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Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Subject: 205 Brush Street
Oakland, CA
RO0003196

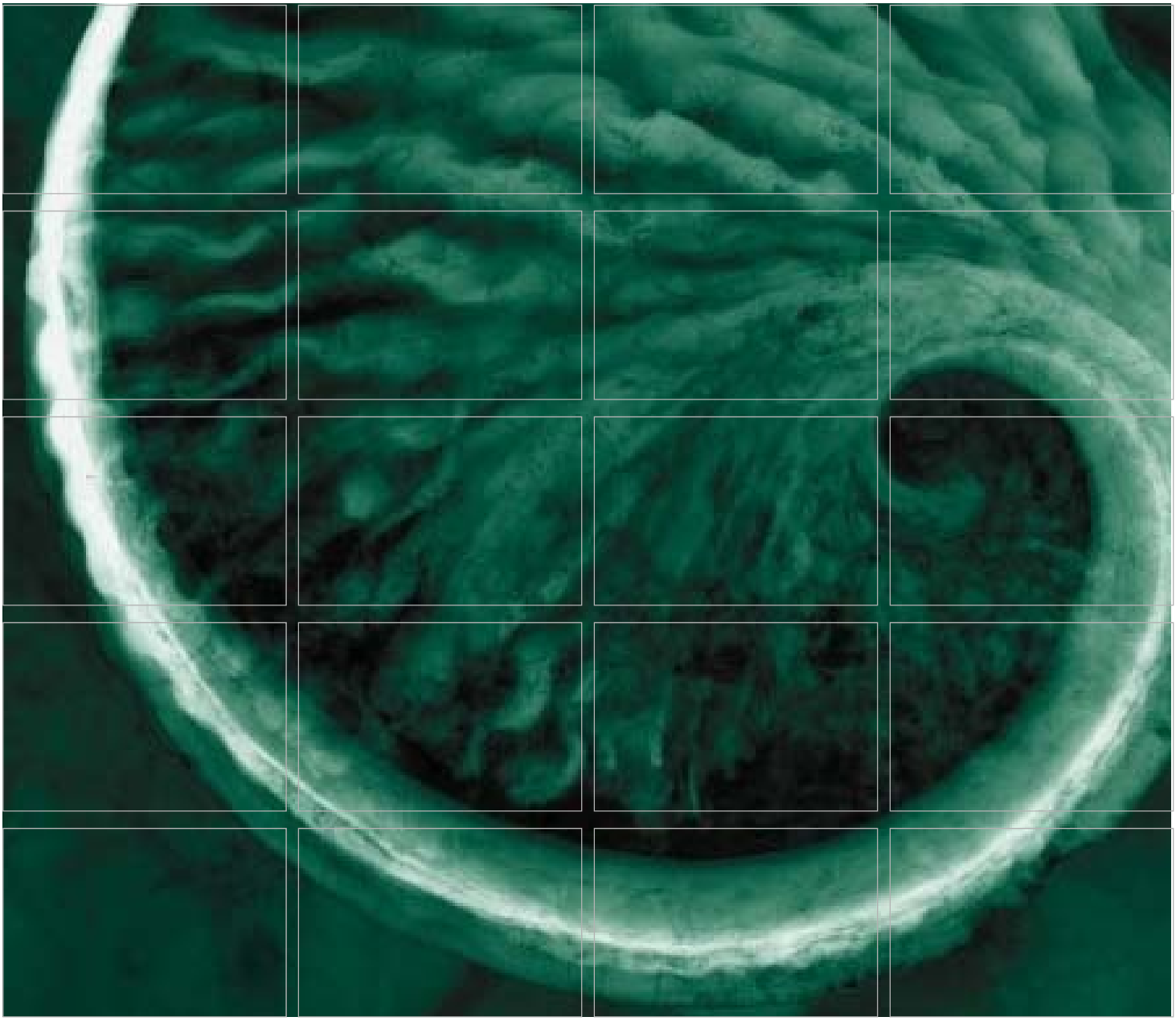
Mr. Keith Nowell:

As the legal authorized representative of PG&E, who contracted ERM-WEST, Inc.(ERM) to prepare the *Additional Investigation, In Situ Chemical Oxidation Pilot Study, and Bench-Scale Testing Work Plan,* I have reviewed the report and declare under the penalty of perjury, that the information and/or recommendations contained in this workplan are true and correct to the best of my knowledge.

Sincerely,

Ben A. LePage, Ph.D.

Manager, Remediation



Additional Investigation, *In Situ* Chemical Oxidation Pilot Study and Bench-Scale Testing Work Plan

Prepared for:
Pacific Gas and Electric Company

205 Brush Street
Oakland, California

February 2017

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Pacific Gas and Electric Company

Additional Investigation, *In Situ* Chemical Oxidation Pilot Study and Bench-Scale Testing Work Plan

205 Brush Street
Oakland, California

February 2017

Project No. 0323656

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LIST OF ACRONYMS

ACEH	Alameda County Environmental Health
ASP	activated persulfate
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CNG	Compressed natural gas
DTSC	Department of Toxic Substances Control
ERM	ERM-West, Inc.
ESL	Environmental screening level
IDW	investigation-derived waste
ISCO	*in situ* chemical oxidation
PCB	polychlorinated biphenyl
PID	photoionization detector
PG&E	Pacific Gas and Electric Company
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RWQCB	California Regional Water Quality Control Board, San Francisco Bay Region
SVOC	semivolatile organic compound
TPH	total petroleum hydrocarbons
TPH-d	total petroleum hydrocarbons as diesel
TPH-g	total petroleum hydrocarbons as gasoline
TPH-mo	total petroleum hydrocarbons as motor oil
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

1.0 INTRODUCTION

On behalf of Pacific Gas and Electric Company (PG&E), ERM-West, Inc. (ERM) has prepared this *Additional Investigation, In Situ Chemical Oxidation Pilot Study and Bench-Scale Testing Work Plan* (Work Plan) for the former Port of Oakland property located at 205 Brush Street in Oakland, Alameda County, California (the "site" or "subject property," Figure 1-1). This Work Plan has been prepared and is consistent with discussions with the Alameda County Environmental Health (ACEH) staff, the lead oversight agency for the site, during a 13 January 2017 meeting.

PG&E acquired this property from the Port of Oakland for redevelopment as part of upgrading and improving safety of its natural gas distribution infrastructure in the area. As part of the 6 March 2015 Real Property Transfer Agreement, PG&E will address the on-site environmental conditions; all off-site impacts are the responsibility of the Port of Oakland. PG&E performed this work prior to site redevelopment to fully address any potential health risks to construction workers, expedite soil remediation to mitigate risks to site workers, and eliminate any potential sources of impact to groundwater.

The purpose of this Work Plan is threefold:

1) To describe additional investigation activities to address any remaining data gaps identified during the first and second phases of the investigation work;
2) To propose implementation of an *in situ* chemical oxidation (ISCO) pilot study to evaluate the remedial options available and begin total petroleum hydrocarbon (TPH) and associated volatile organic compound (VOC) mass removal at the site; and
3) To describe a bench-scale test to evaluate the treatability options for dissolved metals at the site.

1.1 SITE BACKGROUND

The subject property consists of an approximately 0.74-acre parcel of land that is improved with three vacant structures and concrete- and/or asphalt-paved areas. The subject property is identified as Alameda County Assessor's Parcel Number 001-0111-005-02. The subject property is situated in a primarily commercial and light industrial area in Oakland, California (Figure 1-2). Historical use of the site is presented in the *Site Characterization Investigation Work Plan, 205 Brush Street, Oakland, California* (ERM 2015).

