	**8.6**	<0.90	**89 J**	<0.90	<0.90	<0.90	<1.8	<0.90	<0.90	ND
	VP-3-15	15		**1.0**	<1.9	<0.95	**6.1**	<0.95	**110 J**	**1.0**	<0.95	<0.95	<1.9	<0.95	<0.95	ND
	VP-3-20	20		**1.1**	<1.5	<0.73	<0.73	<0.73	**20 J**	<0.73	<0.73	<0.73	<1.5	<0.73	<0.73	ND
	VP-3-DUP			**1.2**	<1.5	<0.77	**0.78**	<0.77	**74 J**	**0.83**	<0.77	<0.77	<1.5	<0.77	<0.77	ND
	VP-3-30	30		<0.78	<1.6	**11**	<0.78	<0.78	**39 J**	**1.8**	<0.78	**0.79**	<1.6	<0.78	**25**	Chlorobenzene - **0.96**
	VP-3-40	40		<1.3	<2.7	**1.5**	<1.3	**1.3**	**38 J**	<1.3	<1.3	<1.3	<2.7	<1.3	**5.6**	ND
	VP-3-50	50		<0.97	<1.9	**5.3**	<0.97	**1.1**	**30 J**	<0.97	<0.97	<0.97	<1.9	<0.97	**8.0**	ND
	VP-3-60	60		<0.97	<1.9	<0.97	<0.97	<0.97	**120 J**	<0.97	<0.97	<0.97	<1.9	<0.97	<0.97	ND
VP-4	VP-4-5	5	03/30/23	**1.3**	<1.8	<0.89	<0.89	<0.89	**19 J**	**1.5**	<0.89	<0.89	<1.8	<0.89	<0.89	ND
	VP-4-10	10		<0.93	<1.9	<0.93	<0.93	<0.93	**21 J**	<0.93	<0.93	<0.93	<1.9	<0.93	<0.93	ND
	VP-4-15	15		<0.86	<1.7	<0.86	<0.86	<0.86	**59 J**	<0.86	<0.86	<0.86	<1.7	<0.86	<0.86	ND
	VP-4-20	20		**1.3**	<1.4	<0.69	<0.69	<0.69	**15 J**	**3.8**	<0.69	**2.9**	<1.4	<0.69	<0.69	ND
	VP-4-DUP			**1.4**	<1.9	<0.96	<0.96	<0.96	**58 J**	**5.4**	<0.96	**4.3**	<1.9	<0.96	<0.96	
	VP-4-30	30		<170	<340	**270**	<170	<170	<3400	**1,700**	**880**	**6,000**	**3,900**	**1,800**	<170	1,2,4-TMB = **1,500** 1,3,5-TNB = **400**
	VP-4-40	40		<49	<99	<49	<49	<49	<990	**470**	**330**	**1,700**	**630**	**620**	<49	1,2,4-TMB = **250**
	VP-4-50	50		<1.1	<2.3	**6.7**	<1.1	<1.1	**95 J**	**6.2**	**2.8**	**1.2**	<2.3	<1.1	<1.1	ND
	VP-4-60	60		<1.1	<2.1	<1.1	<1.1	<1.1	**21 J**	<1.1	<1.1	**5.3**	**2.9**	**1.5**	<1.1	ND

Table 1

Analytical Results for Volatile Organic Compounds in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in micrograms per kilogram (µg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	PCE	TCE	cis-1,2-DCE	1,1,1-TCA	Vinyl chloride	Acetone	Benzene	Ethyl-benzene	Toluene	m,p-Xylene	o-Xylene	1,2-DCB	Others [2]
VP-5	VP-5-5	5	04/03/23	<0.99	<2.0	<0.99	<0.99	<0.99	**46**	**0.99**	<0.99	<0.99	<2.0	<0.99	<0.99	ND
	VP-5-10	10		**3.1**	**2.1**	<0.90	<0.90	<0.90	**19**	**2.8**	<0.90	**1.3**	<1.8	<0.90	<0.90	ND
	VP-5-15	15		**0.86**	<1.6	<0.79	<0.79	<0.79	**16**	**27**	**3.2**	**19**	**3.4**	**1.2**	<0.79	ND
	VP-5-20	20		<0.98	<2.0	<0.98	<0.98	<0.98	<20	<0.98	<0.98	<0.98	<2.0	<0.98	<0.98	ND
	VP-5-DUP			<1.0	<2.0	<1.0	<1.0	<1.0	<20	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	ND
	VP-5-30	30		<0.72	<1.4	<0.72	<0.72	<0.72	<14	**1.5**	<0.72	**0.88**	<1.4	<0.72	<0.72	ND
	VP-5-40	40		<0.90	<1.8	<0.90	<0.90	<0.90	<18	**2.1**	<0.90	**1.2**	<1.8	<0.90	<0.90	ND
	VP-5-50	50		<0.92	<1.8	<0.92	<0.92	<0.92	<18	<0.92	<0.92	<0.92	<1.8	<0.92	<0.92	ND
	VP-5-60	60		<1.2	<2.4	<1.2	<1.2	<1.2	**79**	<1.2	<1.2	<1.2	<2.4	<1.2	<1.2	ND
VP-6	VP-6-5	5	04/05/23	<1.1	<2.1	<1.1	<1.1	<1.1	**76 J**	**1.3**	<1.1	<1.1	<2.1	<1.1	<1.1	ND
	VP-6-10	10		<0.64	<1.3	<0.64	<0.64	<0.64	**54 J**	**0.68**	<0.64	<0.64	<1.3	<0.64	<0.64	ND
	VP-6-15	15		<1.1	<2.1	<1.1	<1.1	<1.1	**150 J**	<1.1	<1.1	<1.1	<2.1	<1.1	**31**	1,2,3-TCB = **2.2** 1,2,4-TCB = **63** 1,3-DCB = **19** 1,4-DCB = **19**
	VP-6-20	20		<0.86	<1.7	**0.93**	<0.86	<0.86	**110 J**	**2.1**	<0.86	**0.94**	<1.7	<0.86	**26**	1,2,4-TCB = **36** 1,3-DCB = **5.0** 1,4-DCB = **6.2**
	VP-6-DUP			<1.0	<2.1	**1.2**	<1.0	<1.0	**27 J**	**2.1**	<1.0	<1.0	<2.1	<1.0	**32**	1,2,4-TCB = **43** 1,3-DCB = **6.0** 1,4-DCB = **7.5**
	VP-6-30	30		<0.77	<1.5	<0.77	<0.77	<0.77	**20 J**	**2.5**	<0.77	**2.1**	<1.5	<0.77	**5.5**	ND
	VP-6-40	40		<0.77	<1.5	<0.77	<0.77	<0.77	**18 J**	**0.92**	<0.77	<0.77	<1.5	<0.77	**1.3**	ND
	VP-6-50	50		<0.86	<1.7	<0.86	<0.86	<0.86	**27 J**	<0.86	<0.86	<0.86	<1.7	<0.86	<0.86	ND
	VP-6-60	60		<0.92	<1.8	<0.92	<0.92	<0.92	**19 J**	<0.92	<0.92	<0.92	<1.8	<0.92	<0.92	ND
VP-7	VP-7-5	5	03/27/23	<0.68	<1.4	<0.68	<0.68	<0.68	**14**	**2.4**	<0.68	**1.5**	<1.4	<0.68	<0.68	ND
	VP-7-10	10		<0.93	<1.9	<0.93	<0.93	<0.93	**24**	<0.93	<0.93	<0.93	<1.9	<0.93	<0.93	ND
	VP-7-15	15		<0.80	<1.6	<0.80	<0.80	<0.80	**19**	<0.80	<0.80	<0.80	<1.6	<0.80	<0.80	ND
	VP-7-20	20		<0.78	<1.6	<0.78	<0.78	<0.78	<16	**3.0**	<0.78	**1.0**	<1.6	<0.78	<0.78	ND
	VP-7-20-DUP			<0.68	<1.4	<0.68	<0.68	<0.68	**15**	**2.4**	<0.68	**0.83**	<1.4	<0.68	<0.68	ND
	VP-7-30	30		<0.81	<1.6	<0.81	<0.81	<0.81	<16	<0.81	<0.81	<0.81	<1.6	<0.81	<0.81	ND
	VP-7-40	40		<0.75	<1.5	<0.75	<0.75	<0.75	<15	**2.5**	<0.75	**1.7**	<1.5	<0.75	<0.75	ND
	VP-7-50	50		<0.66	<1.3	<0.66	<0.66	<0.66	<13	<0.66	<0.66	<0.66	<1.3	<0.66	<0.66	ND
	VP-7-60	60		<0.98	<2.0	<0.98	<0.98	<0.98	<20	<0.98	<0.98	<0.98	<2.0	<0.98	<0.98	ND

Table 1

Analytical Results for Volatile Organic Compounds in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in micrograms per kilogram (µg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	PCE	TCE	cis-1,2-DCE	1,1,1-TCA	Vinyl chloride	Acetone	Benzene	Ethyl-benzene	Toluene	m,p-Xylene	o-Xylene	1,2-DCB	Others [2]
VP-8	VP-8-5	5	03/29/23	<0.72	<1.4	<0.72	<0.72	<0.72	**18**	**1.1**	<0.72	<0.72	<1.4	<0.72	<0.72	ND
	VP-8-10	10		<0.40	<0.81	<0.40	<0.40	<0.40	<8.1	<0.40	<0.40	<0.40	<0.81	<0.40	<0.40	ND
	VP-8-15	15		<1.0	<2.0	<1.0	<1.0	<1.0	**29**	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	ND
	VP-8-20	20		<1.1	<2.2	<1.1	<1.1	<1.1	**24**	<1.1	<1.1	<1.1	<2.2	<1.1	<1.1	ND
	VP-8-DUP			<0.79	<1.6	<0.79	<0.79	<0.79	**20**	<0.79	<0.79	<0.79	<1.6	<0.79	<0.79	ND
	VP-8-30	30		<0.78	<1.6	<0.78	<0.78	<0.78	**19**	**1.1**	<0.78	<0.78	<1.6	<0.78	<0.78	ND
	VP-8-40	40		<0.77	<1.5	**0.86**	<0.77	<0.77	<15	<0.77	<0.77	<0.77	<1.5	<0.77	<0.77	ND
	VP-8-50	50		<0.93	<1.9	<0.93	<0.93	<0.93	**20**	<0.93	<0.93	<0.93	<1.9	<0.93	<0.93	ND
	VP-8-60	60		<1.0	<2.1	<1.0	<1.0	<1.0	**25**	<1.0	<1.0	<1.0	<2.1	<1.0	<1.0	ND
Screening Levels [3]		Residential		590	940	18,000	1,700,000	8.2	70,000,000	330	5,800	1,100,000	550,000	640,000	1,800,000	CB - 280,000 TCB - 2,200,000 TMB - 300,000
		Commercial		2,700	6,000	84,000	7,200,000	150	1,100,000,000	1,400	25,000	5,300,000	2,400,000	2,800,000	9,300,000	CB - 1,300,000 TCB - 32,000,000 TMB - 1,800,000

Notes

1. Volatile organic compounds using United States Environmental Protection Agency (EPA) Method 8260B.
2. Remaining analytes were not detected at or above reporting limits. See laboratory reports for full list of compounds and reporting limits.
3. Department of Toxic Substances Control (DTSC), 2022. Human Health Risk Assessment Note 3: DTSC Modified Screening Levels (DTSC-SLs). Revised May 2022. If DTSC-SLs were not available, May 2023 EPA Regional Screening Levels were selected.

Abbreviations

<0.78 = not detected at or above the laboratory reporting limit shown

DUP = duplicate sample

feet bgs= feet below ground surface

ND = not detected at or above reporting limit

Bold = detection at or above the laboratory reporting limit

Green highlight = exceeds residential screening level

Orange highlight = exceeds commercial screening level

J = estimate value

J+ = estimate value, biased high

CB = chlorobenzene

DCB = dichlorobenzene

DCE = dichloroethene

PCE = tetrachloroethene

TCA = trichloroethane

TCB = trichlorobenzene

TCE = trichloroethene

TMB = trimethylbenzene

Table 2

Analytical Results for Total Petroleum Hydrocarbons in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	C6 as C6	C7 as C7	C8 as C8	C9-C10	C11-C12	C13-C14	C15-C16	C17-C18	Total TPH (C9-C18)	C19-C20	C21-C22	C23-C24	C25-C28	C29-C32	Total TPH (C17/19-C32)	C33-C36	C37-C40	C41-C44	Diesel Range (C10-C28)	Total TPH (C6-C44)
VP-1	VP-1-5	5	03/31/23	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	**5.2**	**7.0**
	VP-1-10	10		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-1-15	15		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-1-20	20		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-1-DUP			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	**5.0**	**8.3**
	VP-1-30	30		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-1-40	40		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-1-50	50		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-1-60	60		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	**7.1**	**8.7**
VP-2	VP-2-5	5	04/04/23	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	**11**	**30 J**
	VP-2-10	10		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-2-15	15		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-2-20	20		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	**7.4**	**21 J**
	VP-2-DUP			<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-2-30	30		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-2-40	40		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-2-50	50		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-2-60	60		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
VP-3	VP-3-5	5	03/28/23	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	**6.3**
	VP-3-10	10		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-3-15	15		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-3-20	20		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	**7.7**	**11 J**
	VP-3-DUP			<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-3-30	30		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-3-40	40		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-3-50	50		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-3-60	60		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9

Table 2

Analytical Results for Total Petroleum Hydrocarbons in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	C6 as C6	C7 as C7	C8 as C8	C9-C10	C11-C12	C13-C14	C15-C16	C17-C18	Total TPH (C9-C18)	C19-C20	C21-C22	C23-C24	C25-C28	C29-C32	Total TPH (C17/19-C32)	C33-C36	C37-C40	C41-C44	Diesel Range (C10-C28)	Total TPH (C6-C44)
VP-4	VP-4-5	5	03/30/23	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-4-10	10		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-4-15	15		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-4-20	20		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-4-DUP			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-4-30	30		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-4-40	40		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-4-50	50		<5.0	<5.0	<5.0	**25 J+**	**9.9 J+**	**5.7 J+**	<5.0	<5.0	**40.6 J+**	<5.0	<5.0	<5.0	**17 J+**	**16 J+**	**33 J+**	**11 J+**	**5.3 J+**	<5.0	**46 J+**	**110 J+**
	VP-4-60	60		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
VP-5	VP-5-5	5	04/03/23	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	**8.8**	**10**	**44**	**65**	**128**	**31**	**12**	<4.9	**68**	**180**
	VP-5-10	10		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	**10**	<4.9	**10**	<4.9	<4.9	<4.9	**21**	**39**
	VP-5-15	15		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	**7.4**	**10**	**17**	**5.1**	<4.9	<4.9	**12**	**32**
	VP-5-20	20		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-5-DUP			<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	**5.8**	**8.4**
	VP-5-30	30		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-5-40	40		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-5-50	50		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-5-60	60		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	**12**	**13**
VP-6	VP-6-5	5	04/05/23	<98	<98	<98	<98	<98	<98	<98	<98	--	<98	<98	<98	**250 J**	**470 J**	**720 J**	**500 J**	**400 J**	**280 J**	**370 J**	**2,100 J**
	VP-6-10	10		<4.9	<4.9	**6.0**	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	**22 J**
	VP-6-15	15		<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	**14 J**	**14 J**	**24 J**	**33 J**	**39 J**	**120 J**	**130 J**	**346 J**	**89 J**	**56 J**	**36 J**	**240 J**	**560 J**
	VP-6-20	20		<4.9	<4.9	<4.9	<4.9	**5.2**	**19 J**	**27 J**	**29 J**	**80 J**	**31 J**	**30 J**	**26 J**	**61 J**	**69 J**	**217 J**	**59 J**	**51 J**	**37 J**	**230 J**	**450 J**
	VP-6-DUP			<4.9	<4.9	**5.9**	<4.9	<4.9	**8.8 J**	**13 J**	**15 J**	**37 J**	**16 J**	**15 J**	**13 J**	**31 J**	**36 J**	**111 J**	**31 J**	**27 J**	**22 J**	**110 J**	**240 J**
	VP-6-30	30		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	**10 J**	**24 J**
	VP-6-40	40		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	**11 J**	**26 J**
	VP-6-50	50		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-6-60	60		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9

Table 2

Analytical Results for Total Petroleum Hydrocarbons in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	C6 as C6	C7 as C7	C8 as C8	C9-C10	C11-C12	C13-C14	C15-C16	C17-C18	Total TPH (C9-C18)	C19-C20	C21-C22	C23-C24	C25-C28	C29-C32	Total TPH (C17/19-C32)	C33-C36	C37-C40	C41-C44	Diesel Range (C10-C28)	Total TPH (C6-C44)
VP-7	VP-7-5	5	03/27/23	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-7-10	10		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-7-15	15		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-7-20	20		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-7-20-DUP			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-7-30	30		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-7-40	40		<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	--	<5.1	<5.1	<5.1	<5.1	<5.1	--	<5.1	<5.1	<5.1	<5.1	<5.1
	VP-7-50	50		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-7-60	60		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
VP-8	VP-8-5	5	03/29/23	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-8-10	10		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-8-15	15		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	<5.0	<5.0	<5.0
	VP-8-20	20		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-8-DUP			<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	5.0 U	<4.9
	VP-8-30	30		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-8-40	40		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-8-50	50		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
	VP-8-60	60		<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9	--	<4.9	<4.9	<4.9	<4.9	<4.9
Residential RSLs [2,3]			Aliphatic[4]	250			96						230,000						230,000			--	--
			Aromatic[5]	--			97						2,400						2,400			--	--
Industrial DTSC-SLs/RSLs [2,3]			Aliphatic[4]	1,900			440						3,500,000						3,500,000			--	--
			Aromatic[5]	--			500						18,000						18,000			--	--

Notes

1. Total petroleum hydrocarbon (TPH) carbon chain characterization analysis using United States Environmental Protection Agency (EPA) Method 8015M.
2. EPA Regional Screening Levels for chemical contaminants at Superfund sites, May 2023. DTSC recommends a lower alternative industrial value for medium and high range aromatics (DTSC, 2022).
3. The RSLs for TPH are split into six fractions based on the number of carbons. Aliphatic and aromatic carbon ranges are each split into low, medium, and high fractions.
4. Low aliphatic: C5-C8; Medium aliphatic: C9-C18; High aliphatic: C19-C32. Since the RSLs do not include the higher end carbon range (C33-C44), the high end range RSL was used as a conservative surrogate.
5. Low aromatic: C6-C8 is no longer published or recommended; Medium aromatic: C9-C16; High aromatic: C17-C32. Since the RSLs do not include the higher end carbon range (C33-C44), the high end range DTSC-SL/RSL was used as a conservative surrogate.

Abbreviations

-- = not analyzed or not applicable
ft bgs = feet below ground surface
<10 = not detected at or above the laboratory reporting limit shown
RSL = regional screening level
Bold = detection at or above the laboratory reporting limit
DUP = duplicate sample
DTSC-SL = DTSC-modified screening level
J = estimate value
J+ = estimate value, biased high
U = not detected at or above estimated limit shown

Table 3

Analytical Results for Metals in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
VP-2	VP-2-5	5	04/04/23	<10.0 UJ	<3.00	**116 J+**	<0.500	<0.500	**18.0**	**8.66**	**23.3**	**14.2**	<0.0817	<2.00	**12.7**	<3.00	<1.50	<10.0	**38.3**	**76.5**
	VP-2-10	10		<9.95 UJ	<2.99	**75.8 J+**	<0.498	<0.498	**13.0**	**6.01**	**12.7**	**2.64**	<0.0833	<1.99	**8.36**	<2.99	<1.49	<9.95	**30.6**	**39.4**
	VP-2-15	15		<10.0 UJ	<3.00	**67.4 J+**	<0.500	<0.500	**8.03**	**5.19**	**7.51**	<2.00	<0.0817	<2.00	**5.51**	<3.00	<1.50	<10.0	**25.2**	**31.5**
	VP-2-20	20		<10.0 UJ	**4.86**	**108 J+**	<0.500	<0.500	**18.5**	**8.06**	**22.9**	**10.1**	<0.0833	<2.00	**13.7**	<3.00	<1.50	<10.0	**34.7**	**48.8**
	VP-2-DUP			<9.95 UJ	**6.52**	**122 J+**	<0.498	<0.498	**20.7**	**9.10**	**27.1**	**7.66**	<0.0833	<1.99	**15.7**	<2.99	<1.49	<9.95	**38.2**	**50.6**
	VP-2-30	30		<10.0 UJ	**4.31**	**124 J+**	<0.500	<0.500	**19.5**	**8.98**	**26.4**	**5.38**	**0.125**	<2.00	**14.0**	<3.00	<1.50	<10.0	**38.1**	**50.5**
	VP-2-40	40		<9.95 UJ	**3.50**	**115 J+**	**0.498**	<0.498	**17.6**	**9.35**	**24.7**	**4.69**	**0.253**	<1.99	**12.5**	<2.99	<1.49	<9.95	**40.3**	**51.9**
	VP-2-50	50		<9.90 UJ	<2.97	**99.8 J+**	<0.495	<0.495	**16.5**	**7.59**	**16.0**	**4.10**	**0.142**	<1.98	**14.0**	<2.97	<1.49	<9.90	**29.2**	**40.0**
	VP-2-60	60		<9.95 UJ	**7.24**	**36.4 J+**	<0.498	<0.498	**6.01**	**2.34**	**4.40**	<1.99	<0.0833	<1.99	**4.44**	<2.99	<1.49	<9.95	**12.1**	**16.1**
VP-5	VP-5-5	5	04/03/23	<9.90	**4.48**	**127**	<0.495	<0.495	**17.4**	**7.97**	**140**	**28.8**	<0.0817	<1.98	**13.7**	<2.97	<1.49	<9.90	**34.1**	**91.7**
	VP-5-10	10		<9.90	**3.12**	**160**	**0.520**	<0.495	**22.2**	**11.3**	**27.1**	**8.13**	<0.0833	<1.98	**15.7**	<2.97	<1.49	<9.90	**46.8**	**68.4**
	VP-5-15	15		<9.90	<2.97	**54.0**	<0.495	<0.495	**7.67**	**4.50**	**6.99**	**2.02**	<0.0833	<1.98	**4.99**	<2.97	<1.49	<9.90	**20.8**	**28.0**
	VP-5-20	20		<9.90	**3.30**	**144**	<0.495	<0.495	**21.5**	**9.67**	**27.4**	**5.71**	<0.0817	<1.98	**16.6**	<2.97	<1.49	<9.90	**40.7**	**50.6**
	VP-5-DUP			<9.90	**5.12**	**149**	<0.495	<0.495	**21.2**	**9.65**	**26.6**	**5.35**	<0.0833	<1.98	**16.3**	<2.97	<1.49	<9.90	**40.0**	**49.6**
	VP-5-30	30		<10.0	**5.70**	**110**	<0.500	<0.500	**16.0**	**8.30**	**16.5**	**2.74**	<0.0801	<2.00	**11.0**	<3.00	<1.50	<10.0	**36.8**	**47.0**
	VP-5-40	40		<9.90	**5.92**	**134**	<0.495	<0.495	**17.8**	**8.87**	**25.3**	**5.01**	<0.0208	<1.98	**12.5**	<2.97	<1.49	<9.90	**41.7**	**50.9**
	VP-5-50	50		<9.95	**3.48**	**99.7**	<0.498	<0.498	**21.3**	**9.00**	**25.4**	**5.57**	<0.0817	<1.99	**18.2**	<2.99	<1.49	<9.95	**32.8**	**44.3**
	VP-5-60	60		<9.90	<2.97	**47.7**	<0.495	<0.495	**8.79**	**4.15**	**9.27**	**2.20**	<0.0817	<1.98	**7.39**	<2.97	<1.49	<9.90	**17.7**	**22.6**
VP-6	VP-6-5	5	04/05/23	<9.90 UJ	**3.04**	**83.5**	<0.495	<0.495	**9.53**	**5.05**	**17.1**	**28.2**	<0.0833	<1.98	**11.7**	<2.97	<1.49	<9.90	**23.4**	**67.6**
	VP-6-10	10		<9.95 UJ	<2.99	**96.3**	<0.498	<0.498	**13.3**	**6.34**	**14.5**	**9.28**	<0.0801	<1.99	**8.63**	<2.99	<1.49	<9.95	**31.0**	**41.2**
	VP-6-15	15		<10.0 UJ	**3.16**	**102**	<0.500	<0.500	**12.8**	**6.10**	**18.7**	**117**	<0.0817	<2.00	**8.36**	<3.00	<1.50	<10.0	**28.7**	**53.6**
	VP-6-20	20		<10.0 UJ	**3.49**	**112**	<0.500	<0.500	**16.2**	**7.66**	**20.6**	**13.8**	<0.0833	<2.00	**11.3**	<3.00	<1.50	<10.0	**34.5**	**59.2**
	VP-6-DUP			<9.95 UJ	<2.99	**103**	<0.498	<0.498	**16.0**	**7.45**	**19.0**	**10.9**	<0.0833	<1.99	**11.2**	<2.99	<1.49	<9.95	**33.8**	**50.7**
	VP-6-30	30		<9.95 UJ	**6.11**	**123**	<0.498	<0.498	**16.1**	**8.10**	**16.0**	**3.27**	**0.234**	<1.99	**10.7**	<2.99	<1.49	<9.95	**33.3**	**43.8**
	VP-6-40	40		<9.95 UJ	**6.50**	**134**	**0.510**	<0.498	**19.5**	**10.7**	**24.7**	**4.78**	<0.0801	<1.99	**14.2**	<2.99	<1.49	<9.95	**43.8**	**54.7**
	VP-6-50	50		<9.90 UJ	<2.97	**107**	<0.495	<0.495	**15.1**	**6.81**	**18.6**	**3.59**	<0.0833	<1.98	**12.6**	<2.97	<1.49	<9.90	**28.0**	**35.0**
	VP-6-60	60		<9.90 UJ	<2.97	**48.7**	<0.495	<0.495	**8.92**	**4.78**	**11.3**	**2.23**	<0.0833	<1.98	**7.78**	<2.97	<1.49	<9.90	**18.8**	**23.2**

Table 3

Analytical Results for Metals in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
VP-7	VP-7-5	5	03/27/23	<10.2	<3.06	**102**	<0.510	<0.510	**15.5**	**7.74**	**15.7**	**3.66**	<0.0817	<2.04	**9.99**	<3.06	<1.53	<10.2	**35.7**	**46.0**
	VP-7-10	10		<10.1	<3.03	**58.7**	<0.505	<0.505	**8.67**	**5.19**	**7.79**	<2.02	<0.0817	<2.02	**5.72**	<3.03	<1.52	<10.1	**23.1**	**29.4**
	VP-7-15	15		<10.1	<3.03	**61.0**	<0.505	<0.505	**7.36**	**4.65**	**7.03**	<2.02	<0.0833	<2.02	**4.70**	<3.03	<1.52	<10.1	**22.6**	**27.1**
	VP-7-20	20		<10.1	**6.33**	**119**	<0.505	<0.505	**16.4**	**7.40**	**18.2**	**4.08**	<0.0817	<2.02	**12.0**	<3.03	<1.52	<10.1	**31.9**	**40.5**
	VP-7-20-DUP			<10.1	**5.43**	**119**	<0.505	<0.505	**15.6**	**7.17**	**18.0**	**3.96**	<0.0817	<2.02	**11.6**	<3.03	<1.52	<10.1	**30.9**	**39.3**
	VP-7-30	30		<10.1	**5.38**	**139**	<0.503	<0.503	**18.9**	**9.12**	**20.5**	**4.45**	<0.0817	<2.01	**12.9**	<3.02	<1.51	<10.1	**42.0**	**53.3**
	VP-7-40	40		<10.1	<3.02	**127**	<0.503	<0.503	**16.1**	**8.17**	**19.4**	**3.47**	<0.0833	<2.01	**11.2**	<3.02	<1.51	<10.1	**36.8**	**45.9**
	VP-7-50	50		<10.2	**3.42**	**121**	<0.510	<0.510	**16.4**	**7.13**	**24.7**	**3.09**	<0.0850	<2.04	**13.7**	<3.06	<1.53	<10.2	**28.7**	**39.5**
	VP-7-60	60		<10.2	<3.05	**62.6**	<0.508	<0.508	**8.63**	**4.21**	**9.97**	<2.03	<0.0817	<2.03	**7.04**	<3.05	<1.52	<10.2	**19.6**	**23.1**
VP-8	VP-8-5	5	03/29/23	<10.2	<3.06	**79.8**	<0.510	<0.510	**12.2**	**5.77**	**13.1**	**2.21**	<0.0817	<2.04	**8.04**	<3.06	<1.53	<10.2	**29.6**	**36.3**
	VP-8-10	10		<10.2	<3.06	**59.0**	<0.510	<0.510	**9.44**	**5.00**	**8.84**	<2.04	<0.0817	<2.04	**5.82**	<3.06	<1.53	<10.2	**25.8**	**30.2**
	VP-8-15	15		<10.2	<3.05	**46.8**	<0.508	<0.508	**6.59**	**3.40**	**4.85**	<2.03	**0.0927**	<2.03	**3.64**	<3.05	<1.52	<10.2	**20.7**	**21.0**
	VP-8-20	20		<10.0	**4.99**	**91.0**	<0.500	<0.500	**16.1**	**7.06**	**20.2**	**4.25**	<0.0817	<2.00	**12.0**	<3.00	<1.50	<10.0	**30.1**	**38.5**
	VP-8-DUP			<10.2	**7.64**	**93.3**	<0.510	<0.510	**17.6**	**7.50**	**19.0**	**4.20**	<0.0817	<2.04	**12.8**	<3.06	<1.53	<10.2	**33.0**	**40.6**
	VP-8-30	30		<10.2	<3.06	**121**	<0.510	<0.510	**16.3**	**7.59**	**16.3**	**3.37**	<0.0850	<2.04	**10.6**	<3.06	<1.53	<10.2	**34.1**	**43.3**
	VP-8-40	40		<10.1	<3.02	**116**	<0.503	<0.503	**16.0**	**8.12**	**15.9**	**2.83**	<0.0817	<2.01	**10.9**	<3.02	<1.51	<10.1	**36.3**	**46.0**
	VP-8-50	50		<10.0	**3.79**	**72.4**	<0.500	<0.500	**12.2**	**5.49**	**11.0**	**3.15**	<0.0833	<2.00	**9.58**	<3.00	<1.50	<10.0	**23.1**	**31.1**
	VP-8-60	60		<10.2	**5.55**	**24.2**	<0.510	<0.510	**6.36**	**3.00**	**6.19**	<2.04	<0.0817	<2.04	**4.77**	<3.06	<1.53	<10.2	**12.8**	**15.2**
Screening levels	Residential [2]			31	0.11	15,000	16	7.1	--	23	3,100	80	1.0	390	820	390	390	0.78	390	23,000
	Commercial/Industrial [2]			470	0.36	220,000	230	79	--	350	47,000	500	4.4	5,800	11,000	5,800	5,800	12	5,800	350,000
	Ambient Levels[3]			--	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes

1. Title 22 Metals using United States Environmental Protection Agency (EPA) Method 6010B/7471A.
2. Department of Toxic Substances Control (DTSC), 2022. Human Health Risk Assessment Note 3: DTSC Modified Screening Levels. Revised May 2022. If DTSC-SLs were not available, May 2023 EPA Regional Screening Levels (RSLs) were selected.
3. Department of Toxic Substances Control (DTSC), 2020. Human Health Risk Assessment Note 11: Southern California Ambient Arsenic Screening Level. December 28, 2020.