The site is currently occupied by three commercial buildings (Buildings 412, 413, and 414) located in the northern and eastern portions of the site. The remainder of the site consists of a concrete-paved yard, except for an asphalt-paved area on the western side of the subject property (where former underground storage tanks [USTs] were removed). The vacant portion of the subject property is surrounded by fencing with an access gate located along the western boundary at Market Street.

1.2 PREVIOUS INVESTIGATIONS AND SITE CHARACTERIZATION SUMMARY

Several phases of investigation have been completed at the site to characterize the extent of VOCs in soil, soil vapor, and groundwater. A summary of investigation results is presented in the *Site Characterization Summary Report, 205 Brush Street, Oakland, California* (ERM 2016). This report was prepared by ERM and submitted to the ACEH in October 2016. The investigations were performed to characterize impacts to the soil, soil vapor, and groundwater at that were identified in the limited pre-purchase Phase II investigation (ERM 2014). The following subsections present a summary of the investigation results.

1.2.1 Site Geology and Hydrostratigraphy

Soil lithology was documented during previous investigations. Shallow soil stratigraphy observed during the investigations included a fill layer ranging in thickness from 0.5 to 2 feet that is underlain by fine-grained sands, sandy silts, and clayey silts/sands, which are present to a depth of approximately 22 feet below ground surface (bgs) where a sand interval was encountered. This sand interval was present to total depth of investigation, which ranged from 42 to 48 feet bgs.

During the investigations, groundwater was typically encountered at depths ranging from 5 to 11 feet bgs. This first groundwater interval appears to be perched, occurring within coarser-grained sand stringers in primarily fine-grained silts and clays. The first water-bearing zone that could be considered a potential aquifer was encountered at a depth of 22 feet bgs and was present to the total depth in the three cone penetrometer test locations completed during the investigation. Based on topography, groundwater flow is anticipated to be to the south towards the Port of Oakland.

1.2.2 Analytical Results

The analytical test results generated during the investigations were compared to applicable Environmental Screening Levels (ESLs) set by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) in their 22 February 2016 *ESL Workbook, Interim Final, Revision 3* (RWQCB 2016). The applicable ESLs provided in the Appendix A data tables and figures within this report are primarily the Tier-1 ESLs, which are the most conservative levels, with the exception of Tier-1 ESLs that were based on direct contact in a residential scenario. For these ESLs, the risk levels corresponding to direct contact in a commercial/industrial scenario were used, which is consistent with the current and future use of the property.

1.2.2.1 Soil Analytical Results

The investigation results indicated that the site soil was impacted by TPH, TPH-related VOCs, semivolatile organic compounds (SVOCs), organochloride pesticides, polychlorinated biphenyls (PCBs), and some metals. Figures 1-3 through 1-6 present the results of the analyses for all soil samples collected from the site. As requested by the ACEH staff during the 13 January 2017 meeting, these figures have been updated to include data from the adjacent Port of Oakland Compressed Natural Gas (CNG) Fueling Station Site (Weiss Associates, 2015) to provide additional characterization data. The figures indicate that TPH, VOCs, SVOCs, organochloride pesticides, PCBs, and all metals, with the exception of lead, have been adequately delineated in site soil to allow for future assessment of site specific risk and remedial design.

1.2.2.2 Groundwater Results

During the most recent investigation, groundwater samples showed that shallow groundwater at the site is impacted by TPH, TPH-related VOCs, SVOCs, and metals. Figures 1-7 through 1-12 present the results of the analyses for all groundwater samples collected from the site. As requested by ACEH staff, groundwater data from the adjacent Port of Oakland CNG Fueling Station (Weiss Associates, 2015) were included in Figure 1-7. The offsite data do provide additional characterization data showing a reduction in TPH concentrations at the CNG locations immediately adjacent to the PG&E site and an increase in TPH concentrations in the center of the CNG site.

Based on the investigation findings, the extent of onsite impacts of these constituents of concern in the shallow groundwater interval has been adequately defined. Selected metals in groundwater exceed their respective ESLs up to the

property line with the adjacent Port of Oakland CNG Fueling Station site (Figure 1-12). The analytical test results from the water samples collected from the deep groundwater zone indicate the presence of low concentrations of TPH as gasoline (TPH-g), VOCs, and metals slightly that are above their respective ESLs. However, the presence of these compounds in the deep groundwater samples appears to be due to migration from an offsite source (TPH-g and VOCs), potential laboratory contamination (bis[2-ethylhexyl]phthalate), or naturally occurring concentrations (nickel) that are not due to historical site operations.

1.2.2.3 Soil Vapor Results

Soil vapor sample results collected during the most recent investigation indicate that the extent of VOCs in soil vapor at the site have been adequately defined (Figure 1-13). The only VOCs detected above their applicable ESL were tetrachloroethene (SVP-7) and benzene (SVP-3). The occurrence of tetrachloroethene in excess of its applicable ESL has been delineated, while the benzene exceedance is close to the former UST site.

1.3 DATA GAPS

Four main data gaps need to be addressed:

1) The extent of lead in the shallow soil;
2) Consistent soil vapor data results;
3) The location of onsite utility corridors to address potential preferred pathways for vapor migration; and
4) Groundwater flow and repeatable groundwater data within the impacted shallow groundwater interval.

To allow for comprehensive future assessment of site-specific exposure risks and the remedial measures to address them, ERM proposes the following additional investigation activities:

- The completion of four shallow hand auger borings to collect additional samples for the characterization of lead in soil;
- The installation of five permanent soil vapor probes and subsequent quarterly monitoring of these probes;
- The completion of a utility corridor search and mapping conducted at the site to evaluate the presence of preferential pathways for soil vapor migration; and

- The installation of five shallow groundwater monitoring wells and subsequent quarterly monitoring to provide groundwater flow and repeatable shallow groundwater data.

The final data gap that will be addressed during additional investigation activities is implementation of permanent groundwater monitoring and routine periodic sampling. Installation of groundwater monitoring wells will provide information on groundwater flow direction and determine if seasonal fluctuations to water levels and/or chemical concentrations occur.

1.4 SUSTAINABILITY

ERM's approach for the scope of work presented below includes consideration of PG&E's specific internal guidance in addition to published guidance, strategies, and polices regarding sustainable investigation and remediation activities. PG&E's program emphasizes programmatic sustainable goals to integrate sustainability principles and practices across PG&E projects.

Sustainable practices that will be incorporated into the proposed scope of work for this investigation and remediation include the following:

- Reductions in greenhouse gas emissions by carpooling, trip-linking, and combining site visits;
- Subcontractors will not idle work trucks while onsite;
- Small equipment such as peristaltic pumps will be powered by rechargeable batteries rather than running generators;
- Reductions in greenhouse gas emissions by the collection of samples with hand tools and light equipment to avoid mobilization and use of greenhouse gas-emitting equipment, if possible;
- Use of local resources to support the project, including contracting a local laboratory for analytical testing and local spending in and around the Oakland area; and
- Consistent and thorough application of health and safety planning and the safety culture by PG&E, ERM, and its subcontractors, with a goal of completing sampling events with no safety incidents.

ERM will track the overall impacts caused by project activities and the reduction of impacts attained through best practices. The site-specific data will be provided to PG&E so that programmatic tracking of impact reductions can be tracked and further efforts can be encouraged.

2.0 ADDITIONAL INVESTIGATION ACTIVITIES

This section provides the specific scope of work for the additional investigation to address the identified data gaps. It is anticipated that this investigation will consist of one field event lasting approximately 2 weeks in length. During this field event, ERM will perform the utility corridor search; install the five shallow groundwater monitoring wells, five permanent soil vapor probes, and four hand auger borings; and develop and sample the new groundwater monitoring wells and soil vapor probes. Prior to completing the scope of work, the site *Health and Safety Plan* will be reviewed and updated, if necessary, to cover the proposed scope of work. All work will be performed in accordance with the *Health and Safety Plan*. The detailed task descriptions of the initial scope of work are described below.

2.1 UTILITY CLEARANCE AND CORRIDOR SEARCH

ERM will secure all appropriate permits to complete the proposed scope of work, including drilling and groundwater monitoring well installation permits from the Alameda County Public Works Agency. Prior to initiating any subsurface field activities, all proposed drilling locations will be marked in the field and reviewed with site personnel and/or the property owner. Underground Service Alert, a notification service for marking underground utilities on public rights-of-way, will be notified at least 48 hours prior to advancing any borings. A private utility-locating contractor will also identify the locations of underground utilities near the proposed drilling locations. Drilling locations may be modified, as necessary, to avoid underground utilities. Visual clearance of utilities will be performed to a minimum depth of 5 feet bgs at all drilling locations via hand augering or airknife.

In addition, to address the potential for the existence of a preferential pathway for soil vapor migration, ERM will hold an onsite meeting with underground utility representatives to identify where underground utilities enter the site. A private utility locator will be used to trace the underground utilities from the public right-of-way onto and within the site. The result of this survey will be placed on the site maps and provided in subsequent figures in the summary report. In addition, the information will be used to make sure the proposed soil vapor probes are appropriately located.

2.2 *SOIL BORINGS AND SAMPLING*

ERM will install four shallow soil borings (SB-32 through SB-35) at the boring locations provided on Figure 2-1. At each proposed location, soil borings will be completed to a depth of 5 feet bgs using the hand-augering method. During soil boring activities, field personnel will:

- Continuously log the soil cores using the United Soil Classification System and record the soil logging for each boring on separate boring logs;
- Make visual observations regarding the nature of the soil and evidence of impacts based on continuous sampling; and
- Monitor the soil cores for the potential presence of VOCs using an organic vapor analyzer with a photoionization detector (PID) and note the results on the boring logs.

Soil samples will be collected from depths of approximately 0.5 to 1 foot and 3.5 to 4 feet bgs in 6-inch (length) stainless-steel sleeves or 6-inch acetate sleeves, capped on both ends, and sealed with Teflon tape. Collected sample containers will be labeled, placed in sealed plastic bags, stored in an iced cooler, and transported to Curtis & Tomkins Ltd., a California state-certified laboratory in Berkeley, California, for analysis as soon as possible after sample collection. Samples will be analyzed for Title 22 Metals by United States Environmental Protection Agency (USEPA) Methods 6010/7000. All samples will be recorded on a chain-of-custody form that will accompany the samples to the laboratory.

Upon completion of soil sampling, each of the borings will be backfilled with hydrated bentonite chips. For boring locations on concrete or asphalt, boreholes will be patched using like material at the surface. ERM will have the borings surveyed by a licensed surveyor to document their location and ensure proper placement of the borings on figures.

2.3 *INSTALLATION OF PERMANENT SOIL VAPOR PROBES*

Five permanent soil vapor probes (SVP-9, SVP-10, SVP-11, SVP-12, and SVP-13) will be installed to provide repeatable soil vapor data. The proposed locations of these probes are shown on Figure 2-2; the locations may change slightly based on the results of the utility corridor survey. The soil vapor probes will be installed by a C-57 (California Code of Regulations Title 16, Division 8, Article 3) licensed drilling contractor consistent with *Advisory – Active Soil Gas Investigations* (California Environmental Protection Agency, Department of Toxic Substances Control [DTSC], Los Angeles Regional Water Quality Control Board, and San Francisco Regional Water Quality Control Board, 2015). At each proposed soil

vapor probe location, a hand auger will be used to advance the boring to a depth of 5 feet bgs. Descriptions of the subsurface materials will be described by an ERM geologist from the soil cuttings and recorded on a boring log. A PID will also be onsite to screen soil cuttings recovered during installation activities.

Once the total depth of the boring is reached, the soil vapor probe construction materials will be immediately installed as follows:

- Each probe will consist of 0.125-inch, inner-diameter, Teflon tubing equipped with a stainless-steel coupler and vapor point. The vapor point will be lowered to a depth of 5 feet bgs.
- A 1-foot-thick, annular filter pack will be installed around the vapor point. The filter pack will consist of clean, washed, well-graded, silica sand, and will extend approximately 0.5 foot below and 0.5 foot above the vapor point.
- Dry granular bentonite will then be added to the annular space to 1 foot above the sand pack.
- The remainder of annular space will consist of hydrated bentonite to ground surface. Each probe will be completed at surface with a flush-mounted, steel, protective road box.

Consistent with the DTSC Advisory, samples will not be collected for at least 48 hours to allow subsurface conditions to equilibrate. After equilibration, soil vapor samples will be collected from each probe, with one duplicate sample collected for quality assurance/quality control (QA/QC) purposes (see Appendix B for the comprehensive soil vapor sampling procedure). Samples will be analyzed for VOCs by USEPA Method TO-15 and oxygen, methane, and carbon dioxide by ASTM D-1946. ERM will have the soil vapor probes surveyed by a licensed surveyor to document their location and ensure proper placement of the borings on figures.

2.4 INSTALLATION OF SHALLOW GROUNDWATER MONITORING WELLS

Five shallow groundwater monitoring wells will be installed to provide information on groundwater flow, plume stability, and seasonal fluctuations. The proposed locations of these groundwater monitoring wells are shown on Figure 2-3. At each proposed groundwater monitoring well location, the pilot boring will be hand augered to a depth of 5 feet bgs.

The shallow groundwater monitoring wells will be installed to a target depth of 15 feet bgs using a drill rig equipped with hollow-stem augers. Soil samples will be collected continuously using 18- and 24-inch, California-modified, split-spoon samplers. An ERM geologist will describe the soils in accordance with the United

Soil Classification System and prepare the associated well logs. Soil cores will be screened with a PID and the results of the field-screening will be recorded on the well log. If visual observation or PID screening indicates potential impact to soil, soil samples will be collected for analysis. In addition, soil samples may be collected from selected groundwater monitoring well locations for geotechnical testing (such as vertical permeability, grain-size distribution, porosity, bulk density, and total organic carbon), as well as remedial bench testing.

The groundwater monitoring wells will be constructed of approximately 5 feet of polyvinyl chloride (PVC) casing and 10 feet of 0.010-inch, machine-slotted, PVC well screen. An appropriate filter pack will be emplaced in the annular space to approximately 1 foot above the top of the screen interval. The transition seal will consist of approximately 2 feet of bentonite chips, with the remainder of the annular space backfilled with neat cement. Groundwater monitoring wells installed will be completed at the surface with a flush-mounted, steel, protective road box. The monitoring wells will be completed with a watertight expansion cap and secured with a lock.