Abbreviations

-- = not analyzed or not applicable
DUP = duplicate sample
feet bgs = feet below ground surface
<1 = not detected at or above the laboratory reporting limit shown
J+ = estimate value, biased high
UJ = not detected at or above estimated limit shown
Bold = detection at or above the laboratory reporting limit
Green highlight = exceeds residential screening level (arsenic concentrations were compared to the ambient level)

Table 4

Analytical Results for Polycyclic Aromatic Hydrocarbons in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	1-Methyl-naphthalene	2-Methyl-naphthalene	BaP TEQ [2]
VP-2	VP-2-5	5	04/04/23	<0.040	**0.04**	<0.040	**0.11**	**0.16**	**0.12**	**0.13**	**0.10**	**0.13**	<0.040	**0.18**	<0.040	**0.11**	<0.040	**0.06**	**0.24**	<0.040	<0.040	**0.20**
	VP-2-10	10		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-2-15	15		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-2-20	20		<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018
	VP-2-DUP			<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-2-30	30		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-2-40	40		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-2-50	50		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-2-60	60		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
VP-4	VP-4-5	5	03/30/23	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-4-10	10		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-4-15	15		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-4-20	20		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-4-DUP			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-4-30	30		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	**0.39**	<0.020	<0.020	**0.076**	**0.18**	<0.020
	VP-4-40	40		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-4-50	50		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-4-60	60		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
VP-5	VP-5-5	5	04/03/23	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080
	VP-5-10	10		<0.040	**0.11**	**0.056**	**0.38**	**0.47**	**0.25**	**0.23**	**0.35**	**0.48**	**0.051**	**0.50**	<0.040	**0.23**	<0.040	**0.18**	**0.61**	<0.040	<0.040	**0.57**
	VP-5-15	15		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-5-20	20		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-5-DUP			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-5-30	30		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-5-40	40		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-5-50	50		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-5-60	60		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

Table 4

Analytical Results for Polycyclic Aromatic Hydrocarbons in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	1-Methyl-naphthalene	2-Methyl-naphthalene	BaP TEQ [2]
VP-6	VP-6-5	5	04/05/23	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78
	VP-6-10	10		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-6-15	15		<0.098	<0.098	<0.098	<0.098	<0.098	<0.098	**0.17**	<0.098	<0.098	<0.098	<0.098	<0.098	**0.11**	<0.098	<0.098	**0.13**	<0.098	<0.098	**0.13**
	VP-6-20	20		**0.14**	<0.098	**0.16**	**0.26**	**0.22**	**0.25 J**	**0.18**	**0.24**	**0.34**	<0.098	**0.75**	<0.098	**0.21**	<0.098	<0.098	**0.99**	<0.098	<0.098	**0.32**
	VP-6-DUP			**0.19**	<0.097	**0.22**	**0.37**	**0.31**	**0.44 J**	**0.30**	**0.34**	**0.50**	<0.097	**0.96**	<0.097	**0.31**	<0.097	<0.097	**1.5**	<0.097	<0.097	**0.44**
	VP-6-30	30		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-6-40	40		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-6-50	50		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-6-60	60		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
VP-7	VP-7-5	5	03/27/23	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-7-10	10		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-7-15	15		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-7-20	20		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-7-20-DUP			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-7-30	30		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-7-40	40		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-7-50	50		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-7-60	60		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
VP-8	VP-8-5	5	03/29/23	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-8-10	10		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-8-15	15		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-8-20	20		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-8-DUP			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-8-30	30		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-8-40	40		<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
	VP-8-50	50		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	VP-8-60	60		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

Table 4

Analytical Results for Polycyclic Aromatic Hydrocarbons in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring ID	Sample ID	Sample depth (feet bgs)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	1-Methyl-naphthalene	2-Methyl-naphthalene	BaP TEQ [2]
DTSC-SLs/RSLs [3]		Residential		3,300	3,300 [4]	17,000	1.1	0.11	1.1	1,800 [5]	11	110	0.028	2,400	2,300	1.1	2.0	18,000 [6]	1,800	9.9	190	0.11
		Industrial		23,000	23,000 [4]	130,000	12	1.3	13	13,000 [5]	130	1,300	0.31	18,000	17,000	13	6.5	230,000 [6]	13,000	30	1,300	1.3
Background Threshold Value [7]																						0.9

Notes

1. Polycyclic aromatic hydrocarbons (PAHs) using United States Environmental Protection Agency (EPA) Method 8270C SIM.
2. Benzo(a)Pyrene (BaP) Toxicity Equivalent Quotient (TEQ) is calculated by summing the seven carcinogenic PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) after results were multiplied by their respective Potency Equivalency Factor (PEF). Non-detect values were included at one-half of the laboratory reporting limit. Samples which contain non-detect results for all seven carcinogenic PAHs are given a TEQ value of less than the BaP laboratory reporting limit. If the individual PAH results contained J-flags, a J-flag was also given to the TEQ value.
3. EPA's RSLs for Chemical Contaminants at Superfund Sites, unless DTSC recommends a lower alternative value. Sources: EPA, May 2023. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. DTSC, May 2022. https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/02/HHRA-Note-3-June2020-Revised-May2022A.pdf
4. DTSC-SLs and RSLs are not published for acenaphthylene; therefore values for acenaphthene are used as a surrogate, based on structural similarity.
5. DTSC-SLs and RSLs are not published for benzo(g,h,i)perylene; therefore, values for pyrene are used as a surrogate, based on structural similarity.
6. DTSC-SLs and RSLs are not published for phenanthrene; therefore, values for anthracene are used as a surrogate, based on structural similarity.
7. 95%/95% Upper Threshold Limit from ENVIRON/DTSC Southern California Background PAH Study (2002/2009); https://dtsc.ca.gov/wp-content/uploads/sites/31/2021/06/MGP-PAH-Advisory-070109-21A.pdf and https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/01/S_CA_PAH_Study.pdf and consistent with the upper simultaneous limit of the local background data

Abbreviations

DUP = duplicate sample

feet bgs = feet below ground surface

< 0.040 = Not detected at or above the reporting limit shown.

J = estimate value

RSL = regional screening level

SL = screening level

Bold = detection at or above the laboratory reporting limit

green highlight = result above residential soil screening level

Table 5

Analytical Results for Polychlorinated Biphenyls and Asbestos in Soil Samples[1]

Former Berk Oil

Bell Gardens, California

PBC results reported in micrograms per kilogram (µg/kg)

Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Asbestos (percent content)
VP-2	VP-2-5	5	04/04/23	<50	<50	<50	<50	<50	<50	<50	<1%
	VP-2-10	10		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-2-15	15		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-2-20	20		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-2-DUP			<50	<50	<50	<50	<50	<50	<50	<1%
	VP-2-30	30		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-2-40	40		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-2-50	50		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-2-60	60		<50	<50	<50	<50	<50	<50	<50	<1%
VP-5	VP-5-5	5	04/03/23	<49	<49	<49	<49	<49	<49	<49	<1%
	VP-5-10	10		<49	<49	<49	<49	<49	<49	<49	<1%
	VP-5-15	15		<49	<49	<49	<49	<49	<49	<49	<1%
	VP-5-20	20		<49	<49	<49	<49	<49	<49	<49	<1%
	VP-5-DUP			<49	<49	<49	<49	<49	<49	<49	<1%
	VP-5-30	30		<49	<49	<49	<49	<49	<49	<49	<1%
	VP-5-40	40		<49	<49	<49	<49	<49	<49	<49	<1%
	VP-5-50	50		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-5-60	60		<50	<50	<50	<50	<50	<50	<50	<1%
VP-6	VP-6-5	5	04/05/23	<50	<50	<50	<50	<50	**86**	<50	<1%
	VP-6-10	10		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-6-15	15		<50	<50	<50	<50	<50	**54**	<50	<1%
	VP-6-20	20		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-6-DUP			<50	<50	<50	<50	<50	<50	<50	<1%
	VP-6-30	30		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-6-40	40		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-6-50	50		<50	<50	<50	<50	<50	<50	<50	<1%
	VP-6-60	60		<50	<50	<50	<50	<50	<50	<50	<1%
Screening Levels [2]		Residential		4,000	200	170	230	230	240	240	--
		Commercial		17,000	530	490	580	580	590	600	--

Notes

1. Polychlorinated biphenyls (PCBs) using United States Environmental Protection Agency (EPA) Method 8082A; Asbestos using EPA Method 600/R-93/116
2. Department of Toxic Substances Control (DTSC), 2022. Human Health Risk Assessment Note 3: DTSC Modified Screening Levels (DTSC-SLs). Revised May 2022. If DTSC-SLs were not available, May 2023 EPA Regional Screening Levels were selected.

Abbreviations

feet bgs = feet below ground surface

-- = not available

<50 = Not detected at or above the reporting limit shown

DUP = duplicate sample

Bold = detection at or above the laboratory reporting limit

Table 6

Analytical Results for Volatile Organic Compounds in Soil Vapor Samples [1]

Former Berk Oil

Bell Gardens, California

Results reported in micrograms per cubic meter (µg/m³)

Probe ID	Vapor Point ID	Probe Depth (feet bgs)	Sample Date	PCE	TCE	cis-1,2-DCE	1,1,1-TCA	1,1,2-TCA	VC	1,1-DCA	1,1-DCE	T-1,2-DCE	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	1,2-DCB	Freon 113	Methylene chloride	1,2,4-TMB	1,3,5-TMB	GRO	IPA Tracer
VP-1	VP-1-15	15	05/01/23	**11**	**11**	**27**	<8	<8	<8	<8	**33**	<8	<8	<8	<8	<16	<8	<16	<16	<8	<8	<8	<2000	<80
	VP-1-15 REP	15	05/01/23	**12**	**9**	**25**	<8	<8	<8	<8	**32**	<8	<8	<8	<8	<16	<8	<16	<16	<8	<8	<8	<2000	<80
	VP-1-32	32	NF	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	VP-1-44	44	NF	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	VP-1-60	60	05/01/23	**192**	**150**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	<16	**26**	**20**	<8	<8	<2000	<80
VP-2	VP-2-15	15	05/01/23	**63**	**14**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	<16	<16	<8	<8	<8	<2000	<80
	VP-2-29	29	05/01/23	**15**	**69**	**22**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	**51**	<16	<8	<8	<8	<2000	<80
	VP-2-46.5	46.5	NF	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	VP-2-60	60	05/01/23	**25**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	<16	<16	<8	<8	<8	<2000	<80
VP-3	VP-3-15	15	05/02/23	**2,260**	**94**	<8	**9,070**	**31**	<8	<8	**322**	<8	<8	<8	<8	<16	<8	<16	<16	**14**	<8	<8	<2000	<80
	VP-3-30	30	NF	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	VP-3-47.5	47.5	NF	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	VP-3-58	58	05/02/23	**216**	**78**	**302**	**126**	<8	<8	<8	<8	<8	<8	**39**	**12**	**85**	**14**	**65**	<16	**48**	**19**	**11**	<2000	<80
VP-4 [2]	VP-4-15	15	05/02/23	**1,290**	<8	<8	<8	<8	<8	<8	<8	<8	**31**	**144**	**131**	**278**	**49**	<16	<16	<8	**159**	**222**	**15,000**	<80
	VP-4-30	30	05/02/23	**55,700**	<24000	**291,000**	<24000	<24000	<24000	<24000	**235,000**	<24000	**2,620,000**	**40,100,000**	**13,200,000**	**44,200,000**	**2,460,000**	< 48000	<48000	<24000	**13,600,000**	**4,320,000**	**109,000,000**	<240000
	VP-4-49	49	05/02/23	**47**	<8	**7,260**	<8	<8	<8	<8	**800**	**184**	**9,410**	**31,400**	**20,100**	**55,600**	**3,180**	**208**	<16	<8	**20,400**	**6,340**	**72,900**	<80
	VP-4-60	60	05/02/23	< 2400	<2400	**8,070**	<2400	<2400	<2400	<2400	**3,840**	<2400	**32,400**	**884,000**	**333,000**	**1,200,000**	**63,800**	< 4800	<4800	<2400	**399,000**	**121,000**	**6,190,000**	<24000
VP-5	VP-5-15	15	05/01/23	**1,040**	**1,870**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	<16	**136**	<8	<8	<8	<2000	<80
	VP-5-31	31	NF	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	VP-5-49.5	49.5	05/01/23	**69**	**60**	**33**	<8	<8	<8	<8	**25**	<8	**17**	**14**	<8	<16	<8	<16	<16	<8	<8	<8	**13,800**	<80
	VP-5-60	60	05/01/23	**167**	**120**	**22**	<8	<8	<8	<8	**33**	<8	<8	**29**	**12**	**82**	**13**	<16	<16	<8	**19**	<8	<2000	<80
VP-6 [2]	VP-6-15	15	05/01/23	**118**	**105**	**77**	<8	<8	**1,540**	**58**	<8	**108**	**36**	<8	<8	<16	<8	**94**	**423**	<8	<8	<8	<2000	<80
	VP-6-15 REP	15	05/01/23	**110**	**103**	**72**	<8	<8	**1,380**	**55**	<8	**95**	**34**	<8	<8	<16	<8	**83**	**394**	<8	<8	<8	<2000	<80
	VP-6-31	31	NF	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	VP-6-49.5	49.5	05/01/23	**21**	**9**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	**22**	<16	<8	<8	<8	<2000	<80
	VP-6-60	60	05/01/23	**42**	**40**	**19**	<8	<8	<8	<8	<8	<8	<8	<8	<8	**61**	**8**	<16	<16	**10**	<8	<8	<2000	<80
VP-7	VP-7-15	15	05/01/23	**678**	**16**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	**51**	<8	<16	<16	<8	<8	<8	<2000	<80
	VP-7-27	27	05/01/23	**142**	**154**	**117**	<8	<8	<8	<8	<8	**15**	<8	**33**	**9**	**71**	**10**	<16	<16	<8	**15**	<8	<2000	<80
	VP-7-42	42	05/01/23	**13**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	<16	<16	<8	<8	<8	<2000	<80
	VP-7-60	60	05/01/23	**28**	**17**	**12**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	<16	<16	<8	<8	<8	<2000	<80

Table 6

Analytical Results for Volatile Organic Compounds in Soil Vapor Samples [1]

Former Berk Oil

Bell Gardens, California

Results reported in micrograms per cubic meter (µg/m^3)

Probe ID	Vapor Point ID	Probe Depth (feet bgs)	Sample Date	PCE	TCE	cis-1,2-DCE	1,1,1-TCA	1,1,2-TCA	VC	1,1-DCA	1,1-DCE	T-1,2-DCE	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	1,2-DCB	Freon 113	Methylene chloride	1,2,4-TMB	1,3,5-TMB	GRO	IPA Tracer
VP-8	VP-8-15	15	05/02/23	**225**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	<16	<16	**14**	<8	<8	<2000	<80
	VP-8-15 REP	15	05/02/23	**219**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	<16	<16	**16**	<8	<8	<2000	<80
	VP-8-31	31	05/02/23	**65**	**522**	**422**	<8	<8	<8	<8	**28**	**50**	<8	**32**	**15**	**85**	**8**	<16	<16	<8	<8	<8	**7,270**	<80
	VP-8-47	47	05/02/23	**15**	**58**	**302**	<8	<8	<8	<8	**29**	**59**	<8	**26**	**14**	**79**	**10**	<16	<16	<8	<8	<8	**3,920**	<80
	VP-8-60	60	05/02/23	**11**	**16**	**62**	<8	<8	<8	<8	<8	<8	<8	<8	<8	<16	<8	<16	<16	<8	<8	<8	<2000	<80
Screening Levels [3,4]		Residential		15	16	280	33,000	6.0	0.32	60	2,400	1,400	3.2	10,000	37	3,300	3,300	7,000	170,000	33	2,100	2,100	20,000	--
		Commercial		67	100	1,200	150,000	26	5.3	260	10,000	6,000	14	43,000	160	15,000	15,000	29,000	730,000	400	8,700	8,700	83,000	--

Notes

1. Soil gas samples analyzed for VOCs using United Stated Environmental Protection Agency (EPA) method 8260B by mobile laboratory .

2. Additional VOC analytes detected in: soil gas samples from VP-4 include isopropylbenzene (46 to 706,000 µg/m^3), 4-isopropyltolune (146 to 96,500 µg/m3), naphthalene (374 to 237,000 µg/m3), and n-propylbenzene (68 to 2,480,000 µg/m3).
soil gas samples from VP-6 include 1,3-DCB (50 to 61 µg/m3)

3. Soil gas screening levels (SLs) were calculated by dividing the indoor air RSL or DTSC-modified SL by the default U.S. EPA attenuation factor of 0.03.
Sources: EPA, May 2023. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. and DTSC, May 2022. https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/02/HHRA-Note-3-June2020-Revised-May2022A.pdf

4. Gasoline range organic screening levels were selected from Environmental Screening Levels for vapor intrusion (RWQCB, 2019). https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.html

Abbreviations

-- = not analyzed or not applicable

feet bgs = feet below ground surface

<8 = not detected at or above the laboratory reporting limit shown

REP = Duplicate sample

NF = No Flow

Green Highlight exceeds residential screening level

Orange highlight exceeds commercial screening level

Bold - detected above the laboratory reporting limit

DCA - Dichloroethane

DCB - Dichlorobenzene

DCE - Dichloroethene

GRO = gasoline range organics

IPA - isopropyl alcohol

MC - Methylene Chloride

PCE - Tetrachloroethene

TCA - trichloroethane

TCE - Trichloroethene

TMB - trimethylbenzene

VC - vinyl chloride

Table 10

Analytical Results for Volatile Organic Compounds in Groundwater Samples [1,2]

Former Berk Oil

Bell Gardens, California

Results reported in micrograms per liter (µg/L)

Sample ID	Sample Date	PCE	TCE	cis-1,2-DCE	Benzene	Ethyl-benzene	Toluene	m,p-Xylene	o-Xylene
MW-1	06/01/23	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<2.0	<1.0
MW-2	06/01/23	<1.0	<1.0	**1.5**	<0.50	<1.0	<1.0	<2.0	<1.0
MW-3	06/01/23	<1.0	<1.0	**1.4**	<0.50	<1.0	<1.0	<2.0	<1.0
MW-4	06/01/23	<1.0	**1.2**	**1.4**	<0.50	<1.0	**3.1**	<2.0	**1.6**
MW-4 DUP		<1.0	**1.1**	**1.3**	<0.50	<1.0	**3.0**	<2.0	**1.6**
MW06	06/01/23	<1.0	<1.0	**2.3**	<0.50	<1.0	<1.0	<2.0	<1.0
MCLs [3]	California	5.0	5.0	6.0	1.0	300	150	1,750	1,750
	EPA	5.0	5.0	70	5.0	700	1,000	10,000	10,000

Notes

1. Volatile organic compounds using United States Environmental Protection Agency (EPA) Method 8260B.
2. Remaining analytes were not detected at or above reporting limits. See laboratory reports for full list of compounds and reporting limits.
3. Department of Toxic Substances Control (DTSC), 2022. Human Health Risk Assessment Note 3: DTSC Modified Screening Levels (DTSC-SLs). Revised May 2022.
   If DTSC-SLs were not available, May 2023 EPA Regional Screening Levels were selected.

Abbreviations

<1.0 = not detected at or above the laboratory reporting limit shown

DUP = duplicate sample

Bold = detection at or above the laboratory reporting limit

DCE = dichloroethene

PCE = tetrachloroethene

TCE = trichloroethene

Table 11

Analytical Results for Metals in Groundwater Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in milligrams per liter (mg/L)

Sample ID	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
MW-1	06/01/23	<0.100	<0.100	**0.0363**	<0.0100	<0.0100	<0.0500	<0.0500	<0.0500	<0.0500	<0.000200	**0.135**	<0.0500	<0.0500	<0.0100	<0.0500	<0.0100	<0.250
MW-2		<0.100	<0.100	**0.0622**	<0.0100	<0.0100	<0.0500	<0.0500	<0.0500	<0.0500	<0.000200	**0.377**	<0.0500	<0.0500	<0.0100	<0.0500	<0.0100	<0.250
MW-3		<0.100	<0.100	**0.0531**	<0.0100	<0.0100	<0.0500	<0.0500	<0.0500	<0.0500	<0.000200	**0.202**	<0.0500	<0.0500	<0.0100	<0.0500	<0.0100	<0.250
MW-4		<0.100	<0.100	**0.0318**	<0.0100	<0.0100	<0.0500	<0.0500	<0.0500	<0.0500	<0.000200	**0.120**	<0.0500	<0.0500	<0.0100	<0.0500	<0.0100	<0.250
MW-4 DUP		<0.100	<0.100	**0.0321**	<0.0100	<0.0100	<0.0500	<0.0500	<0.0500	<0.0500	<0.000200	**0.118**	<0.0500	<0.0500	<0.0100	<0.0500	<0.0100	<0.250
MW06		<0.100	<0.100	**0.0953**	<0.0100	<0.0100	<0.0500	<0.0500	<0.0500	<0.0500	<0.000200	**0.147**	<0.0500	<0.0500	<0.0100	<0.0500	<0.0100	<0.250
MCLs [2]	California	**0.006**	**0.01**	**1.0**	**0.004**	**0.005**	**0.05**	--	**1.30**	**0.015**	**0.002**	--	**0.10**	**0.05**	--	**0.002**	--	--
	EPA	**0.006**	**0.01**	**2.0**	**0.004**	**0.005**	**0.10**	--	**1.30**	**0.015**	**0.002**	--	--	**0.05**	--	**0.002**	--	--

Notes

1. Metals using United States Environmental Protection Agency (EPA) Method 6010B/7470A.

2. Department of Toxic Substances Control (DTSC), 2022. Human Health Risk Assessment Note 3: DTSC Modified Screening Levels (DTSC-SLs). Revised May 2022. If DTSC-SLs were not available, May 2023 EPA Regional Screening Levels were selected.