Horizontal coordinates, ground surface elevation, and top of casing elevation for the new groundwater monitoring wells will be completed under the direction of a civil Professional Engineer. Northing and easting coordinates will be surveyed relative to the North American Datum of 1983 (NAD 83) with an accuracy of ± 1.0 foot horizontal. Elevations will be surveyed relative to the North American Vertical Datum of 1988 (NGVD 88) with an accuracy of ± 0.01 foot vertical.

2.4.1 Groundwater Monitoring Well Development

Following installation, the new groundwater monitoring wells will be developed no sooner than 72 hours following placement of the grout seal. The groundwater monitoring wells will be developed by pumping or bailing a minimum of 10 well casing volumes of water. The groundwater monitoring wells will also be surged during development to remove any sediment that may have entered during installation. Stabilization parameters (pH, specific conductance, turbidity, and temperature) will be monitored during development.

2.4.2 Groundwater Monitoring Well Sampling

A groundwater sample will be collected from each new groundwater monitoring well no sooner than 24 hours after development activities have been completed. Three casing volumes of water will be purged from the groundwater monitoring wells with a disposable bailer while stabilization parameters are monitored. The groundwater samples will then be collected into laboratory-supplied containers, properly preserved and labeled, and placed in an iced cooler. The samples will

be submitted under proper chain-of-custody procedures to Curtis & Tomkins for laboratory analysis of the following parameters:

- TPH-g and VOCs by Agency USEPA Method 8260B;
- TPH as diesel (TPH-d) and motor oil (TPH-mo) by USEPA Method 8015M;
- SVOCs by USEPA Method 8270C; and
- California Title 22 Metals by USEPA Methods 6010/7000 series (field filtered).

Groundwater will also be collected from the groundwater monitoring well closest to the metals impact in groundwater for submittal to the laboratory completing the metals treatability study. In addition to analytical parameters included in the baseline groundwater sampling, the following natural attenuation parameters will be sampled for:

- pH, temperature, conductivity, dissolved oxygen and oxidation reduction potential using a flow cell;
- Nitrate using USEPA Method 300;
- Iron using USEPA 6010B (after field filtration);
- Manganese using USEPA Methods 6020/200.8;
- Sulfate using USEPA Method 300;
- Alkalinity (total and bicarbonate) using SM 2320B; and
- Methane using Method RSK-175.

2.5 QUALITY ASSURANCE/QUALITY CONTROL MEASURES

2.5.1 Sample Duplicates and Trip Blanks

ERM will collect one duplicate soil vapor and groundwater sample for QA/QC purposes. Also, a trip blank will accompany all volatile groundwater samples packaged in ice coolers to identify any contamination that may have occurred while transporting samples.

2.5.2 Sample Documentation

All samples collected will be reported on a laboratory chain-of-custody and transported under proper protocol to a California-certified laboratory for analysis.

2.5.3 *Equipment Decontamination*

All non-disposable equipment will be decontaminated prior to use consistent with USEPA Operating Procedure SESDPROC-206-R3 (USEPA, 2015). Equipment decontamination will be limited to drilling equipment (hand augers, drill rods, and other downhole equipment) that will be decontaminated after each soil boring and each soil vapor probe is installed. Vapor probe construction material will be single use and will be provided as factory clean and hermetically sealed. Other sampling equipment will either be single use or cleaned by the analytical laboratory and will not require decontamination.

2.5.4 *Investigation-Derived Waste*

ERM will provide collection, storage, management, and offsite disposal of solid and liquid investigation-derived waste (IDW) related to sampling activities and/or decontamination of drilling and groundwater sampling equipment. Drill cuttings and decontamination water shall be properly stored in sealed and labeled 55-gallon drums, with drums placed in a secure and designated location onsite. Analytical data from the sampling activities shall be used to characterize IDW for profiling and appropriate offsite disposal, unless additional sampling of IDW is required by the waste facility and/or PG&E. Waste profiling and disposal shall be coordinated with PG&E's waste management lead and the site point of contact.

2.6 *QUARTERLY MONITORING*

ERM will complete three quarters of groundwater and soil vapor monitoring of the newly installed sampling points to provide 1 year of quarterly groundwater monitoring well results. Each quarter, groundwater levels will be monitored in all five groundwater monitoring wells and groundwater samples and appropriate QA/QC samples will be collected and analyzed for the following constituents by a California-certified laboratory:

- A total of six groundwater samples (including one duplicate) for analysis for TPH-g and VOCs by USEPA Method 8260B, TPH-d and TPH-mo by USEPA Method 8015M, SVOCs by USEPA Method 8270C, and Title 22 Metals by USEPA Methods 6010/7000 series; and
- One QA/QC sample (trip blank) for analysis of TPH-g and VOCs by USEPA Method 8260B.

In addition, soil vapor samples will be collected from the five soil vapor probes each quarter using the sampling protocol outlined in the DTSC Advisory (Appendix B). One duplicate sample will be collected per quarterly event and all

of the samples will be submitted for analysis to a California-certified laboratory for analysis of VOCs by USEPA Method TO-15. ERM has assumed that ACEH will not require additional methane sampling following the completion of the baseline sampling.

Following the completion of the monitoring event and the receipt of the analytical data, ERM will prepare a quarterly monitoring report with the summary of results, including groundwater flow, groundwater analytical data, and soil vapor analytical data, for submittal to the ACEH within 8 weeks of completing sampling.

3.0 IN SITU CHEMICAL OXIDATION PILOT STUDY

The objectives of the ISCO pilot study include:

- Collect site-specific data on the ability to distribute the oxidant in the shallow groundwater interval;
- Collect data on the lateral spacing at injection locations for evaluating a full-scale ISCO program;
- Determine the volume and concentration of chemical oxidant for evaluating the full-scale ISCO program;
- Determine overall cost and effectiveness of the full-scale ISCO program that can be compared with other remedial alternatives; and
- Begin the remediation of groundwater within the identified source area using the presumptive remedial technology to breakdown the TPH mass.

3.1 TECHNOLOGY BACKGROUND

ISCO treatment involves the direct injection of a chemical oxidant into the groundwater to oxidize VOCs. Several types of chemical oxidants are potentially applicable to the site including ozone, Fenton's Reagent, potassium permanganate, and activated persulfate (ASP). In-depth information on available oxidants is outlined in *Technical and Regulatory Guidance for In Situ Chemical Oxidation of Contaminated Soil and Groundwater* (The Interstate Technology & Regulatory Council 2005). For the purposes of this pilot study, we have chosen KLOZUR® CR, a commercially available reagent consisting of alkaline-activated KLOZUR® SP and PermeOx® Ultra engineered calcium peroxide. KLOZUR® CR couples ASP-based chemical oxidation with aerobic and anaerobic bioremediation processes that can last up to 1 year after application.

Alkaline activation of persulfate was chosen because ERM believes that a superoxide will be formed that will support aggressive remediation, especially at the diffusion-limited surface of the lower permeability silt/clay zone.

In addition, KLOZUR® CR offers the following advantages:

- It has been documented to be effective for treatment of benzene, toluene, ethylbenzene, and xylene (BTEX), certain polynuclear aromatic hydrocarbons, and petroleum hydrocarbons. Sulfate, which is a reaction by-product of ASP, also helps sustain anaerobic bioremediation of petroleum hydrocarbons.