Abbreviations

<0.100 = not detected at or above the laboratory reporting limit shown

DUP = duplicate sample

Bold = detection at or above the laboratory reporting limit

Table 12

Analytical Results for Total Petroleum Hydrocarbons in Groundwater Samples[1]

Former Berk Oil

Bell Gardens, California

Results reported in micrograms per liter (ug/L)

Sample ID	Sample Date	C6 as C6	C7 as C7	C8 as C8	C9-C10	C11-C12	C13-C14	C15-C16	C17-C18	Total TPH (C9-C18)	C19-C20	C21-C22	C23-C24	C25-C28	C29-C32	Total TPH (C17/19-C32)	C33-C36	C37-C40	C41-C44	Diesel Range (C10-C28)	Total TPH (C6-C44)
MW-1	06/01/23	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	**62**	**52**
MW-2		<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48
MW-3		<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	<49	**62**	<49
MW-4		<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	**110**	<48	<48	<48	<48	<48	**130**	**97**
MW-4 DUP		<47	<47	<47	<47	<47	<47	<47	<47	<47	<47	<47	<47	**67**	<47	<47	<47	<47	<47	**93**	**52**
MW06		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
California Tapwater ESL[2,3]		760				200														200	--

Notes

1. Total petroleum hydrocarbon (TPH) carbon chain characterization analysis using United States Environmental Protection Agency (EPA) Method 8015M.
2. California San Francisco Bay Regional Water Quality Board Environmental Screening Levels - Direct Exposure Human Health Risk Levels Tapwater Noncancer Hazard, January 2019.
3. The ESLs for TPH are split into two fractions based on the number of carbons. Carbon ranges are split into C6-C10 and C10-C28 fractions based on corresponding gasoline range organics (C6-10) and diesel range organics (C10-28) carbon ranges

Abbreviations

<49 = not detected at or above the laboratory reporting limit shown

Bold = detection above the laboratory reporting limit

DUP = duplicate sample

DTSC-SL = DTSC-modified screening level

ESL = environmental screening level

ATTACHMENT 2-1

ANALYTICAL RESULTS FOR TOTAL PETROLEUM HYDROCARBONS[1] IN SOIL SAMPLES

Former Berk Oil and Pacific Metal Craft Properties

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring ID	Sample ID	Sample Depth (ft bgs)	Sample Date	C6-C8	C8-C10	C10-C12	C12-C14	C14-C16	C16-C18	Total TPH (C9-C18)	C18-C20	C20-C22	C22-C24	C24-C26	C26-C28	C28-C32	Total TPH (C17/18-C32)	C32-C34	C34-C36	C36-C40	C40-C44	Total (C6-C44) [6]
SS7A	SS7A-0.5	0.5	04/03/19	<1.0[2]	<1.0	<1.0	<1.0	**1.1**	**1.4**	**2.5**	**1.4**	**3.7**	**1.8**	**4.1**	**1.2**	**6.6**	**19**	**2.4**	**1.2**	**3.3**	<1.0	**28**
SS7A	SS7A-2.5	2.5	04/03/19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.1**	<1.0	<1.0	**1.2**	**2.3**	<1.0	<1.0	**1.5**	<1.0	<10
SS7B	SS7B-0.5	0.5	04/03/19	<1.0	<1.0	<1.0	**1.5**	**1.5**	**1.8**	**4.8**	**3.4**	**6.2**	**3.8**	**6.6**	**3.7**	**8.6**	**32**	**2.5**	**1.2**	**2.7**	<1.0	**45**
SS7B	SS7B-2.5	2.5	04/03/19	<1.0	<1.0	<1.0	<1.0	**1.0**	**1.2**	**2.2**	**2.7**	**5.3**	**3.3**	**5.3**	**2.5**	**5.4**	**25**	**1.2**	<1.0	**1.4**	<1.0	**29**
	SB01a-03[3]	2.5	04/03/19	<1.0	<1.0	<1.0	<1.0	<1.0	**1.0**	**1.0**	**2.8**	**5.0**	**2.3**	**4.7**	**2.6**	**6.1**	**24**	**1.7**	<1.0	**1.2**	<1.0	**27**
SS7C	SS7C-0.5	0.5	04/03/19	<1.0	<1.0	<1.0	<1.0	<1.0	**1.3**	**1.3**	**2.2**	**3.2**	**2.7**	**3.7**	**1.7**	**4.3**	**18**	<1.0	<1.0	<1.0	<1.0	**19**
SS7C	SS7C-2.5	2.5	04/03/19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.0**	**2.2**	**1.4**	**2.0**	**2.2**	**3.3**	**12**	**1.1**	<1.0	**1.7**	<1.0	**15**
SS20H	SS20H-0.5	0.5	04/03/19	<1.0	**21**	**230**	**420**	**480**	**720**	**1,871**	**1,200**	**2,200**	**1,600**	**3,000**	**2,200**	**4,300**	**14,500**	**2,100**	**620**	**2,100**	**710**	**22,000**
SB-1	SB-1-5	5	6/5/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--[4]	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<10
	SB-1-18	18	06/05/19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<10
	SB-1-25	25	06/05/19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<10
SB-2	SB-2-5	5	06/05/19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<10
	SB-2-17	17	06/05/19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<10
	SB-DUP[3]	17	06/05/19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<10
	SB-2-25	25	06/05/19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<10
SB-3	SB-3-12	12	06/05/19	<1.0	<1.0	**1.2**	**4.0**	**28**	**67**	**100**	**53**	**41**	**23**	**15**	**24**	**110**	**266**	**44**	**90**	**160**	**120**	**780**
	SB-3-18	18	06/05/19	<1.0	<1.0	<1.0	**2.1**	**19**	**37**	**58**	**27**	**28**	**16**	**20**	**20**	**67**	**178**	**25**	**33**	**62**	**37**	**390**
	SB-3-20	20	06/05/19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	**1.7**	**11**	**13**	**7.8**	**12**	**36**	**26**	**95**
Residential RSLs [5,6]			Aliphatic[7]	520	96						230,000											--
			Aromatic[8,9]	82	97						2,400											--
Industrial RSLs [5,6]			Aliphatic[7]	2,200	440						3,500,000											--
			Aromatic[8,9]	420	560						30,000											--

Notes

1. Total petroluem hydrocarbon (TPH) carbon chain characterization analysis using United States Environmental Protection Agency (U.S. EPA) Method 8015M.
2. not detected at or above the laboratory reporting limit shown
3. Duplicate sample.
4. Not applicable.
5. U.S. EPA Regional Screening Levels for chemical contaminants at Superfund sites, November 2020.
6. The RSLs for TPH are split into six fractions based on the number of carbons. Aliphatic and aromatic carbon ranges are each split into low, medium, and high fractions.
7. Low aliphatic: C5-C8; Medium aliphatic: C9-C18; High aliphatic: C19-C32. Since the RSLs do not include the higher end carbon range (C33-C44), the high end range RSLs for aliphatics/aromatics were used as a conservative surrogate.
8. Low aromatic: C6-C8; Medium aromatic: C9-C16; High aromatic: C17-C32. Since the RSLs do not include the higher end carbon range (C33-C44), the high end range RSLs for aliphatics/aromatics were used as a conservative surrogate.
9. Comparison of TPH soil sample results for the C6 to C8 range will be preferentially compared to the aliphatic RSL because the aromatic RSL is based on benzene toxicity and benzene is also being analyzed.

BOLD	result above laboratory reporting limit.
BOLD	result above residential screening level
BOLD	result above commercial screening level

Abbreviations

ft bgs = feet below ground surface

RSL = regional screening level

ATTACHMENT 2-2

ANALYTICAL RESULTS FOR SEMI-VOLATILE ORGANIC COMPOUNDS/POLYCYCLIC AROMATIC HYDROCARBONS[1] SOIL SAMPLES

Berk Oil and Pacific Metal Craft Properties

Bell Gardens, California

concentrations in milligrams per kilograms (mg/kg)

Boring ID	Sample Date	Sample ID	Sample Depth (feet bgs)	1,1-Biphenyl	1-Methylnaphthalene	2,4-Dinitrotoluene	2-Chlorophenol	2-Methylnaphthalene	4-Chloro-3-methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) Anthracene	Benzo (a) Pyrene	Benzo (b) Fluoranthene	Benzo (g,h,i) Perylene	Benzo (k) Fluoranthene	bis (2-ethylhexyl) phthalate	Butylbenzylphthalate	Chrysene	Dibenz0 (a,h) Anthracene	Diethylphthalate	Di-n-octylphthalate	Fluoranthene	Fluorene	Indeno (1,2,3-c,d) Pyrene	N-Nitroso-di-n-propylamine	Naphthalene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
EE-2	08/07/01	BG-2-S00	0	<0.84	--	<0.84	<0.84	--	<0.84	<2.1	<0.84	<0.84	<0.84	**0.26 J**	**0.3 L**	**0.2 J**	**0.19 J**	**0.23 J**	<0.84	<0.84	**0.34 J**	<0.84	<0.84	<0.84	<0.84	**0.49 J**	<0.84	**0.18 J**	<0.84	--	<2.1	**0.19 J**	<0.84 4	**0.63 J**
	08/07/01	BG-2-S06	6	<0.36	--	<0.36	<0.36	--	<0.36	<9.2	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36JB	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	--	<9.2	<0.36	<0.36	<0.36
EE-4	08/07/01	BG-4-S00	0	<0.36	--	<0.36	<0.36	--	<0.36	<9.0	<0.36	**0.045 J**	**0.039 J**	**0.27 J**	**0.28 L**	**0.21 J**	**0.17 J**	**0.24**	**0.11 J**	<0.36	**0.38**	**0.061 J**	<0.36	<0.36	**0.42**	<0.36	**0.18 J**	<0.36	--	<9.0	**0.29 J**	<0.36	**0.55**
	08/07/01	BG-4-S06	6	<0.42	--	<0.42	<0.42	--	<0.42	<1.10	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	**0.21 J**	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	--	<1.10	<0.42	<0.42	<0.42
EE-6	08/07/01	BG-6-S00	0	<0.72	--	<0.72	<0.72	--	<0.72	<1.8	<0.72	<0.72	<0.72	**0.27 J**	**0.32 JL**	**0.23 J**	**0.18 J**	**0.23 J**	**0.72 J**	<0.72	**0.35 J**	<0.72	<0.72	<0.72	<0.72	**0.47 J**	<0.72	**0.21 J**	<0.72	--	<1.8	**0.15 J**	<0.72	**0.62 J**
	08/07/01	BG-106-S00[7]	0	<7.1	--	<7.1	<7.1	--	<7.1	<1.8	<7.1	<7.1	<7.1	**0.28 J**	**0.3 J**	**0.2 J**	**0.19 J**	**0.24 J**	**0.71 J**	<7.1	**0.3 J**	<7.1	<7.1	<7.1	<7.1	**0.49 J**	<7.1	**0.19 J**	<7.1	--	<1.8	**0.19 J**	<7.1	**0.63 J**
	08/07/01	BG-6-S06	6	<0.39	--	<0.39	<0.39	--	<0.39	<9.8	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	<9.8	<0.39	<0.39	<0.39
EE-8	08/07/01	BG-8-S00	0	<1.70	--	<1.70	<1.70	--	<1.70	<0.420	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	**0.21 J**	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	**0.2 J**	<1.70	<1.70	<1.70	--	<0.420	<1.70	<1.70	**0.26 J**
	08/07/01	BG-8-S06	6	**0.96**	--	<0.79	<0.79	--	<0.79	<2.0	<0.79	<0.79	<0.79	**0.14 J**	**0.16 J**	**0.11 J**	**0.13 J**	**0.15 J**	<0.79	<0.79	**0.19 J**	<0.79	**0.96**	<0.79	**0.27 J**	<0.79	**0.11 J**	<0.79	--	<2.0	**0.12 J**	<0.79	**0.34 J**
EE-10	08/07/01	BG-10-S00	0	<0.68	--	<0.68	<0.68	--	<0.68	<1.70	<0.68	<0.68	<0.68	**0.17 J**	**0.19 J**	**0.14 J**	**0.14 J**	**0.14 J**	<0.68	<0.68	**0.22 J**	<0.68	<0.68	<0.68	**0.33 J**	<0.68	**0.13 J**	<0.68	--	<1.70	**0.17 J**	<0.68	**0.42 J**
	08/07/01	BG-10-S06	6	<0.41	--	<0.41	<0.41	--	<0.41	<1.0	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	**0.41 J**	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	--	<1.0	<0.41	<0.41	<0.41
EE-12	08/08/01	BG-12-S00	0	<2.30	--	<2.30	<2.30	--	<2.30	<5.9	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30	--	<2.30	<2.30	<2.30	<2.30
	08/08/01	BG-12-S06	6	<0.39	--	<0.39	<0.39	--	<0.39	<9.8	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	**0.042 J**	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	<0.39	<0.39	<0.39	<0.39
EE-14	08/07/01	BG-14-S00	0	<0.33	--	<0.33	<0.33	--	<0.33	<0.84	<0.33	**0.097 J**	**0.083 J**	**0.40**	**0.44**	**0.35**	**0.29 J**	**0.28 J**	0.39B	<0.33	**0.49**	**0.065 J**	<0.33	<0.33	**0.86**	**34 J**	**0.27 J**	<0.33	--	<0.84	**0.52**	<0.33	**1.0**
	08/07/01	BG-14-S06	6	<0.38	--	<0.38	<0.38	--	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38JB	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--	<940	<0.38	<0.38	<0.38
EE-16	08/08/01	BG-16-S00	0	<0.35	--	<0.35	<0.35	--	<0.35	<8.8	<0.35	<0.35	<0.35	**0.13 J**	**0.16 J**	**0.1 J**	**0.12 J**	**0.14 J**	**0.11 J**	<0.35	**0.17 J**	<0.35	<0.35	<0.35	**0.24 J**	<0.35	**0.097 J**	<0.35	--	<0.35	**0.1 J**	<0.35	**0.33 J**
	08/08/01	BG-16-S06	6	<0.37	--	<0.37	<0.37	--	<0.37	<930	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	**0.087 J**	<0.37	<0.37	<0.37	<0.37	<0.37	**0.72 J**	<0.37	<0.37	<0.37	--	<0.37	<0.37	<0.37	**0.079 J**
SS7	03/21/12	SS7-1.0	1	--	<0.10[7]	--	--	<0.10	--	--	<0.10	<0.10	<0.10	<0.10UJ	<0.10UJ	**0.12 J**	0.11	<0.10	--	--	**0.12 J**	<0.10	--	--	**0.1 J**	<0.10	<0.10	--	<0.10	--	<0.10UJ	--	**0.15 J**
	03/21/12	SS7-2.0	2	--	<0.010	--	--	<0.010	--	--	<0.010	0.017	0.011	**0.062 J**	**0.066 J**	**0.042 J**	0.053	0.049	--	--	**0.068 J**	<0.010	--	--	**0.096 J**	<0.010	0.041	--	<0.010	--	**0.032 J**	--	**0.13 J**
SS10	03/21/12	SS10-1.0	1	--	<0.050	--	--	<0.050	--	--	<0.050	<0.050	<0.050	**0.084 J**	**0.12 J**	**0.085 J**	0.14	0.098	--	--	**0.1 J**	<0.050	--	--	**0.12 J**	<0.050	0.10	--	<0.050	--	<0.050UJ	--	**0.17 J**
	03/21/12	SS10-2.0	2	--	<0.050	--	--	<0.050	--	--	<0.050	0.084	0.054	**0.3 J**	**0.34 J**	**0.23 J**	0.30	0.27	--	--	**0.33 J**	<0.050	--	--	**0.51 J**	<0.050	0.22	--	<0.050	--	**0.23 J**	--	**0.64 J**
	03/21/12	SS10-5.0	5	--	<0.010	--	--	<0.010	--	--	<0.010	0.011	**0.023**	**0.047 J**	**0.035 J**	**0.024 J**	0.026	0.032	--	--	**0.052 J**	<0.010UJ	--	--	**0.089 J**	0.012	0.021	--	**0.011 J**	--	**0.099 J**	--	**0.11 J**
SS11	03/22/12	SS11-1.0	1	--	<0.050	--	--	<0.050	--	--	<0.050	**0.064 J**	<0.050UJ	**0.22 J**	**0.2 J**	**0.13 J**	**0.15 J**	**0.17 J**	--	--	**0.23 J**	<0.050UJ	--	--	**0.35 J**	<0.050UJ	**0.12 J**	--	**0.12 J**	--	**0.13 J**	--	**0.41 J**
	03/22/12	SB01a-02[7]	1	--	<0.010	--	--	<0.010	--	--	<0.010	**0.039 J**	**0.016 J**	**0.12 J**	**0.14 J**	**0.099 J**	**0.11 J**	**0.11 J**	--	--	**0.14 J**	**0.024 J**	--	--	**0.19 J**	<0.010UJ	**0.092 J**	--	**0.032 J**	--	**0.06 J**	--	**0.25 J**
SS14	03/21/12	SS14-1.0	1	--	<0.10	--	--	<0.10	--	--	<0.10	<0.10	<0.10	**0.13 J**	**0.14 J**	**0.13 J**	0.16	0.11	--	--	**0.18 J**	<0.10	--	--	**0.26 J**	<0.10	0.10	--	<0.10	--	**0.11 J**	--	**0.32 J**
	03/21/12	SS14-2.0	2	--	<0.010	--	--	<0.010	--	--	<0.010	0.049	0.053	**0.23 J**	**0.22 J**	**0.16 J**	0.17	0.19	--	--	**0.24 J**	0.036	--	--	**0.39 J**	0.011	0.14	--	<0.010	--	**0.16 J**	--	**0.5 J**
	03/21/12	SS14-5.0	5	--	<0.010	--	--	<0.010	--	--	<0.010	<0.010	<0.010	<0.010UJ	<0.010UJ	<0.010UJ	<0.010	<0.010	--	--	<0.010UJ	<0.010	--	--	<0.010UJ	<0.010	<0.010	--	<0.010	--	<0.010UJ	--	<0.010UJ
SS18	03/21/12	SS18-1.0	1	--	<0.10	--	--	<0.10	--	--	<0.10	<0.10	<0.10	<0.10	<0.10UJ	<0.10UJ	0.14	<0.10	--	--	**0.12 J**	<0.10	--	--	**0.16 J**	<0.10	<0.10	--	<0.10	--	<0.10UJ	--	**0.21 J**
	03/21/12	SS18-2.0	2	--	<0.050	--	--	<0.050	--	--	<0.050	0.076	<0.050	**0.29 J**	**0.33 J**	**0.2 J**	0.26	0.27	--	--	**0.32 J**	0.051	--	--	**0.39 J**	<0.050	0.20	--	<0.050	--	**0.11 J**	--	**0.53 J**
	03/21/12	SS18-5.0	5	--	<0.010	--	--	<0.010	--	--	<0.010	0.023	0.021	**0.1 J**	**0.098 J**	**0.063 J**	0.076	0.073	--	--	**0.13 J**	**0.019 J**	--	--	**0.14 J**	<0.010	0.056	--	<0.010	--	**0.085 J**	--	**0.18 J**
SS19	03/22/12	SS19-1.0	1	--	<0.25	--	--	<0.25	--	--	<0.25	**0.36 J**	<0.25UJ	**1.7 J**	**2.5 J**	**1.7 J**	**2.3 J**	**1.8 J**	--	--	**2 J**	**0.34 J**	--	--	**2.8 J**	<0.25UJ	**1.7 J**	--	<0.25	--	**0.28 J**	--	**4.1 J**
	03/22/12	SS19-5.0	5	--	<0.010	--	--	<0.010	--	--	<0.010	<0.010	<0.010	<0.010UJ	<0.010UJ	<0.010UJ	<0.010	<0.010	--	--	<0.010UJ	<0.010	--	--	<0.010UJ	<0.010	<0.010	--	<0.010	--	<0.010UJ	--	<0.010UJ
SS20	03/22/12	SS20-1.0	1	--	<2.5	--	--	<2.5	--	--	<2.5	**11 J**	**12 J**	**41 J**	**44 J**	**31 J**	**42 J**	**33 J**	--	--	**46 J**	**6.4 J**	--	--	**95 J**	**4.8 J**	**30 J**	--	<2.5	--	**66 J**	--	**110 J**
	03/22/12	SS20-5.0	5	--	<0.010	--	--	<0.010	--	--	<0.010	<0.010	<0.010	<0.010UJ	<0.010UJ	<0.010UJ	<0.010	<0.010	--	--	<0.010UJ	<0.010	--	--	<0.010UJ	<0.010	<0.010	--	<0.010	--	<0.010UJ	--	<0.010UJ
SS20A	4/3/2019	SS20A-0.5	0.5	--	--	--	--	--	--	--	<0.010	**0.054 J**	**0.069 J**	**0.48 J**	**0.4 J**	**0.41 J**	**0.37 J**	**0.13 J**	--	--	**0.38 J**	**0.040**	--	--	**0.56 J**	**0.03 J**	<0.40UJ	--	<0.010UJ	--	**0.55 J**	--	**0.68 J**
	4/3/2019	SS20A-2.5	2.5	--	--	--	--	--	--	--	<0.010	<0.010UJ	**0.013 J**	**0.048 J**	**0.031 J**	**0.033 J**	**0.017 J**	**0.014 J**	--	--	**0.037 J**	<0.010	--	--	**0.043 J**	<0.010UJ	<0.040UJ	--	<0.010UJ	--	**0.04 J**	--	**0.062 J**
SS20B	4/3/2019	SS20B-0.5	0.5	--	--	--	--	--	--	--	<0.010	**0.058 J**	**0.043 J**	**0.6 J**	**0.53 J**	**0.54 J**	**0.51 J**	**0.15 J**	--	--	**0.53 J**	**0.060**	--	--	**0.56 J**	**0.015 J**	**0.52 J**	--	<0.010UJ	--	**0.31 J**	--	**0.76 J**
	4/3/2019	SB01A-02	0.5	--	--	--	--	--	--	--	**0.010**	**0.27 J**	**0.26 J**	**1.4 J**	**1.1 J**	**1.1 J**	**1 J**	**0.29 J**	--	--	**1.2 J**	**0.085**	--	--	**1.4 J**	**0.069 J**	**1 J**	--	**0.022 J**	--	**1.4 J**	--	**1.7 J**
	4/3/2019	SS20B-2.5	2.5	--	--	--	--	--	--	--	<0.010	**0.044 J**	**0.023 J**	**0.38 J**	**0.33 J**	**0.31 J**	**0.29 J**	**0.13 J**	--	--	**0.3 J**	**0.042**	--	--	**0.25 J**	<0.010UJ	**0.32 J**	--	<0.010UJ	--	**0.069 J**	--	**0.38 J**
SS20C	4/3/2019	SS20C-0.5	0.5	--	--	--	--	--	--	--	<0.010	**0.029 J**	**0.017 J**	**0.27 J**	**0.24 J**	**0.24 J**	**0.23 J**	**0.062 J**	--	--	**0.22 J**	**0.021**	--	--	**0.25 J**	<0.010UJ	**0.076 J**	--	<0.010UJ	--	**0.078 J**	--	**0.32 J**
	4/3/2019	SS20C-2.5	2.5	--	--	--	--	--	--	--	<0.010	<0.010UJ	<0.010UJ	**0.047 J**	**0.04 J**	**0.041 J**	**0.024 J**	**0.016 J**	--	--	**0.038 J**	<0.010	--	--	**0.039 J**	<0.010UJ	<0.040UJ	--	<0.010UJ	--	**0.019 J**	--	**0.057 J**
SS20D	4/3/2019	SS20D-0.5	0.5	--	--	--	--	--	--	--	<0.010	**0.057**	**0.051**	**0.59**	**0.54**	**0.57**	**0.55**	**0.081 J**	--	--	**0.50**	**0.056**	--	--	**0.59**	**0.020**	**0.56**	--	<0.010	--	**0.38**	--	**0.74**
	4/3/2019	SS20D-2.5	2.5	--	--	--	--	--	--	--	<0.010	**0.029**	**0.017**	**0.23**	**0.21**	**0.22**	**0.15**	**0.054 J**	--	--	**0.20**	**0.024**	--	--	**0.17**	<0.010	**0.081**	--	<0.010	--	**0.057**	--	**0.23**
SS20E	4/3/2019	SS20E-0.5	0.5	--	--	--	--	--	--	--	<0.010	**0.054**	**0.046**	**0.58**	**0.51**	**0.52**	**0.51**	**0.078 J**	--	--	**0.46 J**	**0.048**	--	--	**0.52**	**0.020**	**0.50**	--	<0.010	--	**0.35**	--	**0.69**
	4/3/2019	SS20E-2.5	2.5	--	--	--	--	--	--	--	<0.010	**0.018**	**0.013**	**0.14**	**0.13**	**0.14**	**0.050**	**0.034 J**	--	--	**0.12**	**0.013**	--	--	**0.076**	<0.010	**0.044**	--	<0.010	--	**0.047**	--	**0.16**
SS20F	4/3/2019	SS20F-0.5	0.5	--	--	--	--	--	--	--	<0.010	**0.069**	**0.056**	**0.78**	**0.78**	**1.1**	**0.76**	**1 J**	--	--	**0.69**	**0.076**	--	--	**0.93**	**0.026**	**0.77**	--	**0.016**	--	**0.49**	--	**1.1**
	4/3/2019	SS20F-2.5	2.5	--	--	--	--	--	--	--	<0.010	**0.033**	**0.023**	**0.33**	**0.29**	**0.32**	**0.25**	**0.075 J**	--	--	**0.27**	**0.030**	--	--	**0.22**	<0.010	**0.27**	--	<0.010	--	**0.074**	--	**0.35**
	4/3/2019	SB01A-01[7]	2.5	--	--	--	--	--	--	--	<0.010UJ	**0.036 J**	**0.022 J**	**0.35 J**	**0.31 J**	**0.3 J**	**0.28 J**	**0.13 J**	--	--	**0.29 J**	**0.029 J**	--	--	**0.29 J**	<0.010UJ	**0.28 J**	--	<0.010UJ	--	**0.078 J**	--	**0.4 J**
SS20G	4/3/2019	SS20G-0.5	0.5	--	--	--	--	--	--	--	<0.010	**0.074**	**0.054**	**0.76**	**0.74**	**0.77**	**0.77**	**0.22 J**	--	--	**0.67**	**0.074**	--	--	**0.67**	**0.023**	**0.75**	--	<0.010	--	**0.39**	--	**1.0**
	4/3/2019	SS20G-2.5	2.5	--	--	--	--	--	--	--	**0.019**	**0.51**	**0.51**	**2.4**	**2.4**	**2.3**	**2.0**	**0.77 J**	--	--	**2.5**	**0.39**	--	--	**3.4**	**0.094**	<4.0	--	**0.057**	--	**2.1**	--	**3.8**
	4/16/2019	SS20G-4.0	4.0	--	--	--	--	--	--	--	<0.10UJ	<0.10UJ	<0.10UJ	**0.022 J**	**0.023 J**	**0.023 J**	**0.021 J**	<0.010UJ	--	--	**0.022 J**	<0.10UJ	--	--	**0.028 J**	<0.10UJ	<0.040UJ	--	<0.10UJ	--	**0.013 J**	--	**0.035 J**
SS20H	4/3/2019	SS20H-0.5	0.5	--	--	--	--	--	--	--	<0.10UJ	<0.10UJ	<0.10UJ	**0.36 J**	**0.27 J**	**0.27 J**	**0.23 J**	<0.10UJ	--	--	**0.44 J**	<0.10UJ	--	--	**0.25 J**	**0.33 J**	<0.40UJ	--	<0.10UJ	--	**2 J**	--	**0.77 J**
	4/3/2019	SS20H-2.5	2.5	--	--	--	--	--	--	--	**0.014**	**0.60**	**0.52**	**2.1**	**2.3**	**2.1**	**2.1**	**0.54 J**	--	--	**2.1**	**0.31**	--	--	**3.4**	**0.076**	**2.0**	--	**0.033**	--	**1.5**	--	**3.9**
RSLs[2]		Residential		47	9.9	1.7	340	190	6,300	130 [3]	3,300	3,300.0 [4]	17,000.0	1.1	0.11	1.1	1,800 [5]	11	39	290	110	0.028	51,000	630	2,400	2,300	1.1	0.078	2.0	1.0	17,000 [6]	19,000	1,800
		Industrial		200	30	4.7	3,900	1,300	53,000	1,100 [3]	23,000	23,000 [4]	130,000	12	1.3	13	13,000 [5]	130	110	780	1,300	0.31	420,000	5,300	18,000	17,000	13	0.21	6.5	2.0	130,000 [6]	160,000	13,000

Notes:

1. Semi-volatile organic compounds (SVOCs) / Polynuclear aromatic hydrocarbons (PAHs) by U.S. EPA Method 8270C SIM.
2. U.S. EPA's RSLs for Chemical Contaminants at Superfund Sites, unless DTSC recommends a lower alternative value. Sources: EPA, May 2021. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. DTSC, June 2020. https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-June-2020-A.pdf
3. Regional Screening Levels for 2,4-dinitrophenol as surrogate values.
4. Regional Screening Levels for acenaphthene as surrogate values.
5. Regional Screening Levels for pyrene as surrogate values.
6. Regional Screening Levels for anthracene as surrogate values.
7. Duplicate sample

BOLD = result above laboratory reporting limit

BOLD = result above residential screening level

BOLD = result above commercial/industrial screening level

Abbreviations

ft bgs = feet below ground surface

RSL = regional screening level

< = Not detected at or above the reporting limit shown.

-- = Not analyzed

J, UJ, L, B =Estimated value

ATTACHMENT 2-3

ANALYTICAL RESULTS FOR METALS IN SOIL SAMPLES

Berk Oil and Pacific Metal Craft Properties
Bell Gardens, California
Results in milligrams per kilogram (mg/kg)

Boring ID [1]	Sample Date	Sample ID	Sample Depth (feet bgs)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
EE-1	8/7/2001	BG-1-S00	0	**13,000**	<1.4	2.0L	**118**	<0.18	<0.51	**6,520**	**16.2**	**11.4**	**17.2**	**19,500**	**10.9**	**6,560**	**300**	<0.060	--	**11.7**	**4,570**	<0.29	<0.69	**980L**	<0.44	**38.3**	**61.9**
	8/7/2001	BG-1-S06	6	**18,600**	<1.5	**2.7**	**146**	<0.19	<0.54	**12,700**	**20.9**	**14.4**	**26.3**	**25,200**	**6.1**	**9,020**	**424**	<0.060	--	**15.5**	**4,500**	<0.30	<0.73	**1620**	<0.47	**48.5**	**82.2**
EE-3	8/7/2001	BG-3-S00	0	**15,500**	**2.6L**	**8.2**	**152**	<0.18	0.90L	**26,200**	**24.5**	**14.2**	**80.8**	**23,600**	**37.5**	**7,310**	**399**	<0.060	--	**17.6**	**3,730**	**0.50L**	<0.69	**422L**	<0.45	**43.1**	**226**
	8/7/2001	BG-3-S06	6	**18,000**	**1.6L**	**3.8**	**156**	<0.18	<0.53	**22,500**	**21.8**	**13.2**	**29.7**	**23,700**	**31.0**	**8,720**	**430**	<0.060	--	**14.9**	**4,610**	<0.30	<0.72	**659L**	<0.46	**45.1**	**84.5**
EE-5	8/7/2001	BG-5-S00	0	**15,000**	**1.7L**	**4.2**	**155**	<0.18	<0.51	**8,870**	**20.6**	**12.1**	**31.8**	**23,000**	**63.0**	**6,900**	**455**	<0.060	--	**15.5**	**5,040**	**0.43L**	<0.69	**375L**	<0.44	**40.7**	**171**
	8/7/2001	BG-5-S06	6	**29,300**	**1.8L**	**4.8**	**236**	**0.20L**	<0.56	**19,500**	**31.0**	**20.0**	**39.7**	**35,800**	**7.1**	**13,700**	**651**	<0.060	--	**23.0**	**6,220**	<0.32	<0.76	**1400**	<0.49	**71.8**	**91.3**
EE-7	8/7/2001	BG-7-S00	0	**21,400**	<1.5	**2.8**	**198**	<0.19	<0.54	**10,700**	**26.9**	**18.3**	**29.0**	**29,800**	**8.0**	**1,000**	**495**	<0.060	--	**22.0**	**6,300**	<0.31	<0.73	**1270**	<0.47	**55.8**	**85.2**
	8/7/2001	BG-107-S00 [2]	0	**20,500**	**1.8L**	**2.7**	**187**	<0.19	<0.54	**10,300**	**24.9**	**17.4**	**28.5**	**28,000**	**8.2**	**10,300**	**468**	<0.060	--	**20.4**	**5,940**	<0.31	<0.73	**1090L**	<0.47	**53.3**	**81.7**
	8/7/2001	BG-7-S06	6	**20,700**	<1.5	**2.4**	**181**	<0.19	<0.55	**10,300**	**23.1**	**16.6**	**30.8**	**28,000**	**5.4**	**11,100**	**581**	<0.060	--	**17.3**	**4,710**	<0.31	<0.74	**2270**	<0.48	**52.8**	**76.4**
EE-11	8/7/2001	BG-11-S00	0	**15,700**	<1.5	**2.8**	**144**	<0.18	<0.52	**6,790**	**19.5**	**13.4**	**21.3**	**22,800**	**10.6**	**7,790**	**364**	<0.060	--	**15.0**	**5,520**	<0.30	<0.70	**1040L**	<0.45	**44.0**	**70.6**
	8/7/2001	BG-11-S06	6	**21,200**	<1.5	**3.7**	**185**	<0.19	<0.55	**13,100**	**23.5**	**17.0**	**28.8**	**29,500**	**5.1**	**11,100**	**483**	<0.060	--	**17.3**	**4,790**	<0.31	<0.74	**2200**	<0.48	**57.2**	**75.6**
EE-9	8/7/2001	BG-9-S00	0	**29,900**	**2.5L**	**8.8**	**254**	**0.38**	<0.61	**12,600**	**37.5**	**23.3**	**54.6**	**39,100**	**13.9**	**12,600**	**832**	**0.13L**	--	**29.1**	**5,390**	<0.35	<0.83	**1730**	<0.53	**75.7**	**109**
	8/7/2001	BG-9S06	6	**21,900**	**1.6L**	**2.7**	**185**	<0.19	<0.55	**10,700**	**26.8**	**16.2**	**29.5**	**29,500**	**5.7**	**9,840**	**391**	<0.060	--	**18.3**	**5,840**	<0.31	<0.75	**1640**	<0.48	**57.8**	**76.0**
EE-13	8/7/2001	BG-13-S00	0	**10,700**	<1.4	1.4L	**102**	<0.18	<0.51	**5,120**	**13.5**	**10.0L**	**13.5**	**17,100**	**4.7**	**5,730**	**269**	<0.060	--	**10.1**	**3,930**	<0.29	<0.69	**908L**	<0.45	**33.0**	**53.2**
	8/7/2001	BG-113-S00 [2]	0	**10,600**	<1.4	0.86L	**99.9**	<0.17	<0.50	**5,010**	**13.4**	**10.1L**	**13.1**	**17,000**	**5.3**	**5,720**	**264**	<0.050	--	**10.0**	**3,870**	<0.28	<0.67	**907L**	<0.43	**33.0**	**52.7**
	8/7/2001	BG-13-S06	6	**24,600**	<1.6	**3.8**	**192**	<0.20	<0.57	**11,500**	**27.5**	**19.0**	**36.5**	**32,300**	**6.4**	**11,700**	**545**	<0.060	--	**21.1**	**5,730**	<0.32	<0.77	**1960**	<0.50	**63.5**	**84.0**
EE-15	8/9/2001	BG-15-S00	0	**9,130**	<1.4	1.9L	**75.8**	<0.17	<0.50	**4,390**	**11.1**	**7.9L**	**12.4**	**14,100**	**7.0**	**4,390**	**225**	<0.050	--	8.1L	**3,360**	<0.28	<0.67	**215L**	<0.43	**27.8**	**43.9**
	8/9/2001	BG-15-S06	6	**22,100**	**1.6L**	**3.8**	**201**	<0.19	<0.55	**11,500**	**29.0**	**16.6**	**31.9**	**29,700**	**6.6**	**10,100**	**473**	<0.060	--	**18.8**	**5,390**	<0.31	<0.75	**622L**	<0.48	**59.5**	**75.5**
SS1	03/21/12	SS1-1.0	1	--	**4.8J-**	<2.0	**110**	**2.0**	<0.40	--	**16**	**8.1**	**19**	--	**8.4**	--	--	**0.095**	<2.0	**12**	--	<5.0	<2.0	--	<5.0	**38**	**57J**
SS2	03/21/12	SS2-1.0	1	--	**3.8J-**	**2.6**	**110**	**1.5**	**1.2**	--	**19**	**7.4**	**57**	--	**54**	--	--	**0.180**	<2.0	**14**	--	<5.0	<2.0	--	<5.0	**33**	**480J**
SS3	03/21/12	SS3-1.0	1	--	**5.1J-**	<2.0	**140**	**2.3**	<0.40	--	**19**	**10**	**22**	--	**3.5**	--	--	**0.077**	<2.0	**15**	--	<5.0	<2.0	--	<5.0	**43**	**57J**
SS4	03/21/12	SS4-1.0	1	--	**4.6J-**	**6.1**	**130**	**1.6**	**0.78**	--	**19**	**8.6**	**57**	--	**55**	--	--	**0.034**	**7.0**	**17**	--	<5.0	<2.0	--	<5.0	**36**	**190J**
SS5	03/21/12	SS5-1.0	1	--	**2.8J-**	**3.0**	**96**	**1.1**	**0.44**	--	**16**	**6.0**	**27**	--	**62**	--	--	**0.086**	<2.0	**13**	--	<5.0	<2.0	--	<5.0	**29**	**120J**
SS6	03/21/12	SS6-1.0	1	--	<2.0UJ	<2.0	**45**	**0.59**	<0.40	--	**7.0**	**3.3**	**7.6**	--	**2.9**	--	--	**0.017**	<2.0	**14**	--	<5.0	<2.0	--	<5.0	**29**	**19J**
SS7	03/21/12	SS7-1.0	1	--	**4.3J-**	<2.0	**89**	**1.6**	<0.40	--	**14**	**6.6**	**14**	--	**9.8**	--	--	**0.056**	<2.0	**10**	--	<5.0	<2.0	--	<5.0	**33**	**48J**
SS8	03/21/12	SS8-1.0	1	--	**4.3J-**	<2.0	**88**	**1.7**	<0.40	--	**14**	**6.9**	**15**	--	**3.3**	--	--	**0.099**	<2.0	**10**	--	<5.0	<2.0	--	<5.0	**33**	**43J**
SS9	03/21/12	SS9-1.0	1	--	**5.5J-**	<2.0	**130**	**2.3**	<0.40	--	**18**	**9.1**	**17**	--	**2.6**	--	--	**0.041**	<2.0	**14**	--	<5.0	<2.0	--	<5.0	**40**	**56J**
SS10	03/21/12	SS10-1.0	1	--	**3.7J-**	<2.0	**82**	**1.6**	<0.40	--	**13**	**6.4**	**14**	--	**8.7**	--	--	**0.041**	<2.0	**9.7**	--	<5.0	<2.0	--	<5.0	**33**	**56J**
SS11	03/22/12	SS11-1.0	1	--	**3.8J-**	<2.0	**71**	**1.4**	<0.40	--	**11**	**5.8**	**12**	--	**4.9**	--	--	**0.051**	<2.0	**8.4**	--	<5.0	<2.0	--	<5.0	**30**	**38J**
	03/22/12	SB01a-02 [2]	1	--	**4.2**	<2.0	**79J**	**1.8**	<0.40	--	**15**	**7.0**	**15J**	--	**5.1J**	--	--	**0.040**	<2.0	**8.7**	--	<5.0	<2.0	--	<5.0	**38**	**40J-**
SS12	03/21/12	SS12-1.0	1	--	**2.1J-**	**2.4**	**78**	**0.82**	<0.40	--	**11**	**3.2**	**42**	--	**17**	--	--	**0.037**	<2.0	**7.3**	--	<5.0	<2.0	--	<5.0	**17**	**64J**
SS13	03/22/12	SS13-1.0	1	--	**4.8J-**	**2.3**	**130**	**2.0**	**0.43**	--	**21**	**9.6**	**27**	--	**38**	--	--	**0.077**	<2.0	**15**	--	<5.0	<2.0	--	<5.0	**42**	**76J**
SS14	03/21/12	SS14-1.0	1	--	**4.4J-**	<2.0	**130**	**2.1**	**0.58**	--	**19**	**11**	**34**	--	**6.0**	--	--	**0.076**	<2.0	**14**	--	<5.0	<2.0	--	<5.0	**45**	**54J**
SS15	03/22/12	SS15-1.0	1	--	**3.1J-**	**2.0**	**85**	**1.3**	<0.40	--	**16**	**7.9**	**20**	--	**14**	--	--	**0.061**	<2.0	**11**	--	<5.0	<2.0	--	<5.0	**36**	**48J**
	03/22/12	SB01a-01	1	--	**2.8J-**	**2.4**	**85**	**1.3**	<0.40	--	**17**	**9.1**	**20**	--	**16**	--	--	**0.046**	<2.0	**12**	--	<5.0	<2.0	--	<5.0	**36**	**49J**
SS16	03/22/12	SS16-1.0	1	--	**4.7J-**	<2.0	**130**	**1.9**	**0.55**	--	**18**	**8.5**	**27**	--	**32**	--	--	**0.067**	<2.0	**13**	--	<5.0	<2.0	--	<5.0	**38**	**91J**
SS17	03/22/12	SS17-1.0	1	--	**3.8J-**	<2.0	**68**	**1.4**	<0.40	--	**11**	**5.6**	**9.7**	--	**2.7**	--	--	**0.036**	<2.0	**7.5**	--	<5.0	<2.0	--	<5.0	**29**	**33J**
SS18	03/21/12	SS18-1.0	1	--	**4.3J-**	<2.0	**88**	**1.6**	**0.41**	--	**17**	**7.2**	**430**	--	**23**	--	--	**0.044**	<2.0	**13**	--	<5.0	**13**	--	<5.0	**35**	**110J**
SS19	03/22/12	SS19-1.0	1	--	**5.0**	<2.0	**88J**	**1.9**	<0.40	--	**14**	**7.6**	**14J**	--	**6.2J**	--	--	**0.034**	<2.0	**9.2**	--	<5.0	<2.0	--	<5.0	**38**	**46J-**
SS20	03/22/12	SS20-1.0	1	--	**5.0**	<2.0	**87J**	**1.9**	<0.40	--	**14**	**7.8**	**15J**	--	**7.0J**	--	--	**0.036**	<2.0	**9.3**	--	<5.0	<2.0	--	<5.0	**39**	**45J-**
SS21	03/21/12	SS21-1.0	1	--	<2.0UJ	**2.2**	**33**	**0.70**	<0.40	--	**12**	**4.7**	**11**	--	**6.6**	--	--	**0.140**	<2.0	**6.4**	--	<5.0	<2.0	--	<5.0	**21**	**22J**
SS22	03/22/12	SS22-1.0	1	--	**3.5**	**8.3**	**110J**	**1.2**	**0.55**	--	**14**	**5.4**	**32J**	--	**40J**	--	--	**0.056**	<2.0	**9.1**	--	<5.0	<2.0	--	<5.0	**27**	**72J-**

ATTACHMENT 2-3

ANALYTICAL RESULTS FOR METALS IN SOIL SAMPLES

Berk Oil and Pacific Metal Craft Properties
Bell Gardens, California
Results in milligrams per kilogram (mg/kg)

Boring ID [1]	Sample Date	Sample ID	Sample Depth (feet bgs)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
SS23	03/22/12	SS23-1.0	1	--	**5.9**	**4.6**	**120J**	**1.7**	**1.6**	--	**20**	**11**	**69J**	--	**76J**	--	--	**0.270**	**11**	**13**	--	<5.0	<2.0	--	<5.0	**39**	**170J-**
SS24	03/22/12	SS24-1.0	1	--	**6.1**	**3.5**	**150J**	**2.4**	**0.59**	--	**21**	**9.8**	**26J**	--	**130J**	--	--	**0.051**	<2.0	**16**	--	<5.0	<2.0	--	<5.0	**48**	**110J-**
SS24A	04/16/19	SS24A-0.5	0.5	--	--	--	--	--	--	--	--	--	--	--	**75**	--	--	--	--	--	--	--	--	--	--	--	--
	04/16/19	SS24A-2.5	2.5	--	--	--	--	--	--	--	--	--	--	--	**11**	--	--	--	--	--	--	--	--	--	--	--	--
SS24B	04/16/19	SS24B-0.5	0.5	--	--	--	--	--	--	--	--	--	--	--	**78**	--	--	--	--	--	--	--	--	--	--	--	--
	04/16/19	SS24B-2.5	2.5	--	--	--	--	--	--	--	--	--	--	--	**17**	--	--	--	--	--	--	--	--	--	--	--	--
	04/16/19	SB01a-04 [2]	2.5	--	--	--	--	--	--	--	--	--	--	--	**17**	--	--	--	--	--	--	--	--	--	--	--	--
SS24C	04/16/19	SS24C-0.5	0.5	--	--	--	--	--	--	--	--	--	--	--	**82**	--	--	--	--	--	--	--	--	--	--	--	--
	04/16/19	SS24C-2.5	2.5	--	--	--	--	--	--	--	--	--	--	--	**7.6**	--	--	--	--	--	--	--	--	--	--	--	--
SS25	03/22/12	SS25-1.0	1	--	**6.1**	**3.4**	**140J**	**2.6**	**0.52**	--	**22**	**11**	**25J**	--	**6.9J**	--	--	**0.12**	<2.0	**17**	--	<5.0	<2.0	--	<5.0	**49**	**74J-**
SS26	03/22/12	SS26-1.0	1	--	**6.2**	**3.1**	**160J**	**1.9**	**3.0**	--	**31**	**11**	**87J**	--	**180J**	--	--	**0.57**	**3.6**	**19**	--	<5.0	<2.0	--	<5.0	**40**	**170J-**
SS26A	04/16/19	SS26A-0.5	0.5	--	--	--	--	--	--	--	--	--	--	--	**190**	--	--	--	--	--	--	--	--	--	--	--	--
SS26B	04/16/19	SS26B-0.5	0.5	--	--	--	--	--	--	--	--	--	--	--	**210**	--	--	--	--	--	--	--	--	--	--	--	--
SS26C	04/16/19	SS26C-0.5	0.5	--	--	--	--	--	--	--	--	--	--	--	**200**	--	--	--	--	--	--	--	--	--	--	--	--
	04/16/19	SS26C-2.5	2.5	--	--	--	--	--	--	--	--	--	--	--	**4.5**	--	--	--	--	--	--	--	--	--	--	--	--
SS26D	04/16/19	SS26D-0.5	0.5	--	--	--	--	--	--	--	--	--	--	--	**51**	--	--	--	--	--	--	--	--	--	--	--	--
	04/16/19	SS26D-2.5	2.5	--	--	--	--	--	--	--	--	--	--	--	**64**	--	--	--	--	--	--	--	--	--	--	--	--
	04/16/19	SB01a-05 [2]	2.5	--	--	--	--	--	--	--	--	--	--	--	**59**	--	--	--	--	--	--	--	--	--	--	--	--
SS27	03/22/12	SS27-1.0	1	--	**5.0**	**4.0**	**100J**	**1.9**	**0.61**	--	**19**	**8.7**	**94J**	--	**28J**	--	--	**0.11**	<2.0	**16**	--	<5.0	<2.0	--	<5.0	**42**	**76J-**
BACKGROUND																											
BG-25	8/9/2001	BG-25-S00	0	**12,300**	**2.4L**	**4.0**	**167**	<0.19	**2.9**	**13,100**	**30.0**	**10.7L**	**54.4**	**19,500**	**227**	**6,410**	**326**	**0.24**	--	**17.3**	**3,810**	**0.67L**	<0.73	**388L**	<0.47	**36.1**	**311**
	8/9/2001	BG-25-S02	2	**11,400**	**2.4L**	**4.9**	**149**	<0.18	**2.8**	**14,700**	**29.0**	**9.8L**	**50.3**	**18,900**	**211**	**6,120**	**351**	**0.15**	--	**15.1**	**3,490**	**0.66L**	<0.71	**368L**	<0.46	**35.2**	**369**
BG-26	8/9/2001	BG-26-S00	0	**10,200**	**2.6L**	**4.6**	**136**	<0.18	**2.2**	**10,300**	**25.7**	**9.2L**	**49.6**	**19,400**	**231**	**5,380**	**297**	**0.13**	--	**14.5**	**3,240**	**0.82L**	<0.71	**359L**	<0.46	**30.9**	**399**
	8/9/2001	BG-26-S02	2	**12,600**	**2.7L**	**5.2**	**254**	<0.19	**1.3**	**7,760**	**23.9**	**11.5L**	**72.5**	**21,500**	**161**	**6,400**	**419**	**0.080L**	--	**17.2**	**3,830**	**0.45L**	<0.72	**294L**	<0.46	**35.5**	**351**
BG-27	8/9/2001	BG-27-S00	0	**12,000**	<1.5	**4.5**	**119**	<0.19	<0.56	**7,200**	**21.1**	**11.8L**	**29.4**	**20,400**	**80.5**	**7,240**	**408**	<0.060	--	**17.9**	**3,930**	**0.56L**	<0.75	**412L**	<0.48	**37.0**	**152**
	8/9/2001	BG-27-S02	2	**13,600**	**1.7L**	**5.4**	**123**	<0.18	<0.52	**5,320**	**22.1**	**13.7**	**28.0**	**23,000**	**11.6**	**8,200**	**412**	<0.060	--	**17.8**	**4,510**	**0.37L**	<0.70	**290L**	<0.45	**42.6**	**68.5**
RSLs [3]		Residential Soil		77,000	31	0.11 [4]	15,000	16	71	NA	120,000	23	3,100	55,000	80	NA	1,800	1.0	390	820	NA	390	390	NA	0.78	390	23,000
		Industrial Soil		1,100,000	470	0.36 [4]	220,000	230	780	NA	1,800,000	350	47,000	820,000	320	NA	26,000	4.4	5,800	11,000	NA	5,800	5,800	NA	12	5,800	350,000

Notes:

1. "BG" soil sample locations are show on Figure 3 under designation "EE", and unknown location for background samples.
2. Duplicate sample
3. U.S. EPA's RSLs for Chemical Contaminants at Superfund Sites, unless DTSC recommends a lower alternative value. Sources: EPA, November 2020. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. DTSC, June 2020. https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-June-2020-A.pdf
4. Because the DTSC background (upper bound limit) for nearby Los Angeles County is greater than the DTSC-SLs value for arsenic, the Los Angeles County background concentration of 12 mg/kg was selected as the appropriate screening level.

BOLD = result above laboratory reporting limit
BOLD = result above residential screening level

Abbreviations

-- = not analyzed
< = Not detected above the reporting limit shown.
ft bgs = feet below ground surface
RSL = regional screening level
L, J-, J, UJ\ = Estimated value.

ATTACHMENT 2-4

Analytical Results for Volatile Organic Compounds in Soil Gas Samples[1]

Former Berk Oil and Pacific Metal Craft Site

Bell Gardens, California

concentrations in micrograms per cubic meter (µg/m^3)

Boring ID	Sample ID	Sample Depth (ft bgs)	Sample Date	PCE	TCE	1,1,1-TCA	1,1-DCE	1,2,4-TMB	m,p-xylene	TCFM	Leak Check IPA/1,1-DFA
SG1	SG 1-5'	5	03/21/12	<100	<100	<500	<500	<500	<500	<500	ND
	SG 1-5' DUP	5	03/21/12	<100	<100	<500	<500	<500	<500	<500	ND
SG2	SG 2-5'	5	03/21/12	<100	<100	<500	<500	<500	<500	<500	ND
SG3	SG 3-5'	5	03/21/12	<100	<100	<500	<500	<500	<500	<500	ND
SG4	SG 4-5'	5	03/21/12	<100	<100	<500	<500	<500	<500	<500	ND
SG5	SG 5-5'	5	03/21/12	<100	<100	<500	<500	<500	<500	<500	ND
SG6	SG 6-5'	5	03/21/12	<100	<100	<500	<500	<500	<500	<500	ND
SG7	SG 7-5'	5	03/22/12	**150**	<100	<500	<500	<500	<500	<500	ND
SG8	SG 8-5'	5	03/21/12	**170**	<100	<500	<500	<500	<500	<500	ND
	SG 8-5', 7PV[3]	5	03/22/12	**150**	<100	<500	<500	<500	<500	<500	ND
SG9[2]	SG 9-5', 1PV	5	03/21/12	<100	<100	<500	<500	<500	<500	<500	ND
	SG 9-5', 3PV	5	03/21/12	<100	<100	<500	<500	<500	<500	<500	ND
	SG 9-5', 7PV	5	03/21/12	<100	<100	<500	<500	<500	<500	<500	ND
SG10	SG 10-5'	5	03/22/12	<100	<100	<500	<500	<500	<500	<500	ND
	SG 10-5' 7PV[3]	5	03/22/12	**210**	<100	<500	<500	<500	<500	<500	ND
SG11	SG 11-5'	5	03/22/12	**1,000**	<100	<500	<500	<500	<500	<500	ND
SG12	SG 12-5'	5	03/21/12	**150**	<100	<500	<500	<500	<500	<500	ND
SG13	SG 13-5'	5	03/22/12	<100	<100	<500	<500	<500	<500	<500	ND
SG14	SG 14-5'	5	03/22/12	<100	<100	<500	<500	<500	<500	<500	ND
SG15	SG 15-5'	5	03/22/12	<100	<100	<500	<500	<500	<500	<500	ND
SG16	SG 16-5'	5	03/22/12	<100	<100	<500	<500	<500	<500	<500	ND
SG17[2]	SG 17-5'	5	03/22/12	**2,100**	**180**	**10,000**	<500	<500	<500	<500	ND
	SG 17-5', 1PV	5	03/22/12	**4,400**	**420**	**21,000**	**670**	<500	<500	<500	ND
	SG 17-5', 7PV	5	03/22/12	**6,000**	**520**	**27,000**	**840**	<500	<500	<500	ND
SG18	SG 18-5'	5	03/22/12	<100	<100	<500	<500	<500	<500	<500	ND
	SG 18-5' DUP	5	03/22/12	<100	<100	<500	<500	<500	<500	<500	ND
SG19	SG 19-5'	5	03/22/12	**160**	<100	<500	<500	<500	<500	<500	ND
SG20	SG 20-5'	5	03/22/12	**420**	<100	<500	<500	<500	<500	<500	ND
SG21	SG 21-5', 7 PV	5	03/22/12	**620**	<100	**4,000**	<500	<500	<500	<500	ND
SG22	SG 22-5', 7 PV	5	03/22/12	**2,900**	**130**	**4,100**	<500	<500	<500	<500	ND
SB-1	SB-1-5	5	06/14/19	**860**	**200**	<50	<50	<50	<50	<50	ND
	SB-1-15	15	06/14/19	**1,100**	**260**	<50	<50	<50	<50	<50	ND
SB-2	SB-2-5	5	06/14/19	**560**	**58**	<50	<50	**58**	**64**	<50	ND
	SB-2-15	15	06/14/19	**520**	**69**	<50	<50	<50	<50	<50	ND
SB-3	SB-3-5	5	06/14/19	<50	<50	<50	<50	<50	<50	<50	ND
	SB-3-15	15	06/14/19	**100**	<50	<50	<50	<50	<50	**230**	ND
	SB-3-15 DUP	15	06/14/19	**79**	<50	<50	<50	<50	<50	**220**	ND
2011 DTSC Soil Gas SLs [4]	Residential Land Use			460	480	1,000,000	73,000	63,000	100,000	1,300,000	--
	Commercial/Industrial Land Use			4,000	6,000	8,800,000	620,000	520,000	880,000	10,600,000	--
Default Soil Gas SLs[5]	Residential Land Use (0.03 AF)			15	16	33,000	2,400	2,100	3,300	43,000	--
	Commercial/Industrial Land Use (0.03 AF)			67	100	150,000	10,000	8,700	15,000	180,000	--

Notes

1. Sample collected in 2012 analyzed for volatile organic compounds (VOCs) by EPA Method 8260B in a mobile laboratory. Samples from 2021 collected in summa canisters and analyzed for VOCs by stationary laboratory using EPA Method 8260B. No other VOC was detected above laboratory reporting limits.
2. Purge volume test was conducted at SG 9-5'. A numeric and "PV" following the probe ID indicate the purge volume applied prior to collecting the soil gas sample. If not indicated, the soil gas sample was collected after the default 3 purge volume. Purge volume test was repeated at SG 17-5' after elevated concentrations were detected in 3 purge volume sample.
3. Resample after purge volume test at SG 17-5'.
4. Soil gas screening levels (SLs) were calculated by dividing the indoor air RSL or DTSC-modified SL by the 2011 default DTSC attenuation factor for future construction (0.001 for residential and 0.0005 for commercial). Sources: EPA, November 2022. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. DTSC, May 2022. https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/02/HHRA-Note-3-June2020-Revised-May2022A.pdf?emrc=b91574
5. Default oil gas screening levels (SLs) were calculated by dividing the indoor air RSL or DTSC-modified SL by the default EPA attenuation factor (0.03). Sources: EPA, November 2022. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. DTSC, May 2022. https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/02/HHRA-Note-3-June2020-Revised-May2022A.pdf?emrc=b91574

BOLD Sample results above laboratory reporting limit.