- It is a stronger oxidant than peroxide (primary Fenton's Reagent oxidant) or potassium permanganate.
- The soil oxidant demand for sulfate radicals is much lower than that for permanganate and hydroxyl radicals.
- It has a higher water solubility, which will facilitate subsurface delivery and distribution.
- It is more stable in the subsurface than ozone and hydrogen peroxide with a reported half-life of 100 to 500 days.
- Persulfate can oxidize benzene, while permanganate cannot; this allows persulfate to be used in the remediation of fuel spills and BTEX-contaminated groundwater.
- Persulfate does not produce the heat and gas evolution involved with hydrogen peroxide application.
- PermeOx Ultra, a component of KLOZUR® CR, is formulated to contain oxygen in excess of 18 percent, which is designed for a slow-release to last over 250 days; this provides a cost-effective approach for enhancing the aerobic bioremediation of petroleum hydrocarbons.

3.1.1 Chemical and Biological Reactions

The chemical reaction of alkaline activation of sodium persulfate will produce a transient sulfate radical, with an overall reaction with petroleum hydrocarbon as represented by benzene is as follows:

$C_6H_6 + 15Na_2S_2O_8 + 12H_2O \rightarrow 6CO_2 + 30NaHSO_4$

The biological reaction of petroleum hydrocarbon as represented by benzene with oxygen and sulfate are provided below:

$7.5O_2 + C_6H_6 \rightarrow 6CO_2 + 3H_2O$

$7.5H^+ + 3.75SO_4^{2-} + C_6H_6 \rightarrow 6CO_2 + 3.75H_2S^0 + 3H_2O$

3.1.2 Potential Undesirable Consequences

KLOZUR® CR also has the potential for some transient secondary effects to the geochemistry, as listed below:

- Base-activated persulfate will cause a temporary increase in pH in the injection area, as well as increase dissolved metal concentrations;

- Oxidative treatment technologies cause a temporary increase in the hexavalent chromium concentrations in the treatment zone; and
- The ASP reaction will temporarily increase sulfate concentrations in the treatment area.

Performance monitoring associated with the ISCO pilot study will evaluate the occurrence and magnitude of these transient secondary effects.

3.2 REAGENT PREPARATION, DRILLING, AND REAGENT INJECTION

The ISCO pilot study will target the area of ESL exceedances for TPH and VOCs within the shallow groundwater interval (Figure 3-1). Based on ERM's injection experience at similar sites, the anticipated radius of influence for each injection point is estimated to be 10 feet. The injection points (Figure 3-1) will be spaced approximately 15 feet apart in the area adjacent to the former UST and approximately 20 feet apart in the remaining impacted groundwater area. Using this spacing, a total of 37 injection points are required to target the treatment area.

The injection equipment will include the following:

- A mixing rig consisting of pumps and tanks where reagents are mixed;
- An aboveground assembly of high-pressure hoses using cam-lock fittings to connect the mix-rig to the delivery equipment;
- A direct-push rig equipped with a specialized injection tool to deliver the reagents; and
- A containment structure around the mix-rig, as well as each injection point, to provide for spill containment.

A typical injection sequence consists of locating the direct-push rig over an injection point, followed by advancing the sleeved injection tool to the top 3-foot section of the targeted injection interval. The reagent slurry is then delivered to the injection location via flexible hoses. The injection tool screen is then exposed by temporarily retracting the protective sleeve to deliver the prescribed amount of ISCO reagent. The process is repeated in 3-foot intervals until the targeted treatment depth is reached. The targeted injection interval will be approximately 8 to 16 feet bgs.

The target slurry volume is 175 gallons with a concentration of 12 percent weight per weight of reagent to water. The reagent estimate was calculated using the estimated mass of petroleum, principles of reaction chemistry, and supplier recommendations based on experience at similar sites. The oxidant will be mixed onsite by a qualified injection subcontractor using a local water supply. Stronger

concentrations will be injected in areas where higher concentrations of TPH and VOCs have been observed, such as the area surrounding the former UST.

Previous investigations have shown the lithology in the proposed injection interval to be fine-grained sands, sandy silts, and clayey silts/sands. To distribute the reagent within the tight soils, the initial injection pressure is typically higher, in the range of 50 pounds per square inches, which is anticipated to quickly drop to 20 to 30% of the initial value. Surfacing due to the presence of preferential pathways, if observed, will be immediately addressed by spill containment and injection with lower pressure will be conducted. If recurrence of surfacing takes place at lower pressure, then the injection point will be abandoned and the remainder of the reagent volume will be injected at an adjacent location. The injection subcontractor will secure and monitor groundwater wells within the injection area that could serve as potential conduits during injections. Following injection, the borings will be grouted to surface with an appropriate grout mixture.

It is assumed that the ISCO pilot study will be conducted over a 2-week period. Based on pilot study performance results, an ISCO program as a full-scale remedy will be designed and developed.

3.3 PERFORMANCE MONITORING

Following pilot study implementation, groundwater samples will be collected monthly from the groundwater monitoring wells for a monitoring period of 3 months, with one of the monthly sampling events coinciding with a quarterly monitoring event. The performance monitoring samples will be submitted under proper chain-of-custody procedures to Curtis & Tomkins for laboratory analysis of the following parameters:

- TPH-g and VOCs by USEPA Method 8260B;
- TPH-d and TPH-mo by USEPA Method 8015M with silica gel cleanup;
- SVOCs by USEPA Method 8270C; and
- California Title 22 Metals by USEPA Methods 6010/7000 series.

In addition to analytical parameters included in the ISCO groundwater sampling, the following performance monitoring parameters will be sampled for:

- Major ions (Na, K, Ca, Mg, Fe) by USEPA Method 200.7 (ICP) SM 3120B;
- Nitrate, sulfate, and chloride by USEPA Method 300;
- Alkalinity as $CaCO_3$ by USEPA Method 310.1, SM2320B; and

- Oxidation reduction potential, pH, temperature, and specific conductance field measurements using a flow cell.

All data generated under this task shall be subjected to a QA/QC review in accordance with the USEPA Functional Guidelines, the results of which will be presented in a technical memorandum that will be submitted to PG&E and, following PG&E comment revision, submitted to the ACEH. It is anticipated that these activities will be completed within 3 months of the completion of the pilot study.

4.0 BENCH TEST

Concurrent with the ISCO pilot study and additional investigation activities, a bench test will be conducted to evaluate treatability and reagent needs for *in situ* treatment of dissolved metals at the site. Typical metal-fixation reagents are custom-formulated blends of reducing agents, reactive minerals, adsorbents, mineral activators, catalysts, and pH modifiers. Site-specific bench-scale testing allows the optimization of the reagent formulation and dosage rates needed to achieve site-specific remedial goals. The treatability test will include the evaluation of three reagent formulations at two dosage rates and an untreated control.

A 2-pound soil aliquot from the saturated zone and 2 liters of groundwater from the area of concern will be collected for the bench study. Soil samples will be collected in acrylic sleeves. Groundwater will be collected in 1-liter plastic containers. Bench study samples will be shipped to the treatability study laboratory on ice following chain-of-custody protocol.

5.0 REPORTING AND SCHEDULE

Upon completion of the injection pilot study, a summary report will be prepared documenting the investigation and remediation activities. The report will include boring, soil vapor probe, and groundwater monitoring well logs, and survey information on all investigation and remediation locations. In addition, the summary report will include the results of the bench-scale test for the dissolved metals in groundwater. The report will be submitted to the ACEH within 8 weeks of the completion of the injection pilot study. The results of subsequent quarterly groundwater monitoring well and performance monitoring will be provided in subsequent quarterly monitoring reports.