BOLD Samples results above residential (DTSC 2011) soil gas screening level.

BOLD Samples results above commercial/industrial (DTSC 2011) soil gas screening level.

Abbreviations

-- = not available or applicable
< = not detected above the reporting limit shown
PCE = tetrachloroethene
TCE = trichloroethene
1,1,1-TCA = 1,1,1-trichloroethane
1,1-DCE = 1,1-dichloroethene
TMB = trimethylbenzene
TCFM = trichlorofluoromethane (R11/R11)
IPA = isopropyl alcohol
DFA = 1,1-difluoroethane

ATTACHMENT 2-5

Analytical Results for Volatile Organic Compounds [1] in Soil Samples

Former Berk Oil and Pacific Metal Craft Site

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring ID	Sample ID	Sample Depth (ft bgs)	Sample Date	TCE	1,2-DCB	Benzene	Toluene
SB-1	SB-1-5	5	06/05/19	<0.0050	<0.0050	**0.0033**	<0.0020
	SB-1-18	18	06/05/19	<0.0050	<0.0050	**0.0048**	**0.0023**
	SB-1-25	25	06/05/19	<0.0050	<0.0050	**0.0026**	<0.0020
SB-2	SB-2-5	5	06/05/19	<0.0050	<0.0050	**0.0050**	**0.0024**
	SB-2-17	17	06/05/19	<0.0050	<0.0050	**0.0059**	**0.0033**
	SB-DUP	17	06/05/19	<0.0050	<0.0050	**0.0050**	**0.0030**
	SB-2-25	25	06/05/19	<0.0050	**0.0096**	**0.0021**	<0.0020
SB-3	SB-3-12	12	06/05/19	<0.0050	<0.0050	**0.0027**	<0.0020
	SB-3-18	18	06/05/19	<0.0050	<0.0050	**0.0021**	<0.0020
	SB-3-20	20	06/05/19	<0.0050	<0.0050	<0.0020	<0.0020
Residential RSL[2]				0.94	1,800	0.33	1,100
Industrial RSL[2]				6.0	9,300	1.4	5,300

Notes

1. Volatile Organic Compound (VOC) analysis using United States Environmental Project Agency (EPA) Method 8260B; samples collected using EPA Method 5035. Remaining VOCs were not detected above reporting limits.

2. U.S. EPA's RSLs for Chemical Contaminants at Superfund Sites, unless DTSC recommends a lower alternative value. Sources: EPA, May 2021. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. DTSC, June 2020. https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-June-2020-A.pdf

BOLD = result above laboratory reporting limit

Abbreviations

dup = duplicate sample

ft bgs = feet below ground surface

TCE = trichloroethene

RSL = regional screening level

DCB = dichlorobenzene

< = not detected at or above the reporting limit shown

ATTACHMENT 2-6

Analytical Results for Volatile Organic Compounds [1] in Groundwater Samples

Former Berk Oil and Pacific Metal Craft Properties

Bell Gardens, California

Results reported in micrograms per liter (µg/L)

Sample Identification	Sample Depth (ft bgs)	Sample Date	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Carbon Disulfide
MW03	35	4/16/2019	**0.53**	**2.2 J**	<0.50	<0.50	<0.50
MW04	71	4/16/2019	<0.50	**3.2 J**	<0.50	<0.50	<0.50
MW05	69	4/16/2016	<0.50	**3.2 J**	<0.50	<0.50	<0.50
WG3a-01 (MW-5 dup)	69	4/16/2019	<0.50	**4.7 J**	**0.69**	**12 J**	<0.50
SB-2-35	35	6/5/2019	**0.68**	**0.99**	<0.50	<0.50	<0.50
MW05	69	6/5/2019	<0.50	**2.4**	<0.50	<0.50	**0.51**
DUP-1 (MW05 dup)	69	6/5/2019	<0.50	**2.9**	<0.50	<0.50	<0.50
MCL (California) [2]			5.0	6.0	10	0.50	160 [4]
MCL (EPA) [3]			5.0	70	100	2.0	--

Notes

1. Volatile organic compound (VOC) analysis using United States Environmental Protection Agency (EPA) Method 8260B. Unpresented analytes were not detected above reporting limits.
2. State Water Resource Control Board (SWRCB), 2018, Maximum Contaminal Levels and Regulatory Dates for Drinking Water. October. https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/ccr/mcls_epa_vs_dwp.pdf
3. EPA MCLs as published in U.S. EPA Regional Screening Levels (RSLs) for chemical contaminants at Superfund sites, November 2020.
4. MCLs not available. A California drinking water notification level is presented for carbon disulfide. SWRCB, February 6, 2020.

Abbreviations

ft bgs = feet below ground surface
J = estimated value
DCE = dichloroethene
MCL = Maximum Contaminant Level
TCE = trichloroethene
-- = not available
< = not detected above the reporting limit shown
BOLD Sample results above laboratory reporting limit.
BOLD Samples results above MCLl.

Table 3

Analytical Results for Volatile Organic Compounds [1] in Supplemental Groundwater Assessment Samples
Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

Results reported in micrograms per liter (µg/L)

Sample Identification	Sample Depth (approx. ft bgs)	Sample Date	TCE	1,1-DCE	cis-1,2-DCE	Vinyl Chloride	1,3,5-TMB	1,2,4-TMB	Benzene	Toluene	Ethylbenzene	m,p-xylene	o-xylene	TBA	Naphthalene	Other VOCs [1]
MiHPT-5	74	12/20/21	<0.50	<0.50	<0.50	<0.50 UJ	<0.50	<0.50	<0.50	<0.50 UJ	<0.50	<1.0	<0.50	<10	<2.0	ND
MiHPT-6	78	12/21/21	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	**41**	<2.0	ND
MiHPT-7	74	12/20/21	**2.3**	<0.50	**2.7**	<0.50 UJ	<0.50	<0.50	<0.50	<0.50 UJ	<1.0	<1.0	<0.50	<10	<2.0	ND
MiHPT-8	74	12/20/21	**3.3**	**1.2**	<0.50	**0.58 J-**	**5.3**	**23**	**8.4**	**66 J-**	**11**	**49**	**23**	<10	**3.0**	**n-Bb = 0.70 n-Pb = 2.0 S = 0.68 IPB = 0.82**
MW03	29	01/13/22	**0.66**	<0.50	**2.3**	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<10	<2.0	ND
MW06	67	01/13/22	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<10	<2.0	ND
WG1a-10 (MW06 dup)	67	01/13/22	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<10	<2.0	ND
WG1a-08 [2]	--	12/20/21	<0.50	<0.50	<0.50	<0.50 UJ	<0.50	**0.62**	<0.50	**4.2 J-**	<1.0	**1.3**	**0.74**	<10	<2.0	ND
WG1a-09 [2]	--	12/21/21	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**2.7**	<1.0	<1.0	**0.57**	<10	<2.0	ND
MCLs (California) [3]			5.0	6.0	6.0	0.50	330 [5]	330 [5]	1.0	150	300	1,750	1,750	12 [5]	17 [5]	varies
MCLs (EPA) [4]			5.0	7.0	70	2.0	--	--	5.0	1,000	700	10,000	10,000	--	--	varies

Notes

1. Volatile organic compound (VOC) analysis using United States Environmental Protection Agency (EPA) Method 8260B. See laboratory data sheets for list of analytes not detected above reporting limits.
2. WG1a-08 and WG1a-09 are equipment blanks.
3. State Water Resource Control Board (SWRCB), 2018, Maximum Contaminant Levels and Regulatory Dates for Drinking Water, October.
4. EPA Maximum Contaminant Level (MCLs) as published in EPA Regional Screening Levels (RSLs) for chemical contaminants at Superfund sites, November 2021.
5. MCL not available. The California drinking water notification level is presented where available (SWRCB, February 9, 2022).

Abbreviations

-- = not available or applicable
< = not detected above the reporting limit shown
approx. ft bgs = approximate feet below ground surface
DUP = duplicate sample
UJ/J = estimated value
ND = not detected.
1,1-DCE = 1,1-dichloroethene
1,3,5-TMB = 1,3,5-Trimethylbenzene
1,2,4-TMB = 1,2,4-Trimethylbenzene
cis-1,2-DCE = cis-1,2-dichloroethlene
IPB = isopropylbenzene
n-Bb = n-Butylbenzene
n-Pb = n-Propylbenzene
S = styrene
TBA = tert-Butyl alcohol
TCE = trichloroethene

Bold Sample result above laboratory reporting limit
Bold Sample results above California MCL or notification level

Table 1

Analytical Results for Volatile Organic Compounds in Soil Gas Samples[1]

Former Berk Oil and Pacific Metal Craft Site

Bell Gardens, California

concentrations in micrograms per cubic meter (µg/m^3)

Boring Identification	Sample Identification	Sample Depth (ft bgs)	Sample Date	PCE	TCE	1,1,1-TCA	1,1-DCE	1,3,5-TMB	1,2,4-TMB	m,p-xylene	CD	TCFM	4-IPT	GRO	Leak Check IPA
ASG-1	ASG-1-5	5	04/08/21	**260**	**110**	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-1-15	15	04/08/21	**760**	**740**	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-1-15 DUP-1	15	04/08/21	**730**	**740**	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-2	ASG-2-5	5	04/08/21	**79**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-2-15	15	04/08/21	**66**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-3	ASG-3-5'	5	04/08/21	**51**	**59**	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-3-15	15	04/08/21	**120**	**250**	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-3A	ASG-3A-5	5	05/06/21	**270**	**750**	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-3A-15	15	05/06/21	**59**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	**25,000**	<1,000
ASG-3B	ASG-3B-5'	5	05/06/21	**770**	**1,300**	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-3B-15	15	05/06/21	**120**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-3C	ASG-3C-5'	5	05/06/21	**68**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-3C-15	15	05/06/21	<50	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-3C-15 DUP	15	05/06/21	<50	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-4	ASG-4-5	5	04/08/21	**52**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-4-15	15	04/08/21	**57**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-5	ASG-5-5	5	04/08/21	**87**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-5-15	15	04/08/21	**86**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-6	ASG-6-5	5	04/08/21	**200**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-6-15	15	04/08/21	**160**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-7	ASG-7-5	5	04/08/21	**350**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-7-15	15	04/08/21	**370**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-8	ASG-8-5	5	04/08/21	**860**	<50	<50	<50	**59**	**170**	**110**	<1,000	<50	**52**	**10,000**	<1,000
	ASG-8-5 DUP-2	5	04/08/21	**940**	<50	<50	<50	**66**	**190**	**130**	**1,400**	<50	**58**	**12,000**	<1,000
	ASG-8-15	15	04/08/21	**1,400**	<50	<50	<50	<50	<50	<50	**2,100**	<50	<50	<10,000	<1,000
ASG-9	ASG-9-6'	6	05/06/21	**500**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-9-15	15	05/06/21	**690**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-10	ASG-10-5	5	05/06/21	**480**	**330**	**67**	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-10-15	15	05/06/21	**540**	**81**	**160**	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
ASG-11	ASG-11-5	5	05/06/21	**190**	**67**	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
	ASG-11-15	15	05/06/21	**220**	<50	<50	<50	<50	<50	<50	<1,000	<50	<50	<10,000	<1,000
2011 DTSC Soil Gas SLs [2]	Residential Land Use (0.001 AF)			460	480	1,000,000	73,000	63,000	63,000	100,000	730,000	1,300,000	420,000 [4]	--	--
	Commercial/Industrial Land Use (0.0005 AF)			4,000	6,000	8,800,000	620,000	520,000	520,000	880,000	6,200,000	10,600,000	3,600,000 [4]	--	--
Default Soil Gas SLs [3]	Residential Land Use (0.03 AF)			15	16	33,000	2,400	2,100	2,100	3,300	24,000	43,000	14,000 [4]	--	--
	Commercial/Industrial Land Use (0.03 AF)			67	100	150,000	10,000	8,700	8,700	15,000	100,000	180,000	60,000 [4]	--	--

Notes

1. Samples collected in summa canisters and analyzed for volatile organic compounds (VOCs) by stationary laboratory using EPA Method 8260B. No other VOC was detected above laboratory reporting limits.
2. Soil gas screening levels (SLs) were calculated by dividing the indoor air RSL or DTSC-modified SL by the 2011 default DTSC attenuation factor for future construction (0.001 for residential and 0.0005 for commercial). Sources: EPA, November 2022. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. DTSC, May 2022. https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/02/HHRA-Note-3-June2020-Revised-May2022A.pdf?emrc=b91574
3. Default soil gas screening levels (SLs) were calculated by dividing the indoor air RSL or DTSC-modified SL by the default EPA attenuation factor (0.03). Sources: EPA, November 2022. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. DTSC, May 2022. https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/02/HHRA-Note-3-June2020-Revised-May2022A.pdf?emrc=b91574
4. DTSC-SLs and RSLs are not published for 4-isopropyl toluene; therefore, values for isopropyl benzene are presented as a surrogate, based on structural similarity.

BOLD Sample results are detections above the laboratory reporting limit.

BOLD Samples results above DTSC 2011 residential soil gas screening level (0.001 AF).

Abbreviations

PCE = tetrachloroethene
TCE = trichloroethene
1,1-DCE = 1,1-dichloroethene
1,1,1-TCA = 1,1,1-trichloroethane
CD = carbon disulfide
GRO = gasoline range organics
IPA = isopropyl alcohol
TCFM = trichlorofluoromethane (R11)
TMB = trimethylbenzene
4-IPT = 4-isopropyltoluene
-- = not available or applicable
< = not detected above the reporting limit shown
DUP = duplicate sample
ft bgs = feet below ground surface

Table 2

Comparison of Results for Volatile Organic Compounds in Active and Passives Soil Gas Samples

Former Berk Oil and Pacific Metal Craft Site

Bell Gardens, California

concentrations in micrograms per liter (µg/L)

Active Soil Gas Sample Identification	Sample Depth (ft bgs)	PCE	TCE	Passive Soil Gas Sample Identification	PCE	PCE RPD (percent)	TCE	TCE RPD (percent)
ASG-1	5	**0.26**	**0.11**	PSG10/	**0.025**	165	**0.0014**	195
				PSG10 DUP	**0.016**	177	**0.0014**	195
ASG-2	5	**0.079**	<0.050	PSG12	**0.018**	126	**0.0045**	--
ASG-3	5	**0.051**	**0.059**	PSG17	**0.005**	164	**0.0028**	182
ASG-5	5	**0.087**	<0.050	PSG20	**0.025**	111	<0.0014	--
ASG-6	5	**0.20**	<0.050	PSG23/	**0.048**	123	**0.029**	--
				PSG23 DUP	**0.033**	143	**0.021**	--
ASG-7	5	**0.35**	<0.050	PSG28/	**0.156**	77	**0.017**	--
				PSG28 DUP	**0.103**	109	**0.031**	--
ASG-8	5	**0.86**	<0.050	PSG63	**0.233**	115	**0.028**	--
ASG-10	5	**0.48**	**0.33**	PSG58	**0.036**	172	**0.099**	108
ASG-11	5	**0.19**	**0.067**	PSG37	**0.004**	192	**0.003**	183

Notes

Passive soil gas survey results reported by Beacon Environmental Services, Inc. in micrograms per cubic meter were converted to micrograms per liter equivalent concentrations.

Abbreviations

< = not detected above the reporting limit shown

ft bgs = feet below ground surface

-- = not available or applicable

PCE = tetrachloroethene

RPD = relative percent difference

TCE = trichloroethene

Table 3

Analytical Results for Polycyclic Aromatic Hydrocarbons in Soil Samples[1]

Former Berk Oil and Pacific Metal Craft Site

Bell Gardens, California

concentrations in milligrams per kilograms (mg/kg)

Boring Identification	Sample Date	Sample Identification	Sample Depth (feet bgs)	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) Anthracene	Benzo (a) Pyrene	Benzo (b) Fluoranthene	Benzo (g,h,i) Perylene	Benzo (k) Fluoranthene	Chrysene	Dibenzo (a,h) Anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-c,d) Pyrene	Naphthalene	Phenanthrene	Pyrene	BaP TEQ[2]
ASG-1	04/05/21	ASG-1-0.5	0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	**0.12**	<0.10
	04/05/21	ASG-1-2.5	2.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
ASG-2	04/05/21	ASG-2-0.5	0.5	<0.10	**0.14**	**0.20**	**0.96**	**1.2**	**1.2**	**0.82**	**0.38**	**1.2**	**0.16**	**2.4**	<0.10	**0.69**	<0.10	**1.4**	**2.7**	**1.7**
	04/05/21	ASG-2-2.5	2.5	<0.10	<0.10	<0.10	**0.22**	**0.26**	**0.25**	**0.18**	**0.10**	**0.23**	<0.10	**0.32**	<0.10	**0.15**	<0.10	**0.13**	**0.4**	**0.37**
ASG-2A	08/18/21	ASG-2A-0.5	0.5	<0.20	<0.20	<0.20	**0.54**	**0.74**	**0.74**	**0.56**	**0.27**	**0.64**	<0.20	**1.0**	<0.20	**0.27 J**	<0.20	**0.32**	**1.4**	**1.0**
	08/18/21	ASG-2A-2.5	2.5	<0.25	**0.096**	**0.057**	**0.62**	**0.68**	**0.68**	**0.32**	**0.27**	**0.64**	**0.098**	**0.80**	<0.050	**0.22 J**	<0.050	**0.34**	**1.1**	**0.93**
ASG-2B	08/18/21	ASG-2B-0.5	0.5	<0.10	<0.10	<0.10	**0.51**	**0.63**	**0.58**	**0.41**	**0.26**	**0.58**	<0.10	**0.81**	<0.10	**0.29 J**	<0.10	**0.25**	**1.2**	**0.82**
	08/18/21	ASG-2B-2.5	2.5	<0.010	<0.010	**0.011**	**0.049**	**0.045**	**0.046**	**0.02**	**0.018**	**0.046**	<0.010	**0.083**	<0.010	**0.014 J**	<0.010	**0.049**	**0.092**	**0.061**
ASG-2D	09/21/21	ASG-2D-0.5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/21/21	ASG-2D-2.5	2.5	<0.010	<0.010	<0.010	**0.018**	**0.016**	**0.016**	**0.011**	<0.010	**0.016**	<0.010	**0.032**	<0.010	**0.010**	<0.010	**0.014**	**0.030**	**0.025**
	09/21/21	ASG-2D-5	5.0	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ASG-3	04/05/21	ASG-3-0.5	0.5	<0.50	<0.50	**0.54**	**1.7**	**2.4**	**2.5**	**1.6**	**0.79**	**1.9**	<0.50	**3.1**	<0.50	**1.3**	<0.50	**1.4**	**2.9**	**3.2**
	04/05/21	ASG-3-2.5	2.5	<0.50	<0.50	<0.50	**1.2**	**2.0**	**1.8**	**1.8**	**0.70**	**1.2**	<0.50	**2.0**	<0.50	**1.6**	<0.50	**0.83**	**1.8**	**2.7**
	04/28/21	ASG-3-4	4.0	<1.5	<1.5	**3.8**	**24 J-**	**37 J-**	**40 J-**	**19 J-**	**16 J-**	**22 J-**	**5.7 J-**	**28**	<1.5	**18 J-**	<1.5	**8.5**	**32 J-**	**51 J-**
	08/18/21	ASG-3-6	6.0	<0.050	<0.050	<0.050	**0.16 J**	**0.22**	**0.24**	**0.14**	**0.10**	**0.16 J**	<0.050	**0.27 J**	<0.050	**0.077 J**	<0.050	**0.074**	**0.26 J**	**0.29**
	08/18/21	ASG-3-8	8.0	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ASG-3A	04/28/21	ASG-3A-0.5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/28/21	ASG-3A-2.5	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
ASG-3B	04/28/21	ASG-3B-0.5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/28/21	ASG-3B-2.5	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
ASG-3C	04/28/21	ASG-3C-0.5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.53**	<0.50	<0.50	<0.50	<0.50	**0.76**	<0.50
	04/28/21	ASG-3C-2.5	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
ASG-3D	08/18/21	ASG-3D-0.5	0.5	<0.050	<0.050	<0.050	**0.23**	**0.28**	**0.29**	**0.098**	**0.097**	**0.24**	<0.050	**0.33**	<0.050	**0.061 J**	<0.050	**0.1**	**0.37**	**0.36**
	08/18/21	ASG-3D-2.5	2.5	<0.050	<0.050	<0.050	**0.18**	**0.16**	**0.15**	**0.07**	**0.052**	**0.17**	<0.050	**0.34**	<0.050	**0.056 J**	<0.050	**0.21**	**0.40**	**0.22**
ASG-4	04/05/21	ASG-4-0.5	0.5	<0.10	<0.10	**0.12**	**0.52**	**0.59**	**0.59**	**0.40**	**0.21**	**0.57**	<0.10	**1.2**	<0.10	**0.30**	<0.10	**0.84**	**1.4**	**0.78**
	04/05/21	ASG-4-2.5	2.5	<0.10	<0.10	<0.10	**0.15**	**0.13**	**0.13**	<0.10	<0.10	**0.14**	<0.10	**0.25**	<0.10	<0.10	<0.10	**0.18**	**0.28**	**0.21**
	04/05/21	SB01a-01[3]	2.5	<0.010	**0.014**	**0.035**	**0.12**	**0.10**	**0.10**	**0.050**	**0.036**	**0.12**	**0.016**	**0.22**	**0.010**	**0.044**	<0.010	**0.19**	**0.24**	**0.14**
ASG-5	04/05/21	ASG-5-0.5	0.5	<0.10	<0.10	<0.10	**0.29**	**0.38**	**0.37**	**0.26**	**0.12**	**0.35**	<0.10	**0.52**	<0.10	**0.19**	<0.10	**0.15**	**0.66**	**0.52**
	04/05/21	ASG-5-2.5	2.5	<0.010	<0.010	<0.010	**0.020**	**0.017**	**0.017**	<0.010	<0.010	**0.019**	<0.010	**0.032**	<0.010	<0.010	<0.010	**0.017**	**0.040**	**0.026**
ASG-6	04/05/21	ASG-6-0.5	0.5	<0.50	<0.50	<0.50	**0.52**	**0.55**	**0.52**	<0.50	<0.50	**0.57**	<0.50	**0.99**	<0.50	<0.50	<0.50	<0.50	**1.1**	**0.93**
	04/05/21	ASG-6-2.5	2.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ASG-7	04/05/21	ASG-7-0.5	0.5	<0.050	**0.052**	<0.050	**0.36 J**	**0.45 J**	**0.39 J**	**0.33 J**	**0.15 J**	**0.38 J**	**0.064**	**0.58 J**	<0.050	**0.26 J**	<0.050	**0.21 J**	**0.83 J**	**0.62 J**
	04/05/21	ASG-7-2.5	2.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**0.012 J**	<0.010
ASG-8	04/05/21	ASG-8-0.5	0.5	<0.010	**0.055**	**0.062 J**	**0.31 J**	**0.33 J**	**0.31 J**	**0.23 J**	**0.13 J**	**0.32 J**	**0.043**	**0.62 J**	**0.041**	**0.18 J**	**0.012**	**0.45 J**	**0.68 J**	**0.45 J**
	04/05/21	ASG-8-2.5	2.5	<0.050	**0.050**	**0.083 J**	**0.42 J**	**0.42 J**	**0.39 J**	**0.24 J**	**0.15 J**	**0.44 J**	**0.060**	**0.7 J**	<0.050	**0.2 J**	<0.050	**0.49 J**	**0.90 J**	**0.58 J**
	04/05/21	SB01a-02[3]	2.5	<0.010	**0.021**	**0.020 J**	**0.17 J**	**0.17 J**	**0.16 J**	**0.079 J**	**0.051 J**	**0.17 J**	**0.026**	**0.26 J**	<0.010	**0.07 J**	<0.010	**0.12 J**	**0.31 J**	**0.24 J**

Table 3

Analytical Results for Polycyclic Aromatic Hydrocarbons in Soil Samples[1]

Former Berk Oil and Pacific Metal Craft Site

Bell Gardens, California

concentrations in milligrams per kilograms (mg/kg)

Boring Identification	Sample Date	Sample Identification	Sample Depth (feet bgs)	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) Anthracene	Benzo (a) Pyrene	Benzo (b) Fluoranthene	Benzo (g,h,i) Perylene	Benzo (k) Fluoranthene	Chrysene	Dibenzo (a,h) Anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-c,d) Pyrene	Naphthalene	Phenanthrene	Pyrene	BaP TEQ[2]
ASG-9	04/28/21	ASG-9-0.5	0.5	<0.10UJ	<0.10UJ	<0.10UJ	**0.17**	**0.24**	**0.24**	**0.18 J**	<0.10	**0.20**	<0.10	**0.32**	<0.10UJ	**0.14**	<0.10UJ	<0.10UJ	**0.55**	**0.35**
	04/28/21	ASG-9-2.5	2.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010UJ	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	04/28/21	ASG-9-5	5.0	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010UJ	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ASG-10	04/28/21	ASG-10-0.5	0.5	<0.10	<0.10	<0.10	<0.10	**0.13**	**0.16**	**0.13 J**	<0.10	**0.11**	<0.10	**0.18**	<0.10	<0.10	<0.10	<0.10	**0.20**	**0.21**
	04/28/21	ASG-10-2.5	2.5	<0.10	<0.10	**0.10**	**0.80**	**0.99**	**0.98**	**0.64 J**	**0.25**	**0.83**	**0.12**	**1.8**	<0.10	**0.50**	<0.10	**0.92**	**2.3**	**1.3**
	04/28/21	SB01a-05[3]	2.5	<0.050	**0.084**	**0.11**	**0.61**	**0.74**	**0.76**	<0.050UJ	**0.19**	**0.64**	**0.09**	**1.2**	<0.050	**0.35**	<0.050	**0.79**	**1.7**	**1.0**
	08/18/21	ASG-10-5	5.0	<0.010	**0.015**	**0.017**	**0.46 J**	**0.11**	**0.12**	**0.092**	**0.038**	**0.12 J**	**0.019**	**0.22 J**	<0.010	**0.082 J**	<0.010	**0.12**	**0.3 J**	**0.20 J**
ASG-10A	08/18/21	ASG-10A-0.5	0.5	<0.10	<0.10	<0.10	**0.15 J**	**0.22**	**0.21**	**0.22**	**0.11**	**0.17 J**	<0.10	**0.26 J**	<0.10	**0.12 J**	<0.10	<0.10	**0.37 J**	**0.32 J**
	08/18/21	SB01A-07[3]	0.5	<0.10	<0.10	<0.10	**0.28 J**	**0.33**	**0.33**	**0.29**	**0.13**	**0.32 J**	<0.10	**0.57 J**	<0.10	**0.18 J**	<0.10	**0.31 J**	**0.71 J**	**0.46 J**
	08/18/21	ASG-10A-2.5	2.5	<0.20	<020	<0.20	**0.37 J**	**0.60**	**0.53**	**0.59**	<0.20	**0.44 J**	<0.20	**0.74 J**	<0.20	**0.38 J**	<0.20	<0.20	**0.93 J**	**0.83 J**
ASG-10B	08/18/21	ASG-10B-0.5	0.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	08/18/21	ASG-10B-2.5	2.5	<0.020	**0.081**	**0.068**	**0.40 J**	**0.48**	**0.46**	**0.38**	**0.17**	**0.43 J**	**0.066**	**0.71 J**	**0.022**	**0.26 J**	<0.020	**0.32**	**1.2 J**	**0.66 J**
	09/21/21	ASG-10B1-5	5.0	<0.050	<0.050	<0.050	**0.15**	**0.23**	**0.19**	**0.23**	**0.065**	**0.17**	<0.050	**0.33 J**	<0.050	**0.18**	<0.050	**0.091**	**0.30 J**	**0.31**
ASG-10C	08/18/21	ASG-10C-0.5	0.5	<0.50	<0.50	<0.50	**0.67 J**	**0.78**	**0.67**	**0.65**	<0.50	**0.64 J**	<0.50	**1.7 J**	<0.50	<0.50	<0.50	**1.8**	**3.0 J**	**1.2 J**
	08/18/21	ASG-10C-2.5	2.5	<0.050	<0.050	<0.050	**0.1 J**	**0.10**	**0.099**	**0.076**	<0.050	**0.1 J**	<0.050	**0.17 J**	<0.050	**0.053 J**	<0.050	**0.11**	**0.22 J**	**0.15 J**
ASG-10D	09/21/21	ASG-10D-0.5	0.5	**11**	<20	**28**	**42**	**45**	**41**	**32**	<20	**40**	<20	**130 J**	**11**	**38**	<20	**95**	**82 J**	**67**
	09/21/21	ASG-10D-2.5	2.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
	09/21/21	ASG-10D-5	5.0	<0.050	<0.050	<0.050	**0.12**	**0.15**	**0.16**	**0.12**	**0.18**	**0.12**	<0.050	**0.21 J**	<0.050	**0.10**	<0.050	**0.078**	**0.21 J**	**0.21**
ASG-10E	09/21/21	ASG-10E-0.5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	09/21/21	ASG-10E-2.5	2.5	<0.050	<0.050	<0.050	**0.083**	**0.090**	**0.079**	**0.081**	<0.050	**0.081**	<0.050	**0.14 J**	<0.050	**0.070**	<0.050	**0.061**	**0.13 J**	**0.14**
	09/21/21	ASG-10E-5	5.0	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
ASG-10F	09/21/21	ASG-10F-0.5	0.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
	09/21/21	ASG-10F-2.5	2.5	<0.050	<0.050	<0.050	**0.11**	**0.16**	**0.14**	**0.16**	**0.067**	**0.13**	<0.050	**0.21 J**	<0.050	**0.13**	<0.050	<0.050	**0.22 J**	**0.22**
	09/21/21	SB01a-11[3]	2.5	<0.050	<0.050	<0.050	**0.064**	**0.083**	**0.074**	**0.068**	<0.050	**0.068**	<0.050	**0.12 J**	<0.050	**0.058**	<0.050	<0.050	**0.11 J**	**0.13**
	09/21/21	ASG-10E-5	5.0	<0.010	<0.010	<0.010	**0.015**	**0.013**	**0.014**	**0.013**	<0.010	**0.017**	<0.010	**0.039 J**	<0.010	**0.011**	<0.010	**0.028**	**0.036 J**	**0.022**
ASG-11	04/28/21	ASG-11-0.5	0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10UJ	<0.65	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
	04/28/21	ASG-11-2.5	2.5	<0.050	<0.050	<0.050	**0.098**	**0.13**	**0.11**	**0.14 J**	**0.056**	**0.11**	<0.050	**0.15**	<0.050	**0.094**	<0.050	**0.063**	**0.25**	**0.19 J**
SS20G	09/21/21	SS20G-0.5	0.5	<0.050	**0.05**	<0.050	**0.28 J**	**0.34 J**	**0.29 J**	**0.29 J**	**0.1 J**	**0.29 J**	<0.050	**0.62 J**	<0.050	**0.25 J**	<0.050	**0.23**	**0.45 J**	**0.45 J**
	09/21/21	SS20G-2.5	2.5	<0.50	<0.50	**0.11**	**1.1 J**	**1.4 J**	**1.2 J**	**1.2 J**	<0.50	**1.2 J**	<0.50	**2.1 J**	<0.50	**1.1 J**	<0.50	<0.50	**2.1 J**	**2.0 J**
SS20H	09/21/21	SS20H-0.5	0.5	<0.25	**0.16**	**0.15**	**0.42 J**	**0.54 J**	**0.44 J**	**0.59 J**	**0.24 J**	**0.54 J**	<0.25	**1.1 J**	<0.25	**0.47 J**	<0.25	**0.41**	**1.0 J**	**0.8 J**
	09/21/21	SS20H-2.5	2.5	<0.25	**0.18**	<0.25	**0.6 J**	**0.76 J**	**0.59 J**	**0.52 J**	**0.28 J**	**0.62 J**	<0.25	**1.1 J**	<0.25	**0.46 J**	<0.25	**0.19**	**0.96 J**	**1.1 J**
	09/21/21	SB01a-12	2.5	<0.050	<0.050	<0.050	**0.17 J**	**0.19 J**	**0.16 J**	**0.12 J**	**0.075 J**	**0.18 J**	<0.050	**0.34 J**	<0.050	**0.12 J**	<0.050	**0.13**	**0.25 J**	**0.26 J**
SS20I	09/21/21	SS20I-0.5	0.5	<0.25	**0.14**	**0.062**	**0.38 J**	**0.53 J**	**0.44 J**	**0.56 J**	**0.22 J**	**0.44 J**	<0.25	**0.83 J**	<0.25	**0.45 J**	<0.25	**0.25**	**0.82 J**	**0.78 J**
	09/21/21	SS20I-2.5	2.5	<0.25	**0.16**	<0.25	**0.56 J**	**0.6 J**	**0.49 J**	**0.46 J**	**0.22 J**	**0.6 J**	<0.25	**1.0 J**	<0.25	**0.45 J**	<0.25	**0.37**	**0.97 J**	**0.88 J**
SS24D	08/18/21	SS-24D-0.5	0.5	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
	08/18/21	SS-24D-2.5	2.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
	08/18/21	SB01A-08[3]	2.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Table 3

Analytical Results for Polycyclic Aromatic Hydrocarbons in Soil Samples[1]

Former Berk Oil and Pacific Metal Craft Site

Bell Gardens, California

concentrations in milligrams per kilograms (mg/kg)

Boring Identification	Sample Date	Sample Identification	Sample Depth (feet bgs)	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) Anthracene	Benzo (a) Pyrene	Benzo (b) Fluoranthene	Benzo (g,h,i) Perylene	Benzo (k) Fluoranthene	Chrysene	Dibenzo (a,h) Anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-c,d) Pyrene	Naphthalene	Phenanthrene	Pyrene	BaP TEQ[2]
Background																				
BG-1	04/28/21	BG-1	3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
BG-2	04/28/21	BG-2	5	<0.050	**0.054**	<0.050	**0.27**	**0.31**	**0.25**	**0.22**	**0.12**	**0.28**	<0.050	**0.51**	<0.050	**0.18**	<0.050	**0.17**	**0.68**	**0.41**
BG-3	04/28/21	BG-3	3	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
BG-4	04/28/21	BG-4	5	<0.010	<0.010	<0.010	**0.024**	**0.030**	**0.025**	**0.022**	**0.012**	**0.024**	<0.010	**0.036**	<0.010	**0.017**	<0.010	**0.010**	**0.048**	**0.042**
BG-5	04/28/21	BG-5	3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
BG-6	04/28/21	BG-6	5	<0.050	<0.050	<0.050	<0.050	**0.059**	<0.050	**0.056**	<0.050	<0.050	<0.050	**0.069**	<0.050	<0.050	<0.050	<0.050	**0.093**	**0.092**
BG-7	04/28/21	BG-7	3	<0.050	<0.050	<0.050	<0.050	**0.054**	<0.050	<0.050	<0.050	<0.050	<0.050	**0.068**	<0.050	<0.050	<0.050	<0.050	**0.090**	**0.087**
BG-8	04/28/21	BG-8	5	<0.10	**0.37**	**0.62**	**1.6**	**1.4**	**1.3**	**0.61**	**0.44**	**1.8**	**0.20**	**2.9**	**0.34**	**0.55**	<0.10	**3.9**	**3.4**	**2.0**
BG-9	04/28/21	BG-9	3	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
BG-10	04/28/21	BG-10	5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
SB-01a-04	04/28/21	BG-10 DUP[3]	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
BG-11	08/11/21	BG-11	3	<0.010	**0.027**	**0.018**	**0.26**	**0.33**	**0.27**	**0.26**	**0.083**	**0.26**	**0.043**	**0.40**	<0.010	**0.16**	<0.010	**0.13**	**0.52**	**0.44**
BG-12	08/11/21	BG-12	5	<0.010	<0.010	<0.010	**0.028**	**0.036**	**0.033**	**0.024**	**0.015**	**0.029**	<0.010	**0.042**	<0.010	**0.019**	<0.010	**0.012**	**0.052**	**0.049**
BG-13	08/11/21	BG-13	3	<0.010	**0.023**	**0.015**	**0.20**	**0.27**	**0.24**	**0.22**	**0.066**	**0.21**	**0.034**	**0.33**	<0.010	**0.17**	<0.010	**0.11**	**0.47**	**0.37**
BG-14	08/11/21	BG-14	5	<0.010	<0.010	<0.010	**0.045**	**0.075**	**0.062**	**0.095**	**0.026**	**0.045**	**0.011**	**0.085**	<0.010	**0.062**	<0.010	**0.02**	**0.10**	**0.10**
BG-15	08/11/21	BG-15	3	<0.010 UJ	<0.010 UJ	<0.010 UJ	**0.049**	**0.066**	**0.061**	**0.064**	**0.020**	**0.049**	**0.011**	**0.089**	<0.010 UJ	**0.049**	<0.010 UJ	**0.028 J**	**0.091**	**0.093**
DTSC-SLs/RSLs[4]		Residential		3,300	3,300[5]	17,000	1.1	0.11	1.1	1,800[6]	11	110	0.028	2,400	2,300	1.1	2.0	17,000[7]	1,800	0.11
		Industrial		23,000	23,000[5]	130,000	12	1.3	13	13,000[6]	130	1,300	0.31	18,000	17,000	13	6.5	130,000[7]	13,000	1.3
Background Threshold Value[8]																				0.9

Notes

1. Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270C SIM.
2. Benzo(a)Pyrene (BaP) Toxicity Equivalent Quotient (TEQ) is calculated by summing the seven carcinogenic PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) after results were multiplied by their respective Potency Equivalency Factor (PEF). Non-detect values were included at one-half of the laboratory reporting limit. Samples which contain non-detect results for all seven carcinogenic PAHs are given a TEQ value of less than the BaP laboratory reporting limit. If the individual PAH results contained J-flags, a J-flag was also given to the TEQ value.
3. Duplicate sample
4. U.S. EPA's RSLs for Chemical Contaminants at Superfund Sites, unless DTSC recommends a lower alternative value. Sources: EPA, November 2021. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables. DTSC, June 2020. https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-June-2020-A.pdf
5. DTSC-SLs and RSLs are not published for acenaphthylene; therefore values for acenaphthene are used as a surrogate, based on structural similarity.
6. DTSC-SLs and RSLs are not published for benzo(g,h,i)perylene; therefore, values for pyrene are used as a surrogate, based on structural similarity.
7. DTSC-SLs and RSLs are not published for phenantrene; therefore, values for anthracene are used as a surrogate, based on structural similarity.
8. 95%/95% Upper Threshold Limit from ENVIRON/DTSC Southern California Background PAH Study (2002); https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/01/S_CA_PAH_Study.pdf and consistent with the upper simultaneous limit of the local background data set (0.88 mg/kg)

BOLD = result above laboratory reporting limit

BOLD = result above residential soil screening level

BOLD = result above commercial/industrial soil screening level

BOLD = BaP TEQ result above Southern California background threshold value

Abbreviations

< = Not detected at or above the reporting limit shown.

ft bgs = feet below ground surface

J-, J = Estimated value

UJ = Not detected above estimated reporting limit shown.

R = Rejected value.

RSL = regional screening level

Table 4

Analytical Results for Lead in Soil Samples

Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

Results in milligrams per kilogram (mg/kg)

Boring Identification	Sample Date	Sample Identification	Sample Depth (feet bgs)	Lead
SS24D	08/18/21	SS24D-0.5	0.5	**40**
	08/18/21	SS24D-2.5	2.5	**9.2**
	08/18/21	SB01a-08	2.5	**7.0**
SS24E	08/18/21	SS24E-0.5	0.5	**6.1**
	08/18/21	SS24E-2.5	2.5	**7.4**
SS26A	04/16/19	SS26A-0.5	0.5	**190**
	04/28/21	SS26A-2.5	2.5	**550**
SS26B	04/16/19	SS26B-0.5	0.5	**210**
	04/28/21	SS26B-2.5	2.5	**170**
	09/21/21	SS26B-5	5.0	**3.6**
	09/21/21	SB01a-10[1]	5.0	**4.8**
SS26E	04/8/21	SS26E-0.5	0.5	**71**
	04/8/21	SS26E-2.5	2.5	**7.0**
SS26F	04/8/21	SS26F-0.5	0.5	**38**
	04/8/21	SS26F-2.5	2.5	**5.5**
SS26G	04/8/21	SS26G-0.5	0.5	**43**
	04/8/21	SS26G-2.5	2.5	**3.7**
SS26H	04/8/21	SS26H-0.5	0.5	**17**
	04/8/21	SS26H-2.5	2.5	**11**
SS26I	04/8/21	SS26I-0.5	0.5	**14**
SS26J	04/8/21	SS26J-0.5	0.5	**24**
	04/8/21	SS26J-2.5	2.5	**6.6**
SS26K	04/8/21	SS26K-0.5	0.5	**650**
	04/8/21	SB01a-03[1]	0.5	**620**
	09/21/21	SS26K-2.5	2.5	**7.1**
	09/21/21	SS26K-5	5	**7.1**
SS26L	04/28/21	SS26L-0.5	0.5	**330**
	04/28/21	SS26L-2.5	2.5	**190**
SS26M	04/28/21	SS26M-0.5	0.5	**270**
	04/28/21	SS26M-2.5	2.5	**250**
	04/28/21	SB01a-06[1]	2.5	**260**
	09/21/21	SS26M-5	5.0	**4.5**
SS26N	08/18/21	SS26N-0.5	0.5	**120**
	08/18/21	SS26N-2.5	2.5	**340**
	08/18/21	SS26N-5.0	5.0	**5.1**
SS26O	08/18/21	SS26O-0.5	0.5	**59**
	08/18/21	SS26O-2.5	2.5	**37**
SS26P	08/11/21	SS26P-0.5	0.5	**520**
	08/18/21	SS26P-0.5	0.5	**340**
	08/18/21	SB01a-09	0.5	**350**
	08/18/21	SS26P-2.5	2.5	**380**
	08/18/21	SS26P-5.0	5.0	**8.1**
SS26Q	09/21/21	SS26Q-0.5	0.5	**440**
	09/21/21	SS26Q-2.5	2.5	**180**
	09/21/21	SS26Q-5.0	5.0	**7.2**

Table 4

Analytical Results for Lead in Soil Samples

Former Berk Oil and Pacific Metal Craft Site
Bell Gardens, California

Results in milligrams per kilogram (mg/kg)

Boring Identification	Sample Date	Sample Identification	Sample Depth (feet bgs)	Lead
ASG-2	04/5/21	ASG-2-0.5	0.5	**17**
	04/5/21	ASG-2-2.5	2.5	**8.3**
ASG-3	04/28/21	ASG-3-4	4	**52**
ASG-3A	04/28/21	ASG-3A-0.5	0.5	**13**
	04/28/21	ASG-3A-2.5	2.5	**39**
ASG-3B	04/28/21	ASG-3B-0.5	0.5	**25**
	04/28/21	ASG-3B-2.5	2.5	**13**
ASG-3C	04/28/21	ASG-3C-0.5	0.5	**93**
	04/28/21	ASG-3C-2.5	2.5	**240**
	04/28/21	ASG-3C-5	5	**6.2**
ASG-4	04/5/21	ASG-4-0.5	0.5	**52**
	04/5/21	ASG-4-2.5	2.5	**7.5**
	04/5/21	SB01a-01[1]	3	**5.9**
ASG-10	04/28/21	ASG-10-0.5	0.5	**81**
	04/28/21	ASG-10-2.5	2.5	**14**
	04/28/21	SB01a-05[1]	2.5	**14**
ASG-10A	08/18/21	ASG-10A-0.5	0.5	**15 J**
	08/18/21	SB01a-07	0.5	**93 J**
	08/18/21	ASG-10A-2.5	2.5	**54 J**
ASG-10B	08/18/21	ASG-10B-0.5	0.5	**32 J**
	08/18/21	ASG-10B-2.5	2.5	**10 J**
ASG-10C	08/18/21	ASG-10C-0.5	0.5	**110 J**
	08/18/21	ASG-10C-2.5	2.5	**5.3 J**
ASG-10D	09/21/21	ASG-10D-0.5	0.5	**16 J**
	09/21/21	ASG-10D-2.5	2.5	**16 J**
	09/21/21	ASG-10D-5	5	**4.4 J**
ASG-10E	09/21/21	ASG-10E-0.5	0.5	**110 J**
	09/21/21	ASG-10E-2.5	2.5	**3.2 J**
	09/21/21	ASG-10E-5	5	**3.6 J**
ASG-10F	09/21/21	ASG-10F-0.5	0.5	**120 J**
	09/21/21	ASG-10F-2.5	2.5	<3.0 UJ
	09/21/21	SB01a-11[1]	2.5	**12 J**
	09/21/21	ASG-10F-5	5	**6.4 J**
ASG-11	04/28/21	ASG-11-0.5	0.5	**16**
	04/28/21	ASG-11-2.5	2.5	**56**
RSLs[2]		Residential Use		80
		Commercial/Industrial Use		320

Notes

1. Duplicate sample
2. U.S. EPA's RSLs for Chemical Contaminants at Superfund Sites, unless DTSC recommends a lower alternative value.
   Sources: EPA, November 2021. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables.
   DTSC, June 2020. https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-June-2020-A.pdf

BOLD Result is a detection above the laboratory reporting limit.
BOLD Result above residential soil screening level of 80 milgrams per kilogram (mg/kg).
BOLD Result above commercial/industrial soil screening level of 320 mg/kg.

Abbreviations
RSL = regional screening level
J = estimated value
UJ = not detected above estimated reporting limit shown

Table 5

Analytical Results for Total Petroleum Hydrocarbons in Soil Samples[1]

Former Berk Oil and Pacific Metal Craft Site

Bell Gardens, California

Results reported in milligrams per kilogram (mg/kg)

Boring Identification	Sample Identification	Sample Depth (ft bgs)	Sample Date	C6-C8	C8-C10	C10-C12	C12-C14	C14-C16	C16-C18	Total TPH (C9-C18)	C18-C20	C20-C22	C22-C24	C24-C26	C26-C28	C28-C32	Total TPH (C17/18-C32)	C32-C34	C34-C36	C36-C40	C40-C44	Total TPH (C6-C44)
SS26A	SS26A-2.5	2.5	04/28/21	<5.0	<5.0	<5.0	<5.0	<5.0	**10**	**10**	**27**	**52**	**73**	**75**	**130**	**290 J**	**357**	**120**	**97**	**250**	**33**	1,200
SS26B	SS26B-2.5	2.5	04/28/21	<1.0	<1.0	<1.0	<1.0	<1.0	**1.5**	**1.5**	**4.6**	**6.8**	**10**	**9.5**	**20**	**37 J**	**51**	**15**	**12**	**22**	**3.2**	140
SS26L	SS26L-0.5	0.5	04/28/21	<5.0	**17**	**12**	**24**	**63**	**90**	**206**	**94**	**170**	**210**	**280**	**320**	**830 J**	**1074**	**320**	**390**	**700**	**480**	4,000
	SS26L-2.5	2.5	04/28/21	<1.0	<1.0	<1.0	<1.0	**3.2**	**7.2**	**10**	**12**	**21**	**23**	**31**	**36**	**89 J**	**123**	**38**	**40**	**71**	**70**	440
SS26M	SS26M-0.5	0.5	04/28/21	<5.0	<5.0	<5.0	**5.4**	<5.0	**15**	**20**	**50**	**180**	**240**	**360**	**460**	**1200 J**	**1,290**	**590**	**450**	**960**	**930**	5,500
	SS26M-2.5	2.5	04/28/21	<1.0R[5]	<1.0R	<1.0R	**3.16 J-**	**8.1 J-**	**25 J-**	**36**	**58 J-**	**110 J-**	**120 J-**	**120 J-**	**120 J-**	**150 J-**	**678**	**120 J-**	**86 J-**	**130 J-**	**130 J-**	1400 J-
	SB01a-06[4]	2.5	04/28/21	<5.0R	<5.0R	**42 J-**	**40 J-**	**150 J-**	**430 J-**	**662**	**490 J-**	**660 J-**	**620 J-**	**620 J-**	**710 J-**	**1400 J-**	**4,500**	**590 J-**	**390 J-**	**790 J-**	**680 J-**	7700 J-
ASG-8	ASG-8-0.5	0.5	04/05/21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10
	ASG-8-2.5	2.5	04/05/21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10
	SB01a-02[4]	2.5	04/05/21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10
	ASG-8-5	5	04/05/21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10
	ASG-8-10	10	04/05/21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10
ASG-9	ASG-9-0.5	0.5	04/28/21	<1.0	<1.0	<1.0	**4.1**	<1.0	**2.3**	**6.4**	**9.2**	**20**	**25**	**37**	**41**	**66 J**	**198**	**27**	**15**	**19**	**10**	280
	ASG-9-2.5	2.5	04/28/21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	**3.6**	**4.2**	**2.1**	**5.7 J**	**16**	**3.1**	**2.8**	**3.7**	<1.0	25
	ASG-9-5	5	04/28/21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	**1.4**	**1.6 J**	**3.0**	<1.0	<1.0	<1.0	<1.0	<10
Residential RSLs [5,6]			Aliphatic[7]	520	96						230,000							230,000				--
			Aromatic[8,9]	520	97					2,400								2,400				--
Industrial DTSC-SLs/RSLs [5,6]			Aliphatic[7]	2,200	440						3,500,000							3,500,000				--
			Aromatic[8,9]	2,200	500					18,000								18,000				--

Notes

1. Total petroleum hydrocarbon (TPH) carbon chain characterization analysis using United States Environmental Protection Agency (EPA) Method 8015M.
2. Not detected at or above the laboratory reporting limit shown.
3. Not applicable.
4. Duplicate sample.
5. U.S. EPA Regional Screening Levels for chemical contaminants at Superfund sites, November 2021. DTSC recommends a lower alternative industrial value for medium and high range aromatics (DTSC, 2020).
6. The RSLs for TPH are split into six fractions based on the number of carbons. Aliphatic and aromatic carbon ranges are each split into low, medium, and high fractions.
7. Low aliphatic: C5-C8; Medium aliphatic: C9-C18; High aliphatic: C19-C32. Since the RSLs do not include the higher end carbon range (C33-C44), the high end range RSL was used as a conservative surrogate.
8. Low aromatic: C6-C8; Medium aromatic: C9-C16; High aromatic: C17-C32. Since the RSLs do not include the higher end carbon range (C33-C44), the high end range DTSC-SL/RSL was used as a conservative surrogate.
9. Comparison of TPH soil sample results for the C6 to C8 range will be preferentially compared to the aliphatic RSL because the aromatic RSL is based on benzene toxicity and benzene was separately analyzed.

BOLD result above laboratory reporting limits.

BOLD result above residential screening levels.

BOLD result above commercial/industrial screening levels.

Abbreviations

DTSC-SL = DTSC-modified screening level

ft bgs = feet below ground surface

J, J- = estimated value

R = rejected value

RSL = regional screening level

APPENDIX

B COST ESTIMATE

APPENDIX B

Preliminary Soil Removal Budget Planning Estimate for Site Remediation

Former Berk and Pacific Metal Craft Site

Parcel	Excavation (yes/no)	Contaminant	Removal Grid	surface area (square feet)	depth (feet)	cubic yard (Yd^3)	Tons (1.8x)	Excavation ($40 yd^3)	T&D non-haz ($94/ton)	T&D Non-RCRA Haz ($136/ton)	T&D RCRA Haz ($220/ton)	Subtotal
900	No	--						--	--	--	--	--
901	Yes	benzo(a)pyrene (BaP)	1A	2580	2	191	344	$7,644	$32,336	--	--	$39,980
		BaP	1B	2305	4	341	615	$13,659	$57,779	--	--	$71,438
		BaP	1C	862	6	192	345	$7,662	$32,411	--	--	$40,073
901/902		lead	1D	945	4	140	252	$5,600	--	$34,272	--	$39,872
903	Yes	BaP	2A	11850	2	878	1580	$35,111	$148,520	--	--	$183,631
		lead	2B	1441	2	107	192	$4,270	--	$26,130	--	$30,400
		lead	2C	6155	4	912	1641	$36,474	--	--	$361,093	$397,567
903/904	Yes	BaP	2D	4732	2	351	631	$14,021	$59,308	--	--	$73,328
904	Yes	BaP	2E	812	4	120	217	$4,812	$20,354	--	--	$25,166
		BaP and lead	2F	2180	2	161	291	$6,459	--	$39,531	--	$45,990
905	No	--						--	--	--	--	--
906	Yes	BaP	3A	9065	4	1343	2417	$53,719	$227,229	--	--	$280,948
		BaP	3B	7285	2	540	971	$21,585	$91,305	--	--	$112,891
										Subtotal		***$1,341,285***
										30% contingency		**$1,743,670**

Site prep/ Surficial removal	Planning and setup; remove upper approx. 6 inches concrete/asphalt with soil/debris and trash (3,500 cubic yards)	disposal/recycle	***$850,000***
Management	Project management, construction oversight, confirmation sampling, reporting		***$300,000***
		Total Estimate	**$2,893,670**

Unknowns

In-place fill (source unknown, some debris, suitability for reuse, and geotechnical conditions for redevelopment)

Import fill (depends on redevelopment plans)

APPENDIX

C

QUALITY ASSURANCE AND QUALITY CONTROL PLAN

QUALITY ASSURANCE/ QUALITY CONTROL PLAN

FORMER BERK OIL AND PACIFIC METAL CRAFT SITE
5614, 5622, AND 5636 SHULL STREET
BELL GARDENS, CALIFORNIA

PROJECT NO.: CM20167712
DATE: AUGUST 2023

WSP USA ENVIRONMENT & INFRASTRUCTURE INC.
3560 HYLAND AVENUE, SUITE 100
COSTA MESA, CALIFORNIA 92626-1438

T: +1 949-642-0245
WSP.COM

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
BaP	benzo(a)pyrene
Berk Oil	former Berk Oil Company
BTV	background threshold value
Cal-haz	California hazardous (waste)
CCR	California Code of Regulations
CFR	Code of Federal Regulations
DOSH	California Department of Occupational Safety and Health (aka Cal/OSHA)
DTSC	Department of Toxic Substances Control
DTSC-SL	Department of Toxic Substances Control Screening Level
EPA	United States Environmental Protection Agency
HASP	Health and Safety Plan
mg/kg	milligram(s) per kilogram
NEA	negative exposure assessment
non-haz	non-hazardous (waste)
non-RCRA	California hazardous (waste)
OSHA	United States Occupational Safety and Health Administration
PAHs	polycyclic aromatic hydrocarbons
PEL	permissible exposure limit
PMC	Pacific Metal Craft
PPE	personal protective equipment
QA	quality assurance
QC	quality control
RACR	Removal Action Completion Report
RAOs	removal action objective
RAW	Removal Action Work Plan
RCRA	Resource Conservation and Recovery Act
RCRA-haz	RCRA hazardous (waste)
RPD	relative percent difference
Site	former Berk Oil Company and PMC properties
SL	Screening Level
STLC	soluble threshold limit concentration
TCLP	toxicity characteristic leaching procedure

TEQ	Toxicity Equivalent Quotient
TPH	total petroleum hydrocarbon
VOCs	volatile organic compounds
WSP	WSP USA Environment & Infrastructure Inc.
yd^3	cubic yard

1 INTRODUCTION

This Quality Assurance (QA)/Quality Control (QC) Plan has been prepared by WSP USA Environment & Infrastructure Inc. (WSP) to describe procedures associated with soil sampling and laboratory analyses to be conducted during implementation of the Removal Action Work Plan (RAW) for the former Berk Oil Company (Berk Oil) and Pacific Metal Craft (PMC) properties located in the City of Bell Gardens, California (collectively the site). The primary objectives of the QA/QC Plan are as follows:

1. Profile excavated soil for offsite disposal.
2. Confirm that soil impacted by polycyclic aromatic hydrocarbons (PAH) at concentrations that exceed the benzo(a)pyrene (BaP) Toxicity Equivalent Quotient [TEQ] above site background threshold value (BTV) of 0.90 milligrams per kilogram (mg/kg) are removed from the site.
3. Confirm that soil impacted by lead at concentrations that exceed the Department of Toxic Substances Control (DTSC) residential screening level (DTSC-SL) of 80 mg/kg are removed from the site.
4. Verify that any imported material brought onsite as backfill is "clean" and meets residential reuse standards included in DTSC's *Information Advisory, Clean Imported Fill Material Fact Sheet* dated October 2001).