PG&E is prepared to implement the proposed investigation and remediation activities upon approval of this Work Plan. It is anticipated that the proposed scope of work, with exception of the quarterly monitoring, can be completed within 3 months of ACEH approval.

6.0 REFERENCES

California Environmental Protection Agency (EPA), Department of Toxic Substances Control (DTSC), Los Angeles Regional Water Quality Control Board, and San Francisco Regional Water Quality Control Board. 2015. *Advisory-Active Soil Gas Investigations.* July.

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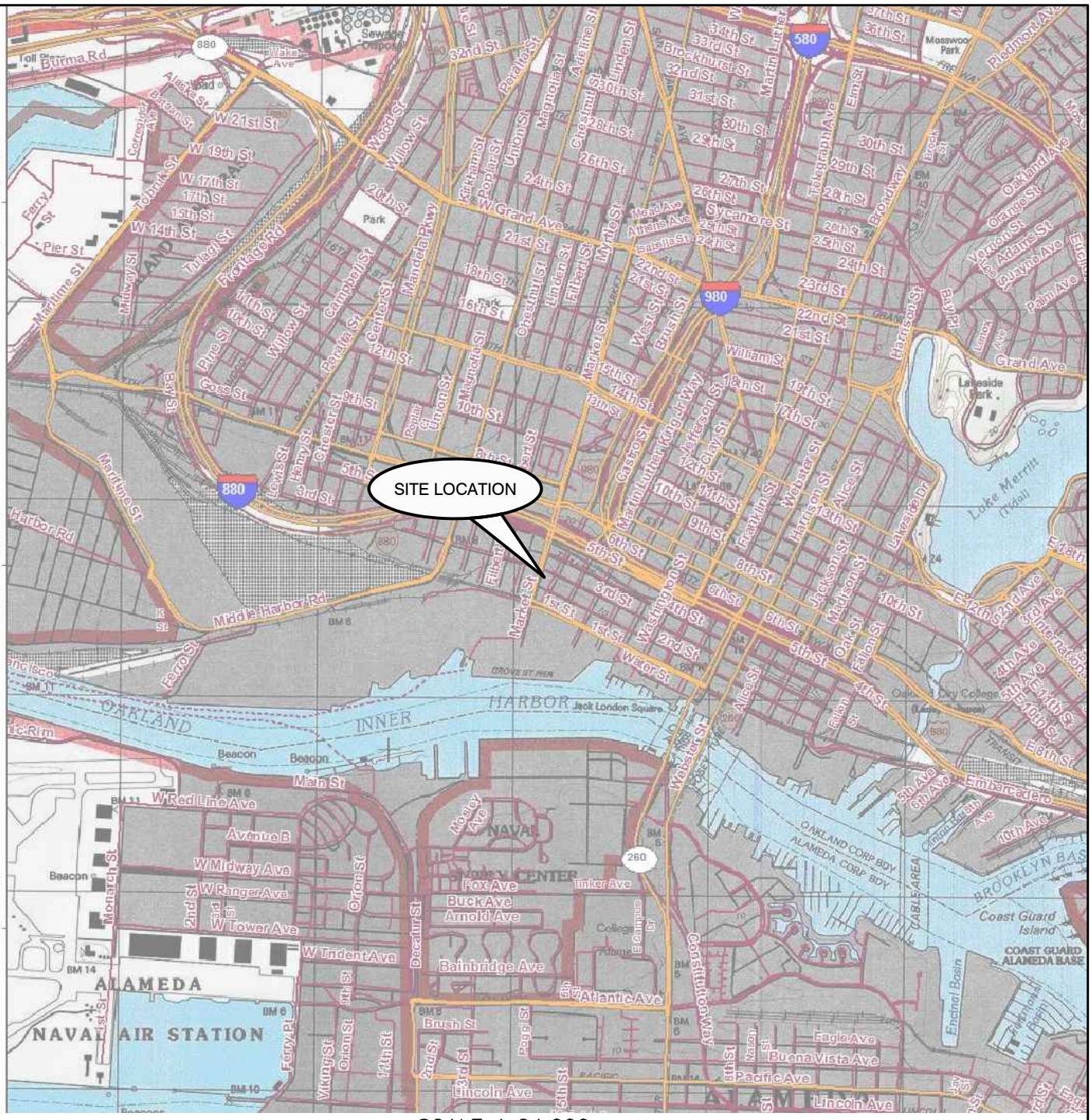
Figures



SCALE 1: 24,000

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References:
TOPO!® Software
U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle,
Oakland West, California
Dated: 1997

Figure 1-1

Site Location Map

Additional Investigation, In Site Chemical Oxidation Pilot Study
And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

Environmental Resources Management
www.erm.com
ERM

J. Rahmani 2/22/2017. 0323656.02B.04 G:\DWGS\0323656-Brush Street\02B\04\0323656 02B04-01.dwg

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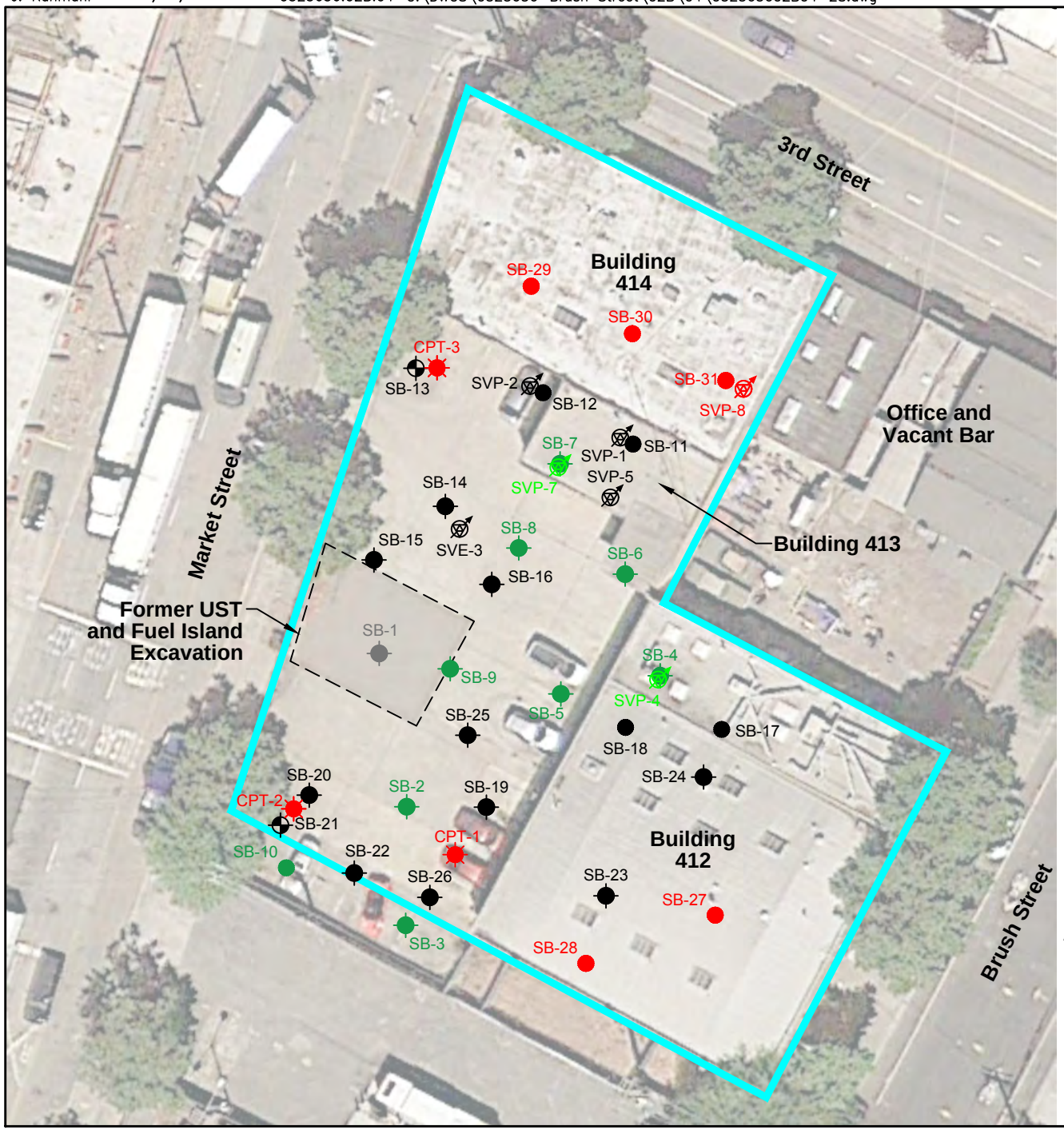