The confirmation sampling soil removal goals are:

- BaP TEQ below the site BTV of 0.90 mg/kg
- lead concentrations below the residential DTSC-SL of 80 mg/kg.

The QA/QC Plan is intended to provide field guidance to meet these goals and objectives, and to describe how the data will be evaluated and managed pursuant to the project goals.

2 HEALTH AND SAFETY

All work activities referenced in this QA/QC Plan will be conducted in accordance with applicable United States Occupational Safety and Health Administration (OSHA) and California Department of Occupational Safety and Health (DOSH) rules and regulations as well as the site-specific Health and Safety Plan (HASP). All personnel involved in the onsite work activities will be current with respect to required OSHA training and refresher requirements of 29 Code of Federal Regulations (CFR) Part 1910.120.

Level C personal protective equipment (PPE) may initially be required for those onsite workers at risk of being exposed above the permissible exposure limit (PEL) for lead. However, with validation of a Negative Exposure Assessment (NEA), it is anticipated that onsite workers will be allowed to conduct most of the work activities with Level D PPE.

The HASP will also include a compliance plan for onsite workers who may potentially be exposed to lead. The compliance plan will be consistent with the requirements of Title 8 California Code of Regulations (CCR) 1532.

3 SOIL SAMPLING METHODOLOGY

Soil samples will be manually collected using the proper sampling tools described below in Section 3.2. Following collection, soil samples will be preserved in accordance with the prescribed analytical methods and the samples will be transported under chain-of-custody protocol to a State-certified laboratory for analysis.

3.1 SOIL SAMPLING CATEGORIES

RAW implementation includes collection and analysis of confirmation soil samples, waste profiling samples, and samples of imported backfill materials (if used).

3.1.1 CONFIRMATION SOIL SAMPLES

As described in the RAW, a total of 3 separate excavation areas (Areas 1, 2, and 3) are proposed as part of the removal action. The excavation areas are further subdivided into 11 removal grids (1A through 3B). Figure 10 in the RAW shows the excavation areas and soil removal grids.

The following confirmation soil sampling protocols will be implemented to confirm impacted soil exceeding removal goals has been removed.

- Excavation bottom confirmation samples will be collected using an approximate 30-foot by 30-foot grid system (a closer-spaced sampling grid will be used in smaller excavation areas).
- Excavation sidewall confirmation samples will be collected using an approximate 30-foot spacing system for perimeter excavations that extend deeper than 3 feet below ground surface (a closer-spaced sampling grid will be used in smaller excavation areas).
- Confirmation samples will be collected following the procedures described in Section 3.2, and preserved and documented following the procures described in Sections 3.5 and 3.6.
- Excavation bottom and sidewall confirmation soil samples will be submitted for laboratory analysis. Analytical methods include:
  - PAHs using EPA Method 8270 SIM, and/or
  - lead using EPA Method 6010B.

If a confirmation sample analytical result indicates that BaP and/or lead are present at concentrations exceeding removal goals, an additional 1 to 2 feet of soil will be excavated from the area of the sampling (grid location) and additional confirmation sampling of the over-excavated area will be performed as described above. If analytical results indicate that confirmation soil samples do not contain BaP and/or lead at concentrations exceeding removal goals, the excavation area will be deemed complete.

3.1.2 WASTE PROFILING OF SOIL FOR DISPOSAL

As discussed in Section 6.1 of the RAW, soil sampling results indicate that soil to be excavated for offsite disposal may be profiled under three separate waste classifications based on concentrations of lead in soil. These classifications include:

1. Resource Conservation and Recovery Act (RCRA)-hazardous (RCRA-haz),
2. non-RCRA, California hazardous (Cal-haz), and
3. non-hazardous (non-haz).

Lead concentrations in waste profile samples reaching or exceeding 50 mg/kg will require Soluble Threshold Limit Concentration (STLC) analysis and lead concentrations reaching or exceeding 100 mg/kg will require both STLC and Total Threshold Limit Concentration (TCLP) analysis. Soil with lead STLC result greater than or equal to 5 milligrams per liter (mg/l) will be classified as Cal-haz. If the TCLP result are greater than or equal to 5 mg/l but less than 7.5 mg/l, then the soil will be classified as RCRA-haz for direct landfill. A TCLP result exceeding 7.5 mg/l must be stabilized (treated).

Lead concentrations below 80 mg/kg (total) or STLC of below 5 mg/l will be classified as non-haz. Likewise, BaP, which is not regulated federally or in California and concentrations detected in soil (highest around 50 mg/kg) are not considered excessively high, should be managed under a non-haz waste classification.

For estimating purposes only, the estimated volumes of soil that may be generated under each of these classifications are:

- Non-haz: 3,956 cubic yards (yd^3);
- Cal-haz: 409 yd^3; and
- RCRA-haz: 912 yd^3.

Soil generated from each of the proposed excavation areas (Excavations 1A through 3B) will be stockpiled separately onsite. Soil samples for waste profiling will be collected from each excavation area and profiled separately. Individual removal grids may also be profiled separately (for example, some Area 2 removal grids contains mixture of lead and BaP impacts). The excavation contractor will be responsible for ensuring that samples for waste profiling are collected and analyzed as per the requirements of the disposal facility.

3.1.3 BACKFILL MATERIAL

Depending on site redevelopment plans, up to 5,000 yd^3 of clean imported soil may be utilized as excavation backfill material. Imported fill material used for backfilling will be sampled and tested in accordance with DTSC's *Information Advisory Clean Imported Fill Material Fact Sheet, October 2001* (Advisory). According to the Advisory, import fill for residential (unrestricted) use should be checked for the following:

- VOCs (EPA method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035)
- SVOCs (EPA method 8270C)
- TPH (modified EPA method8015)
- PCBs (EPA method 8082 or 8080A)
- heavy metals including lead (EPA methods 6010B and 7471A)
- asbestos (OSHA Method ID-191)

Additional details regarding sampling and analytical methods required for imported backfill material are presented in Section 4.3.

3.2 SAMPLING EQUIPMENT AND SAMPLE COLLECTION PROCEDURES

Confirmation soil samples will be collected from the approximate center of each approximate 30-foot by 30-foot sampling grid using hand equipment (e.g., a trowel or a drive sampler fitted with metal sleeves or acetate liners). Soil samples collected using a trowel will be placed directly into laboratory-supplied sampling containers (i.e., either 2- or 4-ounce glass jars). The sample jar lid will be secured, and the jars labeled and placed in a

resealable plastic bag. Soil samples collected in metal sleeves or acetate liners will be capped on both ends with Teflon film and plastic caps, labeled, and placed in a resealable plastic bag. The samples will be placed in an ice chest and chilled to 4°Celsius (C) immediately upon collection.

Excavation equipment (e.g., excavator or backhoe) may be used to collect confirmation soil samples if the area is unsafe for personnel to enter (e.g., unstable excavation sidewalls or excavation depth greater than 4 feet). If excavation equipment is utilized, the confirmation soil samples will be collected from the excavation equipment bucket. The bucket will first be swept to remove loose soil before it is used to collect the soil from the bottom or sidewalls of the excavation. The upper "fluff" portion of soil in the bucket will be removed, and a representative sample of soil will be collected using a trowel and placed directly into a laboratory-provided sampling container.

Composite-type soil samples may be collected for waste profiling (at the discretion of the certified offsite disposal facility selected to accept the waste). Up to five soil samples may be collected using a trowel around soil stockpiles generated during excavation activities. These samples will be placed in a clean resealable plastic bag, mixed into a representative composite sample, then poured directly into a laboratory supplied sampling container (i.e., either 2- or 4-ounce glass jars). Sample will be secured, labeled, and managed as described above.

Nondisposable field equipment (e.g., trowel or drive sampler) can be used to collect discrete-depth soil samples within each excavation area without being decontaminated. However, the field equipment must be decontaminated (as described in Section 3.3) before collecting confirmation soil samples at other excavation areas. Soil sampling personnel will wear disposable, nitrile gloves for personal protection and will replace the gloves between samples to prevent cross-contamination of samples. Every effort should be made to prevent cross-contamination between excavations. If there is any indication that cross-contamination has occurred, the samples should be discarded and additional representative samples collected.

No duplicate samples or blanks are proposed to be collected as part of the QA/QC plan.

3.3 SAMPLING EQUIPMENT DECONTAMINATION PROCEDURES

All non-disposable field equipment will be thoroughly decontaminated following sample collection at each excavation area to prevent cross contamination. Decontamination procedures will consist of a washing with phosphate-free detergent, rinsing with potable water, and a final rinse with deionized water. Decontamination fluids will be disposed of directly onto the impacted soil to be removed from the site (i.e., stockpiles of excavated impacted soil).

Unless there is contact with apparent contaminated material, used personal protective equipment and disposable equipment such as acetate liners will be bagged and placed in a municipal refuse dumpster. These wastes are not considered hazardous due to the limited amount of site media that may adhere to the material and these items can be transported to any acceptable municipal landfill. Disposable items with obvious contamination will be collected in drums to be profiled for proper disposal.

3.4 EQUIPMENT CALIBRATION AND MAINTENANCE

Field equipment may include air monitoring pumps, organic vapor meters, and other similar equipment. Field equipment will be calibrated daily before its first use. Calibrations will be conducted in accordance with the manufacturer's recommendations and the

calibration date, method, and results of calibration will be recorded on a field instrument calibration sheet.

Routine preventive maintenance of field equipment will be performed according to the manufacturer's recommendations. All field equipment will be examined and serviced as needed before being brought onsite. Sufficient backup equipment and spare parts will be available to minimize equipment downtime during the duration of the project. In addition, sufficient field equipment (e.g., hand equipment, sample containers, field materials and consumables) and backup supplies will be available onsite. Any equipment repairs and maintenance conducted during the duration of the project will be recorded on the daily field records and documented on an equipment maintenance log.

3.5 SAMPLING PRESERVATION

Samples will be collected in either laboratory supplied sample containers and/or "clean" metal sleeves or acetate liners. Sample containers will be sealed and labeled with the sample designation, date, time, and any other pertinent information. The sample containers will be placed in a resealable plastic bag prior to being stored in an ice chest chilled to 4°C.

3.6 DOCUMENTATION AND RECORDS

A chain-of-custody record will be filled out in triplicate and will accompany each sample or group of individually identified samples after sample collection and during sample transport to the laboratory. The chain-of-custody record will include the following information:

- Sample identification;
- Date and time of sample collection;
- Signature or initials of sampler;
- Sample matrix;
- Number of containers;
- Requested analytical method;
- Signatures of each individual having custody of the samples;
- Date and time of each change in custody; and
- Method of shipment.

4 SOIL SAMPLE ANALYTICAL METHODS

4.1 CONFIRMATION SOIL SAMPLES

Confirmation soil samples collected from the excavations will be discrete depth samples (as opposed to composite samples). Bottom confirmation soil samples will be collected at the bottom extent of each removal grid (see Figure 10 in the RAW). Sidewall confirmation soil samples will only be collected from excavations with depths greater than 3 feet. Sidewall confirmation soil samples will be collected halfway between ground surface (or the bottom of an adjacent/co-located shallower excavation) and the total depth of the excavation.

Based on the size of the proposed soil excavations and the proposed confirmation sample collection spacing (described in Section 3.3.1), an estimated 62 bottom confirmation soil samples and 30 sidewall confirmation soil samples will be collected and analyzed by a State-certified laboratory. A summary of the proposed sample locations and laboratory analysis for each excavation area is presented below:

- *Removal Grid 1A* (total depth 2 feet): 3 bottom samples analyzed for PAHs.
- *Removal Grid 1B* (total depth 4 feet): 3 bottom and 4 sidewall samples analyzed for PAHs.
- *Removal Grid 1C* (total depth 6 feet): 2 bottom and 3 sidewall samples analyzed for PAHs.
- Removal Grid 1D (total depth 4 feet): 2 bottom and 4 sidewall samples analyzed for PAHs and lead.
- *Removal Grid 2A* (total depth 2 feet): 14 bottom samples analyzed for PAHs and lead.
- *Removal Grid 2B* (total depth 2 feet): 1 bottom sample analyzed for lead.
- *Removal Grid 2C* (total depth 4 feet): 6 bottom and 6 sidewall samples analyzed for lead.
- *Removal Grid 2D* (total depth 2 feet): 6 bottom samples analyzed for PAHs and lead.
- *Removal Grid 2E* (total depth 4 feet): 1 bottom and 2 sidewall samples analyzed for PAHs and lead.
- *Removal Grid 2F* (total depth 2 feet): 3 bottom samples analyzed for lead.
- *Removal Grid 3A* (total depth 4 feet): 12 bottom and 11 sidewall samples analyzed for PAHs.
- *Removal Grid 3B (*total depth 2 feet): 8 bottom samples analyzed for PAHs.

Proposed excavation confirmation soil sample locations (confirmation sampling grids) are shown on Figure 10 included in the RAW.

4.2 WASTE PROFILING

Waste profiling will be conducted in accordance with the requirements of the approved soil disposal facility. Information regarding the number of samples and laboratory analyses required will be provided by the disposal facility. However, it is anticipated that waste profile samples will be analyzed by a State-certified laboratory for:

- Total petroleum hydrocarbon (TPH) using EPA Method 8015M;
- Volatile organic compounds (VOCs) using EPA Method 8260B;
- PAHs using EPA Method 8270 SIM; and
- CCR Title 22 metals using EPA Methods 6010B/7471A.

Additional laboratory analyses may be required by the approved disposal facility. Select soil samples may be further analyzed by a State-certified laboratory for soluble metals (e.g., lead) using soluble threshold limit concentration (STLC) extraction and/or toxicity characteristic leaching procedure (TCLP). STLC and TCLP analyses are used to determine hazardous waste characterization as outlined in CCR Title 22 and federal guidelines.

4.3 BACKFILL MATERIAL

All imported backfill material will be evaluated in accordance with the *DTSC Information Advisory, Clean Imported Fill Material Fact Sheet* dated October 2001 (Advisory). Laboratory analysis will be conducted by a State-certified laboratory and the analytical results will be provided to the RWQCB (the Lead Agency) for review and approval before importing fill material to the site. The number of soil samples and laboratory analyses required will be dictated by the import volume, number of import sources, and type of proposed import sources. The excavation contractor will be responsible for identifying appropriate sources of backfill material and completing the required laboratory analysis before implementation of the excavation activities, so that approved backfill material is available upon immediate request during excavation activities.

5 DATA REVIEW AND EVALUATION

Analytical data packages provided by the laboratories will be reviewed to assess whether data were acceptable for their intended use(s) following established EPA guidelines for organic and inorganic methods and best professional judgment. WSP will review the laboratory reports and will prepare a data review summary that will be included in the Removal Action Completion Report (RACR). The laboratory reports will be reviewed for the following:

- Data completeness;
- Chain-of-custody documentation;
- Holding times;
- Condition of samples when received by analytical laboratory;
- Blanks;
- Laboratory control samples;
- Matrix spike/matrix spike duplicates; and
- Surrogates/internal standards (as applicable).

QA/QC samples (i.e., duplicates and equipment blanks) will not be collected as part of the excavation confirmation soil sampling activities.

For analytical results, various qualifiers pertaining to the quality of the data may be assigned to certain analytical results by either the laboratory conducting the analyses or by persons conducting data review as discussed above. For example, some results may be flagged as estimated if the concentration is below the verifiable or contract-required detection limit but is detected and quantified at a lower value by the laboratory instrument. All qualified results will be reviewed before use of the chemical data set for confirming that impacted soil has been removed. Any data discrepancies or field variances will be documented in the RACR prepared at the completion of the project.

APPENDIX

D DECONTAMINATION PLAN

DECONTAMINATION PLAN

FORMER BERK OIL AND PACIFIC METAL CRAFT SITE
5614, 5622, AND 5636 SHULL STREET
BELL GARDENS, CALIFORNIA

PROJECT NO.: CM20167712
DATE: AUGUST 2023

WSP USA ENVIRONMENT & INFRASTRUCTURE INC.
3560 HYLAND AVENUE, SUITE 100
COSTA MESA, CALIFORNIA 92626-1438

T: +1 949-642-0245
WSP.COM

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ACRONYMS AND ABBREVIATIONS

BaP	benzo(a)pyrene
Berk Oil	former Berk Oil Company
BTV	background threshold value
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CQA	Construction Quality Assurance
DOT	United States Department of Transportation
DOSH	California Department of Occupational Safety and Health (aka Cal/OSHA)
DP	Decontamination Plan
DTSC	Department of Toxic Substances Control
DTSC-SL	Department of Toxic Substances Control Screening Level
HASP	Health and Safety Plan
mg/kg	milligrams per kilogram
NEA	negative exposure assessment
OSHA	United States Occupational Safety and Health Administration
PEL	permissible exposure limit
PMC	Pacific Metal Craft
PPE	personal protective equipment
RAW	Removal Action Work Plan
Site	former Berk Oil Company and PMC properties
SL	screening level
TEQ	Toxicity Equivalent Quotient
WSP	WSP USA Environment & Infrastructure Inc.

1 INTRODUCTION

This Decontamination Plan (DP) has been prepared by WSP USA Environment & Infrastructure Inc. (WSP) to describe the decontamination procedures that will be used during the implementation of the Removal Action Work Plan (RAW) for the former Berk Oil Company (Berk Oil) and Pacific Metal Craft (PMC) properties located in the City of Bell Gardens, California (collectively the site).

The main objectives of this DP are as follows:

- Establish a consistent approach for checking cleanliness of equipment being mobilized to the site, thereby minimizing the potential for introducing regulated materials to the site.
- Institute protocols for decontaminating equipment that encounters impacted site media (e.g., solids and/or liquids), thus minimizing the potential for cross-contaminating onsite media (e.g., by moving equipment from impacted areas to non-impacted areas) and for transporting impacted site media offsite (e.g., via vehicle tracking).

2 HEALTH AND SAFETY

All work activities referenced in this DP will be conducted in accordance with applicable United States Occupational Safety and Health Administration (OSHA) and California Department of Occupational Safety and Health (DOSH) rules and regulations as well as the site-specific Health and Safety Plan (HASP). All personnel involved in the onsite work activities will be current with respect to required OSHA training and refresher requirements of 29 Code of Federal Regulations (CFR) Part 1910.120.

Level C personal protective equipment (PPE) may initially be required for those onsite workers at risk of being exposed above the permissible exposure limit (PEL) for lead. However, with validation of a Negative Exposure Assessment (NEA), it is anticipated that onsite workers may be allowed to conduct most of the work activities with Level D PPE.

The HASP will also include a compliance plan for onsite workers who may potentially be exposed to lead. The compliance plan will be consistent with the requirements of Title 8 California Code of Regulations (CCR) 1532.

3 CONSTRUCTION EQUIPMENT DECONTAMINATION

3.1 INITIAL EQUIPMENT CLEANLINESS CHECK UPON MOBILIZATION TO THE SITE

All construction-related heavy equipment (e.g., haul trucks, excavator, backhoe, and/or front-end loader) brought to the site will be visually inspected by the excavation contractor's Construction Quality Assurance (CQA) Engineer or designated CQA observer to verify that the equipment is free of gross contamination. Visibly contaminated equipment (if any), as determined at the sole discretion of the CQA Engineer or designated CQA observer, will be removed from the site and cleaned/decontaminated before the equipment is remobilized to the site. The procedure detailed above will be repeated as needed until the CQA Engineer or designated CQA observer declares the subject equipment to be free of visible contamination and suitable for onsite use.

3.2 DECONTAMINATION WHEN MOVING EQUIPMENT FROM IMPACTED TO NON-IMPACTED AREAS

The overall objective of the RAW is to reduce the threat to human health and the environment and provide a permanent solution that reduces the toxicity, mobility, and volume of benzo(a)pyrene (BaP)- and lead-impacted soil at the site.

Soil at the site that contains BaP and/or lead at concentrations that exceed the following criteria is subject to removal:

- BaP Toxicity Equivalent Quotient (TEQ) above site background threshold value (BTV) of 0.90 milligrams per kilogram (mg/kg); and
- Lead concentrations above the Department of Toxic Substances Control (DTSC) residential screening level (DTSC-SL) of 80 mg/kg.

To minimize potential for cross-contaminating site-related materials/media when moving equipment onsite between areas with impacted soil to areas that are non-impacted, all equipment that has encounter impacted soil will be decontaminated before moving it to a non-impacted area. Decontamination will be required only when moving equipment from impacted areas to non-impacted areas; decontamination will not be required when moving equipment between two areas subject to impacted soil removal.

Decontamination will be conducted in a separately constructed decontamination area suitable for the size of the equipment to be decontaminated and using materials appropriate for the collection of any site-related liquids, or other regulated materials and the decontamination materials. The location and size of the decontamination area will be based on the number and types of equipment to be decontaminated, as well as available site area and current work activities. The decontamination area may be moved as necessary during the project.

Decontamination of equipment that encounters impacted soil will be deemed completed on the basis of a visual inspection by the CQA Engineer or designated CQA observer. Decontamination methods may include, but are not limited to, manual removal of gross debris from equipment surfaces by wet sweeping/brushing/wiping impacted equipment

surfaces, pressure washing, and/or other methods to be proposed by the excavation contractor. Plastic sheeting (i.e., Visqueen®) of a sufficient weight will be placed in the decontamination areas to capture materials/impacted soil dislodged during decontamination, incidental spills of impacted soil, and to prevent movement of these materials to non-impacted areas of the site or offsite.

Equipment that does not meet the "visibly clean" standard detailed above in Section 3.1 will be recleaned until it is confirmed to be "visibly clean" by the CQA Engineer or designated CQA observer.

3.3 DECONTAMINATION OF EQUIPMENT PRIOR TO DEMOBILIZATION FROM THE SITE

Equipment that has encountered impacted soil will be decontaminated before being removed from the site. Equipment decontamination will be performed in accordance with the procedures detailed above in Section 3.2.

4 WASTE TRANSPORTATION VEHICLE DECONTAMINATION

All waste transportation vehicles entering the site will be visually inspected by the CQA Engineer or designated CQA observer to verify that the vehicles are free of gross contamination before entry to the site. The inspection will include visually observing the cargo compartment of each vehicle for the potential presence of residual waste materials/debris and overall integrity (e.g., holes). Any visibly contaminated vehicles or vehicles with visibly damaged cargo compartments that could result in spillage of waste material will not be allowed to enter the site.

The excavation contractor will create and maintain vehicle staging, loading, and egress areas to support vehicle decontamination and minimize contact between vehicle tires and potentially impacted soil and/or debris. Plastic sheeting (as detailed above in Section 3.2) will be placed in loading and staging areas to capture incidental spills of impacted soil and to prevent movement of these materials to non-impacted areas of the site or offsite. In addition, vehicles will be selected for use and loaded such that soil will not spill from the vehicle during transportation. Trucks transporting impacted soil offsite will be covered or tarped before leaving the site. In addition, shaker plates and/or gravel pads will be installed and maintained at the stabilized construction entrance(s). These plates/gravel pads are intended to remove bulk solid materials from the tires of the waste transportation vehicles before the vehicles exit the site.

At this time, the installation and operation of a vehicle wheel-washing station to prevent tracking of mud/dirt/debris offsite is not anticipated. The need for a wheel-washing station at the site will be determined by the excavation contractor and/or the Regional Water Quality Control Board (the designation Lead Agency) based on the actual field conditions and the level of wheel contamination present on vehicles leaving the site. If a vehicle wheel-washing station is required, the station will be installed and operated by the excavation contractor and inspected/approved by the CQA Engineer or designated CQA observer. Fluids generated from operation of the wheel-washing station will be collected, containerized, and stored for subsequent offsite disposal.

5 DECONTAMINATION DERIVED WASTE HANDLING

Excess soil generated during decontamination activities will be placed into trucks removing impacted soil from the site. Other materials generated because of equipment decontamination activities will be placed in containers approved by the United States Department of Transportation (DOT) for subsequent characterization and offsite disposal in accordance with existing regulations.

APPENDIX

E

DUST CONTROL AND MONITORING PLAN

DUST CONTROL AND MONITORING PLAN

FORMER BERK OIL AND PACIFIC METAL CRAFT SITE
5614, 5622, AND 5636 SHULL STREET
BELL GARDENS, CALIFORNIA

PROJECT NO.: CM20167712
DATE: AUGUST 2023

WSP USA ENVIRONMENT & INFRASTRUCTURE INC.
3560 HYLAND AVENUE, SUITE 100
COSTA MESA, CALIFORNIA 92626-1438

T: +1 949-642-0245
WSP.COM

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ACRONYMS AND ABBREVIATIONS

µg/m³	micrograms per cubic meter
µm	micrometers
BaP	benzo(a)pyrene
Berk Oil	former Berk Oil Company
BTV	background threshold value
CCR	California Code of Regulations
CDPH	California Department of Public Health
CFR	Code of Federal Regulations
CLS	Certified Lead Supervisor
DCMP	Dust Control and Monitoring Plan
DCS	Dust Control Supervisor
DOSH	California Department of Occupational Safety and Health (aka Cal/OSHA)
DTSC	Department of Toxic Substances Control
DTSC-SL	Department of Toxic Substances Control Screening Level
EPA	United States Environmental Protection Agency
HUD	United States Department of Housing and Urban Development
mg/kg	milligrams per kilogram
mph	miles per hour
PM10	particulate matter with a diameter of 10 microns or less
PM10 CV	PM10 Calculated Value
PMC	Pacific Metal Craft
PPE	personal protective equipment
RAW	Removal Action Work Plan
Rules	Rule 403 – Fugitive Dust and Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants
SCAQMD	South Coast Air Quality Management District
Site	former Berk Oil Company and PMC properties
TEQ	Toxicity Equivalent Quotient
WSP	WSP USA Environment & Infrastructure Inc.