Legend

- 2014 Soil and Grab Groundwater Sampling Location
- 2014 Soil Sampling Location
- Phase 1 Soil and Grab Groundwater Sampling Location
- Phase 1 Soil Sampling Location
- Phase 1 Groundwater Sampling Location
- Phase 2 CPT Location
- Phase 2 Soil Sampling Location
- 2014 Soil Vapor Point
- Phase 1 Soil Vapor Point
- Phase 2 Soil Vapor Point Location
- Site Boundary

Aerial Photo Source: © 2009 Google Earth Pro Ver 5.0.11733.9347

N

0 40

Approx. Scale (feet)

Figure 1-2

Previous Soil and Groundwater Additional Investigation,

In Site Chemical Oxidation Pilot Study And Bench-Scale Testing Work Plan

205 Brush Street

Oakland, California

Environmental Resources Management
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SB-9 (1/23/14)			
Depth	1.5-2.0'	8.5-9.0'	14.0-14.5'
TPH-d	13 HD,SG	560 HD,SG	<5.0 SG
TPH-mo	<25 SG	67 HD,SG	<25 SG
TPH-g	2.5 HD	1,600	66
Benzene	<0.005	1.1	3.1
Toluene	<0.005	<1.0	3.5
Ethylbenzene	<0.005	21	1.9
m,p-Xylene	<0.005	1.5	6.8
o-Xylene	<0.005	<1.0	2.1

SB-15 (4/7/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
TPH-d	180 Y	0.52 J	0.46 J	<1.0
TPH-mo	360	2.1 J	<5.0	<5.0
TPH-g	<0.080 U	<0.11 U	<0.075 U	<0.12 U
Benzene	<0.0048	<0.0049	<0.0049	<0.0049
Toluene	<0.0048	<0.0049	<0.0049	<0.0049
Ethylbenzene	<0.0048	<0.0049	<0.0049	<0.0049
m,p-Xylene	<0.0048	<0.0049	<0.0049	<0.0049
o-Xylene	<0.0048	<0.0049	<0.0049	<0.0049

SB-14 (4/7/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
TPH-d	250 Y	0.55 J	0.93 J	<1.0
TPH-mo	280	<5.0	<5.0	<5.0
TPH-g	<0.11 U	<0.11 U	<0.096 U	<0.088 U
Benzene	<0.0046	<0.0048	<0.0046	<0.0049
Toluene	<0.0046	<0.0048	<0.0046	<0.0049
Ethylbenzene	<0.0046	<0.0048	<0.0046	<0.0049
m,p-Xylene	<0.0046	<0.0048	0.0011 J	<0.0049
o-Xylene	<0.0046	<0.0048	<0.0046	<0.0049

SB-7 (1/23/14)		
Depth	0.5-1.0'	7.0-7.5'
TPH-d	22 HD,SG	<5.0
TPH-mo	58 HD,SG	<25
TPH-g	<0.50	<0.50
Benzene	<0.0052	<0.0051
Toluene	<0.0052	<0.0051
Ethylbenzene	<0.0052	<0.0051
m,p-Xylene	<0.0052	<0.0051
o-Xylene	<0.0052	<0.0051

SB-8 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
TPH-d	9,900 HD,SG	<5.0 SG
TPH-mo	10,000 HD,SG	<25 SG
TPH-g	1.6 HD	<0.50
Benzene	<0.005	<0.0052
Toluene	<0.005	<0.0052
Ethylbenzene	<0.005	<0.0052
m,p-Xylene	<0.005	<0.0052
o-Xylene	<0.005	<0.0052

SB-6 (1/23/14)		
Depth	0.5-1.0'	7.0-7.5'
TPH-d	15 HD,SG	<4.9 SG
TPH-mo	34 HD,SG	<24 SG
TPH-g	<0.50	<0.50
Benzene	<0.0052	<0.005
Toluene	<0.0052	<0.005
Ethylbenzene	<0.0052	<0.005
m,p-Xylene	<0.0052	<0.005
o-Xylene	<0.0052	<0.005

SB-25 (4/7/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
TPH-d	1,700 Y	40 Y	2,500 Y	410 Y
TPH-mo	3,400	5.3	280	48 J
TPH-g	40 Y	180 JY	20,000	2,500
Benzene	0.0085	<0.047	46	13
Toluene	<0.005	<0.047	80	170
Ethylbenzene	0.0040 J	0.0044 J	250	55
m,p-Xylene	0.0056	0.015 J	830	220
o-Xylene	0.0044J	<0.047	230	88

SB-16 (4/7/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
TPH-d	340 Y	0.85 J	0.37 J	3.2 J
TPH-mo	580	<5.0	<5.0	<5.0
TPH-g	<0.12 U	<0.12 U	<0.089 U	<0.085 U
Benzene	<0.0048	<0.0049	<0.0047	<0.005
Toluene	<0.0048	<0.0049	<0.0047	<0.005
Ethylbenzene	<0.0048	<0.0049	<0.0047	<0.005
m,p-Xylene	<0.0048	<0.0049	<0.0047	<0.005
o-Xylene	<0.0048	<0.0049	<0.0047	<0.005

SB-4 (1/23/14)		
Depth	0.5-1.0'	7.0-7.5'
TPH-d	70 HD,SG	<5.0
TPH-mo	380 HD,SG	<25
TPH-g	<0.50	<0.50
Benzene	<0.005	<0.005
Toluene	<0.005	<0.005
Ethylbenzene	<0.005	<0.005
m,p-Xylene	<0.005	<0.005
o-Xylene	<0.005	<0.005

SB-20 (4/11/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
TPH-d	42 Y	29 Y	0.72 J	1.8 Y
TPH-mo	250	6.5	<5.0	<5.0
TPH-g	1.9 Y	36 Y	<0.17 U	0.12 J
Benzene	<0.0045	<0.0045	<0.0047	<0.0049
Toluene	<0.0045	0.0005 J	<0.0047	<0.0049
Ethylbenzene	0.0017 J	0.0007 J	<0.0047	<0.0049
m,p-Xylene	0.0098	0.00018 J	<0.0047	<0.0049
o-Xylene	0.0022 J	0.0004 J	<0.0047	<0.0049