1 INTRODUCTION

This Dust Control and Monitoring Plan (DCMP) has been prepared by WSP USA Environment & Infrastructure Inc. (WSP) to guide fugitive dust control and mitigation procedures during implementation of the Removal Action Work Plan (RAW) for the former Berk Oil Company (Berk Oil) and Pacific Metal Craft (PMC) properties located in the City of Bell Gardens, California (collectively the site). The fugitive dust control and monitoring procedures described in this DCMP are consistent with the requirements of South Coast Air Quality Management District (SCAQMD) Rule 403 – Fugitive Dust and Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants (hereafter collectively refered to as the Rules).

The objectives of the DCMP include the following:

- Identify regulatory requirements governing fugitive dust control and mitigation procedures.
- Identify potential fugitive dust sources.
- Identify a Dust Control Supervisor (DCS) with the authority to observe and enforce sufficient fugitive dust suppression and mitigation measures by the excavation contractor.
- Identify a Certified Lead Supervisor (CLS) with the authority to observe and enforce sufficient fugitive dust suppression and mitigation measures related to potential lead emissions by the excavation contractor.
- Provide guidance to the excavation contractor for implementing fugitive dust suppression and mitigation procedures applicable to the onsite operations.

This DCMP is prepared with the understanding that procedures for dust suppression and mitigation are subject to modifications, as needed, to accommodate actual site conditions (e.g., weather, wind speed/direction, type of onsite activities) as they occur.

2 SITE CLASSIFICATION AND REGULATORY REQUIREMENTS

2.1 SITE CLASSIFICATION

The provisions of Rule 403 apply to:

> *"any activity or man-made condition capable of generating fugitive dust" (Rule 403-b).*

General requirements that apply to any activities capable of generating fugitive dust are contained in Section (d) of Rule 403. However, there are special requirements (in addition to those contained in Section [d]) that apply to "Large Operations," which are defined as:

> *"any active operations on property which contains 50 or more acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of 3,850 cubic meters (5,000 cubic yards) or more three times during the most recent 365-day period" (Rule 403-c-21).*

The site is approximately 4.3 acre in size and the anticipated volume of the earth-moving operations does not exceed the daily limit of 5,000 cubic yards. As such, the onsite construction/demolition activities do not constitute a Large Operation and the special requirements for Large Operations presented in Section I of the Rule do not apply.

The provisions of Rule 1466 apply to:

> *"any owner or operator conducting earth-moving activities of soil with applicable toxic air contaminant(s) of concern at a site that has been designated and notified by the California Department of Toxic Substance Control as a Brownfield or Cleanup Program site" (Rule 1466-b-1-B).*

Applicable toxic air contaminant(s) refers to soil that has been identified by the Department of Toxic Substances Control (DTSC) to contain one or more of the applicable toxic air contaminants listed in Table I of Rule 1466. Soil at the site is impacted with lead, which is one of the applicable toxic air contaminants listed in Table I.

2.2 SCAQMD RULE 403 SUMMARY

The following is a summary of fugitive dust-related requirements set forth by Rule 403, as they may apply to the site operations. This summary is not intended to be all-inclusive; instead, it is intended to highlight selected components of fugitive dust control and mitigation measures that should be used during onsite activities with a potential for generating fugitive dust.

<u>Definitions: (excerpted from Rule 403-c)</u>

(1)	Active Operations:	[A]ny source capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, disturbed surface area, or heavy and light-duty vehicular movement.
(6)	Bulk Material:	Sand, gravel, soil, aggregate material less than 2 inches in length or diameter, and other organic or inorganic particulate matter.

(11)	Construction/Demolition Activities:	[A]ny onsite mechanical activities conducted in preparation of, or related to, the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to, the following activities: grading, excavation, loading, crushing, cutting, planning, shaping, or ground breaking.
(14)	Disturbed Surface Area:	[A] portion of the earth's surface that has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust.
(17)	Dust Control Supervisor:	[A] person with the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule 403 requirements at an active operation.
(18)	Fugitive Dust:	[A]ny solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person.
(19)	High Wind Conditions:	Instantaneous wind speeds exceed 25 miles per hour (mph).
(22)	Open Storage pile (Stockpile):	[A]ny accumulation of bulk material, which is not fully enclosed, covered or chemically stabilized, and which attains a height of three feet or more and a total surface area of 150 or more square feet.
(23)	Particulate Matter:	[A]ny material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.
(24)	Paved Road:	[A] public or private improved street, highway, alley, public way, or easement that is covered by typical roadway materials, but excluding access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal or any other governmental or quasi-governmental agencies. Private paved roads are any paved roads not defined as public.
(25)	PM10:	Particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.
(26)	Property Line:	The boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.
(32)	Track-Out:	[A]ny bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum

sweeper or a broom sweeper under normal operating conditions.

Requirements: (excerpted from Rule 403-d)

1. No person shall cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that:
   a. [T]he dust remains visible in the atmosphere beyond the property line of the emission source; or
   b. [T]he dust emission exceeds 20 percent opacity..., if the dust emission is the result of movement of a motorized vehicle.
2. No person shall conduct active operations without utilizing the applicable best available control measures included in Table 1 of [Rule 403].
3. No person shall cause or allow particulate matter smaller than 10 micrometers (µm) (PM10) to exceed 50 micrograms per cubic meter (µg/m^3).
4. No person shall allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation. Notwithstanding the preceding, all track-out from an active operation shall be removed at the conclusion of each workday or evening shift.
5. No person shall conduct an active operation...with a daily import or export of 100 cubic yards or more of bulk material without utilizing at least one of the [following] measures at each vehicle egress from the site to a paved public road.
   a. Install a pad consisting of washed gravel...to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long.
   b. Pave the surface extending at least 100 feet and at least 20 feet wide.
   c. Utilize a wheel shaker/wheel spreading device.
   d. Install and utilize a wheel washing system.

Exemptions (excerpted from Rule 403-d):

Certain exemptions to the requirements summarized above apply. For more details, refer to Section (g) of Rule 403, with special attention to Sections (g)(2) and (g)(5).

No person shall conduct active operations without utilizing the applicable best available control measures included in Table 1 of Rule 403.

2.3 SCAQMD RULE 1466 SUMMARY

The following is a summary of fugitive dust-related requirements set forth by Rule 1466, as they may apply to the site operations. This summary is not intended to be all-inclusive; instead, it is intended to highlight selected components of fugitive dust control and mitigation measures that should be used during onsite activities with a potential for generating fugitive dust.

1. Confirm that benzo(a)pyrene (BaP)-impacted soil (soil with BaP Toxicity Equivalent Quotient [TEQ] above site background threshold value [BTV] of 0.90 milligrams per kilogram [mg/kg]) are removed from the site;
2. Confirm that lead-impacted soil (soil with lead concentrations that exceed the DTSC residential Screening Level [DTSC-SL] of 80 mg/kg) are removed from the site;

Definitions: (excerpted from Rule 1466-c, duplicate definitions from Section 2.2 ommitted for brevity)

(1) Adequately Wet: Condition of being sufficiently mixed or penetrated with water to prevent the release of particulates or visible emissions. The process which an adequately wet condition is achieved is by using a dispenser or water

		hose with a nozzle that permits the use of a fine, low-pressure spray or mist.
(5)	Dust Suppressants:	Water, hygroscopic materials, or chemical stabilizers used as a treatment material to reduce fugitive dust emissions.
(7)	Earth-Moving Activities:	[A]ny activity on a site that meets the applicability requirements of subdivision (b) where soil with applicable toxic air contaminant(s) are being moved or uncovered, and shall include, but not be limited to the following: excavation, grading, earth cutting and filling operations, loading or unloading, and adding to or removing from stockpiles.
(10)	Owner or Operator:	[A]ny firm, business establishment, association, partnership, corporation or individual, whether acting as principal, agent, employee, contractor, or other capacity.
(14)	Soil:	Soil is dirt, sand, gravel, clay, and aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.
(15)	Soil with Applicable Toxic Air Contaminant(s):	Soil that has been identified by the DTSC to contain one or more of the applicable toxic air contaminants as listed in Table I of Rule 1466.
(16)	Stabilized Surface:	[A]ny previously disturbed surface area or stockpile, which through the application of dust suppressants, shows visual or other evidence of surface crusting and is resistant to wind driven fugitive dust, and is demonstrated to be stabilized.

Monitoring Requirements: (excerpted from Rule 1466-d)

1. When earth-moving activities or vehicular movement occurs, the owner or operator shall conduct continuous direct-reading near real-time ambient monitoring of PM10 concentrations pursuant to paragraph (d)(3).
2. If the PM10 concentration averaged over two hours exceeds 25 µg/m^3, as measured pursuant to paragraph (d)(3) and as determined pursuant to paragraph (d)(4), the owner or operator shall cease earth-moving activities, apply dust suppressant to fugitive dust sources, or implement other dust control measures as necessary until the PM10 concentration is equal to or less than 25 µg/m^3 averaged over 30 minutes.
3. The owner or operator conducting earth-moving activities shall install and conduct ambient PM10 monitoring as follows:
   a. Use a United States Environmental Protection Agency (EPA)-approved equivalent method for PM10 monitoring or an alternative method approved by the Executive Officer.
   b. Use a minimum of one upwind monitor where the location of the upwind monitor(s) are indicative of background PM10 levels and not generally influenced by fugitive dust sources from the site.
   c. Use a minimum of one downwind monitor placed in the seasonal prevailing wind direction downwind of each area of earth-moving activity and as close to the property line as feasible.
   d. Use PM10 monitors that are identical in make and model; settings; calibration; configuration; and calibration, correction, and correlation factors.
   e. Operate, maintain, and calibrate ambient PM10 monitors in accordance with appropriate EPA-published documents for EPA-approved equivalent method(s) for

PM10 or the alternative method approved by the Executive Officer, and manufacturer's instructions.

f. Collect ambient PM10 data with a data acquisition system that is capable of logging direct-reading near real-time data and providing the date, time, and PM10 concentration in $\mu g/m^3$ every 10 minutes or less.

4. The owner or operator shall calculate the PM10 concentration based on the PM10 concentration averaged over two hours, starting at the top of each hour, where:
   a. The PM10 concentration is the absolute difference between the upwind and downwind monitors.
   b. If there is more than one upwind monitor, the upwind result is the two-hour average of all upwind monitors.
   c. If there is more than one downwind monitor, the downwind average is the maximum two-hour average concentration of any of the downwind monitors.
   d. The owner or operator or designating agency may use an alternative calculation methodology if the owner or operator or designating agency provides information to substantiate that all or some the PM10 concentration is the result of another source and not attributed to the earth-moving activities of the site.
5. When earth-moving activities occur, the owner or operator shall monitor wind direction and speed as specified in the EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements.

<u>Requirements to Minimize Fugitive Dust Emissions: (excerpted from Rule 1466-e)</u>

1. An owner or operator shall not conduct earth-moving activities unless the area is surrounded with fencing that is a minimum of 6 feet tall and at least as tall as the height of the tallest stockpile, with a windscreen with a porosity of 50 ± 5%.
2. An owner or operator conducting earth-moving activities shall:
   a. Adequately wet to the depth of earth-moving activity and allow time for penetration.
   b. Adequately wet at frequencies to prevent the generation of visible dust plumes.
3. An owner or operator that is moving vehicles on, within, or off a site where earth-moving activities are occurring shall:
   a. Post signs at all entrances of the site to designate the speed limit as 15 mph.
   b. Stabilize the surface of all vehicular traffic and parking areas by applying gravel, paving, or dust suppressant.
   c. Prohibit track-out to extend beyond 25 feet of the property line. Remove any track-out each day using a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3-micron particles.
   d. Clean the soil from the exterior of trucks, trailers, and tires prior to the truck leaving the site.
   e. Use at least one of the measures listed in clause (e)(3)(E)(i) through (e)(3)(E)(iv) at each vehicle egress from the site to a paved public road:
      i. Install a pad consisting of washed gravel (minimum-size: one inch), maintained in a clean condition, to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long;
      ii. Pave the surface extending at least 100 feet from the property line and at least 20 feet wide;
      iii. Utilize a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipes, or grates) at least 24 feet long and 10 feet wide; or
      iv. Install and utilize a wheel-washing system to remove soil from tires and vehicle undercarriages.
4. An owner or operator conducting earth-moving activities that result in the development of stockpiles of any soil with applicable toxic air contaminant(s) shall:
   a. Segregate non-contaminated stockpiles from stockpiles with applicable toxic air contaminant(s) and label with "SCAQMD Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminant(s) Applicable Soil."
   b. Maintain stockpiles to avoid steep sides or faces that exceed the angle of repose.

c. Do not create a stockpile that is more than 400 cubic yards of soil and is higher than the perimeter fencing and windscreen.
d. Apply dust suppressant to stockpiles.
e. At the end of each working day, either chemically stabilize and/or completely cover with 10 millimeter-thick plastic sheeting that overlaps a minimum of 24 inches. The plastic sheeting shall be anchored and secured so that no portion of the soil is exposed to the atmosphere.
f. Inspect stabilized or covered stockpiles daily. For a stabilized stockpile, such inspections shall include a demonstration of stabilization by one or more of the applicable test methods contained in SCAQMD Rule 403.
g. Conduct inspections in accordance with the Fugitive Dust Implementation Handbook or Volumes I and II of the SCAQMD Dust Control in the Coachella Valley. For a covered stockpile, such inspections shall include a visual inspection of all seams and plastic cover surfaces. Immediately restabilize or repair any holes, tears, or any other potential sources of fugitive toxic air contaminant emissions.

5. An owner or operator conducting truck loading activities of soil containing applicable toxic air contaminant(s) shall:
   a. Apply dust suppressant to material prior to loading.
   b. Empty the loader bucket slowly so that no dust plumes are generated.
   c. Minimize the drop height from the loader bucket.
   d. Maintain at least six inches of space between the soil and the top of the truck bed while transporting within a site.
   e. Completely tarp the truck and trailer prior to leaving the site.
6. An owner or operator conducting truck unloading activities of soil containing applicable toxic air contaminant(s) shall:
   a. Apply dust suppressant to material prior to unloading.
   b. Empty the trailer slowly so that no dust plumes are generated.
7. The owner or operator shall immediately remove any spilled soil containing applicable toxic air contaminant(s).
8. The owner or operator shall cease earth-moving activities if the wind speed is greater than 15 mph averaged over a 15-minute period or instantaneous wind speeds exceed 25 mph.
9. During earth-moving activities, the owner or operator shall have an onsite dust control supervisor that:
   a. Is employed by or contracted with the owner or operator.
   b. Is located on the site during working hours.
   c. Is in a position to expeditiously employ sufficient dust control measures to ensure compliance with all rule requirements.
   d. Has completed the SCAQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class.
10. If earth-moving activities will not occur for three (3) or more consecutive days, apply a chemical stabilizer to potential sources of fugitive dust diluted to the concentration required to maintain a stabilized surface for the period of inactivity; the surface will be restabilized as necessary.

<u>Notification Requirements: (excerpted from Rule 1466-f)</u>

1. At least 72 hours and no more than 30 days prior to conducting any earth-moving activities on any site meeting the applicability requirements of subdivision (b), the owner or operator shall electronically notify the Executive Officer, using a format approved by the Executive Officer, of the intent to conduct any earth-moving activities. Notifications shall include the requirements as defined in in clause (f)(1)(A) through (f)(1)(J).
2. Notification Updates
   Notifications pursuant to paragraph (f)(1) shall be updated when any of the following conditions arise:

a. Earlier Start Date: A change in the start date of any earth-moving activity to an earlier date shall be reported to the SCAQMD no later than 72 hours before any earth-moving activities begin.
b. Later Start Date: A delay in the start date of any earth-moving activity shall be reported to the SCAQMD as soon as the information becomes available, but no later than the original start date.
c. Change in Exemption Status: Any change(s) in exemption status pursuant to subdivision (k) shall be reported to the SCAQMD as soon as the information becomes available, but no later than 48 hours after the information becomes available.

3. Within 72 hours of an exceedance of the PM10 emission limit specified in subdivision (d), the owner or operator of a site meeting the applicability requirements of subdivision (b) shall electronically notify the Executive Officer, using a format approved by the Executive Officer, of the exceedance and shall include the following information defined in in clause (f)(3)(A) through (f)(1)(G):

Signage Requirements: (excerpted from Rule 1466-g)

1. When conducting earth-moving activities, the owner or operator shall install and maintain project signage. Signage shall:
   a. Be installed at all entrances and at intervals of 1,000 feet or less along the property line or perimeter of the site, with a minimum of one along each side.
   b. Be located between 6 and 8 feet above grade from the bottom of the sign.
   c. Display lettering at least 4 inches tall with text contrasting with the sign background.
   d. Display the information state in in clause (g)(1)(D)(i) through (g)(1)(D)(ii).

Record Keeping Requirements: (excerpted from Rule 1466-h)

1. Recordkeeping shall be in accordance with clause (h)(1) through (h)(5).

3 POTENTIAL FUGITIVE DUST SOURCES

The following project work areas/tasks have been identified as potential sources of fugitive dust emissions:

- Unpaved areas of heavy equipment and vehicular traffic;
- Soil excavation, earth-moving, and backfilling activities;
- Exposed excavation faces or disturbed ground surfaces;
- Soil stockpiles; and
- Track-out cleaning.

4 DUST MONITORING METHODOLOGY

During implementation of the onsite soil removal activities that have a potential for generating fugitive dust, a dust monitoring program will be implemented (likely by the contractor) to identify and quantify levels of airborne dust. The dust monitoring program will be used to help select appropriate engineering controls and work practices, as well as to evaluate the potential impacts on adjacent properties. The fugitive dust monitoring program will consist of the following:

- Site Perimeter Monitoring
- Visible Dust Monitoring

Generally, dust monitoring methodologies will be as described in Rules 403 and 1466. Where a conflict exists between Rules, the most stringent methodology will apply. This section summarizes some of the primary components of Rules 403 and 1466 as they relate to dust monitoring during excavation of lead-impacted soil.

4.1 DUST CONTROL SUPERVISOR

The DCS has the authority to observe and enforce sufficient fugitive dust suppression and mitigation measures by the excavation contractor and should be certified by the SCAQMD as having completed the SCAQMD Fugitive Dust Control Class. The DCS should be readily able to expeditiously employ dust control measures to ensure compliance with all applicable Rules (403 and 1466).

4.2 CERTIFIED LEAD SUPERVISOR

The Certified Lead Supervisor (CLS) has the authority to observe and enforce sufficient fugitive dust suppression and mitigation measures by the excavation contractor and should be certified by the California Department of Public Health (CDPH) as having completed the required CLS training. The CLS has the following responsibilities:

- The CLS should understand the appropriate methods and standards for testing and sampling for lead in soil and have the ability to interpret the lead testing results. Standards include CDPH and EPA regulatory standards for soil (Title 17 California Code of Regulations [CCR] § 35033, 35035, and 35036). In particular, the CLS should be familiar with regulations governing the abatement of lead-contaminated soil (United States Department of Housing and Urban Development [HUD] Guidelines: Chapter 12, and Title 17 CCR § 36000 and 36100).
- The CLS should have knowledge of the applicable abatement methods and their limitations. Knowledge should include California Department of Occupational Safety and Health (DOSH) Lead in Construction Exposure Assessment Requirements; HUD Guidelines: Chapter 9 and Appendix 13.4; 8 CCR 1532.1; and DOSH Hazardous Communications (Title 8 CCR § 1509, 3203, and 5194). The CLS should also know when to apply HUD requirements and when to use the CDPH Title 17 requirements (40 Code of Federal Regulations [CFR] Part 745 and 24 CFR, Part 35, et al.).
- The CLS should be able to select the appropriate clearance inspection procedures and protocols (HUD Guidelines: Chapter 15 and Appendices 7.3 and 13.1-13.4). Knowledge should include the ability to calculate areas and distance (HUD Guidelines: Appendix I) and the analytical methods for assessing the amount of lead in soil (EPA Method SW-846).

- The CLS should understand how to characterize, store, and dispose of hazardous waste. In particular, the CLS should understand the waste characterization procedures and how to interpret the test results (HUD Guidelines: Chapter 10 and Title 22 CCR).
- The CLS should be able to select the appropriate respiratory protection based on air monitoring results (HUD Guidelines: Chapter 9 and Title 8 CCR § 1532.1).

4.3 SITE PERIMETER MONITORING

4.3.1 WIND DIRECTION MONITORING

Wind direction will be monitored during excavation activities using a portable wind vane or similar equipment. The layout of the downwind/upwind perimeter monitoring stations will be adjusted accordingly based on actual wind direction observed during excavation operations.

4.3.2 UPWIND PERIMETER MONITORING

During implementation of the activities that have a potential for generating fugitive dust, air monitoring will be performed along the site perimeter upwind of an onsite fugitive dust source to establish background levels of fugitive dust, and to help determine fugitive dust levels that are attributable to onsite activities. Upwind monitoring will be conducted using continuous, direct-reading, and near-real-time dust monitoring equipment. If fugitive dust from onsite activities is observed along the upwind site perimeter, the upwind monitoring location should be adjusted so that it is not affected by onsite fugitive dust.

4.3.3 DOWNWIND PERIMETER MONITORING

During implementation of the activities that have a potential for generating fugitive dust, air monitoring will be performed along the site perimeter downwind of a fugitive dust source. The monitoring will be conducted using continuous, direct-reading and near-real-time dust monitoring equipment and recorded in a field book. The DCS (or designee) will maintain the dust monitoring records with the project files. The two-hour average of the difference between the upwind and downwind PM10 levels will be calculated (referred to as the PM10 calculated value [PM10 CV]). The PM10 CV will be used to verify that fugitive dust attributable to onsite activities does not exceed the threshold fugitive dust limit of 25 µg/m^3.

If the PM10 CVs are approaching or exceeding the 25 µg/m^3 threshold limit, dust control measures detailed below in Section 5.0 will be implemented.

4.4 VISIBLE DUST MONITORING

In addition to monitoring fugitive dust levels with a dust monitor, visible dust will also be monitored during all onsite construction/excavation activities. Dust control measures detailed below in Section 5.0 will be implemented if one or both of the following conditions are observed:

- Migration of visible dust beyond the site property boundaries; and/or
- Visible dust onsite with an opacity of 20 percent or more.

4.5 PERSONAL AIR MONITORING

The excavation contractor will provide and implement a written program describing the personal air monitoring for site workers. The DCS and/or the CLS may request additional personal air monitoring in addition to the written program requirements, if deemed necessary. The written program shall meet or exceed the requirements of Title 8 CCR § 1532.1.

Initial monitoring will be performed to confirm that the proper level of dust control and appropriate level of personal protective equipment (PPE) are in use. Results of personal air monitoring will be made available to the respective employees, the CLS, the DCS and any designated health and safety coordinator. Acceptable thresholds for upgrading or downgrading engineering practices or PPE requirements will be described as part of the written personal air monitoring program.

5 DUST CONTROL AND MITIGATION PROCEDURES

Applicable dust control and mitigation procures described in Rules 403 and 1466 will be followed. Where a conflict exists between Rules, the most stringent procedure will apply. This section summarizes some of the primary components of Rules 403 and 1466 as they relate to dust control and mitigation procedures during excavation of lead-impacted soil.

5.1 DUST CONTROL AND PREVENTION

The following methods will be used to prevent conditions conducive to dust generation:

- The area where earth-moving activities are to be conducted will be surrounded with fencing that is a minimum of 6 feet tall and at least as tall as the height of the tallest stockpile, with a windscreen with a porosity of 50 ± 5%.
- Offsite paved areas and roads used for construction traffic will be maintained free of tracked soil or fill materials. At a minimum, paved traffic areas, sidewalks, and streets will be inspected on a daily basis, and will be cleaned by wet sweeping and/or washing as appropriate. Tracks will not extend 25 feet or more in cumulative length from the point of origin. More frequent cleaning will be performed if necessary. Paved areas and roads will be left clean at the end of each day.
- Water mist will be applied with a water truck/hose/mister to unpaved roadways, as warranted, to prevent visible dust generation.
- An onsite speed limit of 5 mph will be enforced on unpaved areas. If wind speeds are 25 mph or more, work activities with potential to generate dust (e.g., soil excavation) will be temporarily halted. Alternatively, exemptions available under Section (g)(2) and/or Section (g)(5) of Rule 403 may be used.
- Exposed excavations, disturbed ground surfaces, stockpiles, and unpaved traffic areas will be maintained in a moist or "crusted" condition.
- During nonworking hours, the site will be left in a condition that will minimize potential for creating fugitive dust.
- A temporary decontamination area (for vehicles and equipment) will be provided at active entrance/egress locations to keep adjacent offsite paved areas free of tracked out soil and/or dust.
- A stabilized construction entrance (e.g., shaker-plated, washed aggregate) will be constructed in accordance with City of Bell Gardens requirements.
- Soil drop heights from excavation equipment (e.g., excavators, bulldozers, etc.) will be minimized.
- Soil containers (e.g., hauling vehicles, soil bins) will be filled with soil to below the top of the container and will be completely tarped or covered prior to leaving the site.
- Vehicles leaving the active work area(s) will be inspected and cleaned of any dust and soil from the worksite. Dry removal (compressed air, dry sweeping) is prohibited.
- Soil stockpiles will not contain more than 400 cubic yards of soil and the stockpile height will be less than that of the site perimeter fencing and windscreen.
- At the end of each working day, stockpiles will be either chemically stabilized and/or completely covered with 10-millimeter-thick plastic sheeting with an overlap of a

minimum of 24 inches between sheets. The plastic sheeting will be anchored and secured so that no portion of the soil is exposed to the atmosphere.

- Stabilized or covered stockpiles will be inspected daily. Inspections will include a visual inspection of all seams and plastic cover surfaces. Any holes, tears, or any other potential sources of fugitive toxic air contaminant emissions will be restabilized or repaired.

Water usage will be monitored to ensure that sufficient quantities are used to suppress dust and not generate excessive runoff. There will be no activities generating dust during nonworking hours; therefore, dust control actions will be restricted to hours of operation only. High winds, extreme heat, weekends, and holidays may cause a need for a more extensive approach to controlling dust.

5.2 DUST MITIGATION AND CORRECTIVE ACTION

If the PM10 CV exceeds 25 µg/m^3, visible dust is observed moving off the property, and/or visible dust is observed to exceed 20 percent opacity, one or more of the following sequential corrective actions will be implemented, as needed, to control fugitive dust:

- Reduce the pace of, or cease, dust-producing activity until the problem is corrected.
- Notify the DCS of dust conditions; the DCS will direct implementation of dust suppression procedures.
- Remove accumulated dirt and soil from problematic areas, and/or cover, enclose, or isolate dust-generating areas/surfaces to shield them from wind, sunlight, or heat sources.
- Increase the frequency, volume, and/or coverage of water misting, sprays, and foggers to prevent soil from drying out.
- Provide additional dust suppression systems and operating personnel during the task duration.
- Modify operating procedures and methods to eliminate problematic conditions.
- Increase the level of worker awareness and instruct workers on implementation of any new or modified operating procedures.
- Report and document all procedural modifications and results.
- Perform routine audits of dust suppression methods and work areas for dust sources.

If additional corrective measures are required because the PM10 CV exceeds 25 µg/m^3, these corrective measures should be employed until the PM10 concentration is equal to or less than 25 µg/m^3 averaged over 30 minutes.

5.3 BEST AVAILABLE CONTROL MEASURES

A list of best available control measures for situations that may be encountered during soil removal activities is included in Table 1 of Rule 403. The DCS will use this table as a reference for directing dust mitigation and corrective actions.

6 REFERENCES

- South Coast Air Quality Management District (SCAQMD). Rule 403 – Fugitive Dust. Amended June 3, 2005.
- SCAQMD. Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants. Amended December 1, 2017.