SB-18 (4/8/16)		
Depth	0.5-1.0'	3.5-4.0'
TPH-d	58 Y	0.81J
TPH-mo	340	15
TPH-g	NA	NA
Benzene	NA	NA
Toluene	NA	NA
Ethylbenzene	NA	NA
m,p-Xylene	NA	NA
o-Xylene	NA	NA

SB-5 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
TPH-d	390 HD,SG	<4.9 SG
TPH-mo	680 HD,SG	<24 SG
TPH-g	<0.50	<0.50
Benzene	<0.0052	<0.005
Toluene	<0.0052	<0.005
Ethylbenzene	<0.0052	<0.005
m,p-Xylene	<0.0052	<0.005
o-Xylene	<0.0052	<0.005

SB-10 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
TPH-d	<5.0	<5.0
TPH-mo	<25	<25
TPH-g	<0.50	<0.50
Benzene	<0.0051	<0.0052
Toluene	<0.0051	<0.0052
Ethylbenzene	<0.0051	<0.0052
m,p-Xylene	<0.0051	<0.0052
o-Xylene	<0.0051	<0.0052

SB-19 (4/6/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
TPH-d	930 Y	98 Y	4,400 Y	7.9 Y
TPH-mo	180	30	260	<5.0
TPH-g	2,900 Y	900 Y	14,000 Y	5.6 Y
Benzene	<0.024	<0.050	0.047 J	<0.0048
Toluene	<0.024	<0.050	<0.50	<0.0048
Ethylbenzene	<0.024	0.0077 J	<0.50	<0.0048
m,p-Xylene	<0.024	0.041 J	<0.50	<0.0048
o-Xylene	<0.024	0.0096 J	<0.50	<0.0048

SB-22 (4/6/16)				
Depth	0.5-1.0'	3.5-4.0'	7.0-7.5'	11.5-12.0'
TPH-d	27 Y	1.3 Y	19 Y	<1.0
TPH-mo	59	4.5 J	22	<5.0
TPH-g	<0.096 U	<0.010 U	<0.010 U	<0.011 U
Benzene	<0.0048	<0.0044	<0.005	<0.0048
Toluene	<0.0048	<0.0044	<0.005	<0.0048
Ethylbenzene	<0.0048	<0.0044	<0.005	<0.0048
m,p-Xylene	<0.0048	<0.0044	<0.005	<0.0048
o-Xylene	<0.0048	<0.0044	<0.005	<0.0048

SB-23 (4/7/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
TPH-d	62 Y	0.41 J	<1.0	<1.0
TPH-mo	440	4.9 J	<5.0	<5.0
TPH-g	<0.010 U	<0.010 U	<0.12 U	<0.11 U
Benzene	<0.0047	<0.0048	<0.0048	<0.0048
Toluene	<0.0047	<0.0048	<0.0048	<0.0048
Ethylbenzene	<0.0047	<0.0048	<0.0048	<0.0048
m,p-Xylene	<0.0047	<0.0048	<0.0048	0.0010 J
o-Xylene	<0.0047	<0.0048	<0.0048	<0.0048

CNG-B1 (12/12/14)			
Depth	1'	5'	7'
TPH-d	13	<0.37	1.6 Y
TPH-mo	18	<1.8	<1.9
TPH-g	0.027 J	<0.011	0.015 J
Benzene	<0.00098	<0.00090	<0.00078
Toluene	<0.00077	<0.00071	<0.00061
Ethylbenzene	<0.00074	<0.00068	<0.00059
m,p-Xylene	<0.0014	<0.0012	<0.0011
o-Xylene	<0.00068	<0.00063	<0.00054

SB-3 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
TPH-d	<4.9	<5.0
TPH-mo	<24	<25
TPH-g	<0.50	<0.50
Benzene	<0.005	<0.0051
Toluene	<0.005	<0.0051
Ethylbenzene	<0.005	<0.0051
m,p-Xylene	<0.005	<0.0051
o-Xylene	<0.005	<0.0051

CNG-B2 (12/12/14)			
Depth	1'	5'	7'
TPH-d	19 Y	7.9 Y	3.8 Y
TPH-mo	230	77	42
TPH-g	0.028 J	0.015 J	0.016 J
Benzene	<0.00089	<0.00060	<0.00056
Toluene	<0.00098	<0.00040	<0.00037
Ethylbenzene	<0.00091	<0.00053	<0.00049
m,p-Xylene	<0.0018	<0.0011	<0.0011
o-Xylene	<0.00076	<0.00059	<0.00055

SB-26 (4/6/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
TPH-d	6.7 Y	1.7 Y	0.77 J	<1.0
TPH-mo	20	7.0	<5.0	3.4 J
TPH-g	<0.099 U	<0.080 U	<0.12 U	<0.096 U
Benzene	<0.0048	<0.0048	<0.0049	<0.0048
Toluene	<0.0048	<0.0048	<0.0049	<0.0048
Ethylbenzene	<0.0048	<0.0048	<0.0049	<0.0048
m,p-Xylene	<0.0048	<0.0048	<0.0049	<0.0048
o-Xylene	<0.0047	<0.0048	<0.0049	<0.0048

SB-2 (1/23/14)			
Depth	1.5-2.0'	8.5-9.0'	14.0-14.5'
TPH-d	170 HD,SG	80 HD,SG	<5.0 SG
TPH-mo	370 HD,SG	60 HD,SG	<25 SG
TPH-g	3.7 HD	2,300	<0.50
Benzene	<0.0049	<5.0	<0.0051
Toluene	<0.0049	100	<0.0051
Ethylbenzene	<0.0049	54	<0.0051
m,p-Xylene	<0.0049	220	<0.0051
o-Xylene	<0.0049	81	<0.0051

Legend

- 2014 Soil and Grab Groundwater Sampling Location
- 2014 Soil Sampling Location
- Phase 1 Soil and Grab Groundwater Sampling Location
- Phase 1 Soil Sampling Location
- Phase 2 Soil Sampling Location
- 2014 CNG Sampling Locations
- Site Boundary
- Approximate Area of Soil with TPH COCs Exceeding ESLs

SB-16 (4/7/14)	
Depth	0.5-1.0'
TPH-d	340 Y

Sample Identifier and Date of Sample
Sample Depth (ft. bgs)
Concentration in mg/kg
Chemical Depth

Yellow shading indicates concentrations above applicable ESLs based on current and future site usage.

Applicable ESLs	
TPH-d	1,100
TPH-mo	5,100
TPH-g	500
Benzene	0.044
Toluene	2.9
Ethylbenzene	1.4
m,p-Xylenes	2.3
o-Xylene	2.3

NA Not Available

HD Chromatographic Pattern was Inconsistent with Profile of Reference Fuel Standard

SG Sample Extract was Subjected to Silica Gel Treatment Prior to Analysis

J Lab Qualifier - Estimated Value

U ERM Lab Qualifier - Nondetected

Y Lab Qualifier - Estimated Value, Chromatogram did not Resemble Standard Hydrocarbon Pattern

TPH-g Total Petroleum Hydrocarbons as Gasoline

TPH-d Total Petroleum Hydrocarbons as Diesel

TPH-mo Total Petroleum Hydrocarbons as Motor Oil

ESL Environmental Screening Level

COC Chemical of Concern

Aerial Photo Source: © 2009 Google Earth Pro Ver 5.0.11733.9347

N

0 50

Approx. Scale (feet)

Figure 1-3

TPH and VOCs in Soil

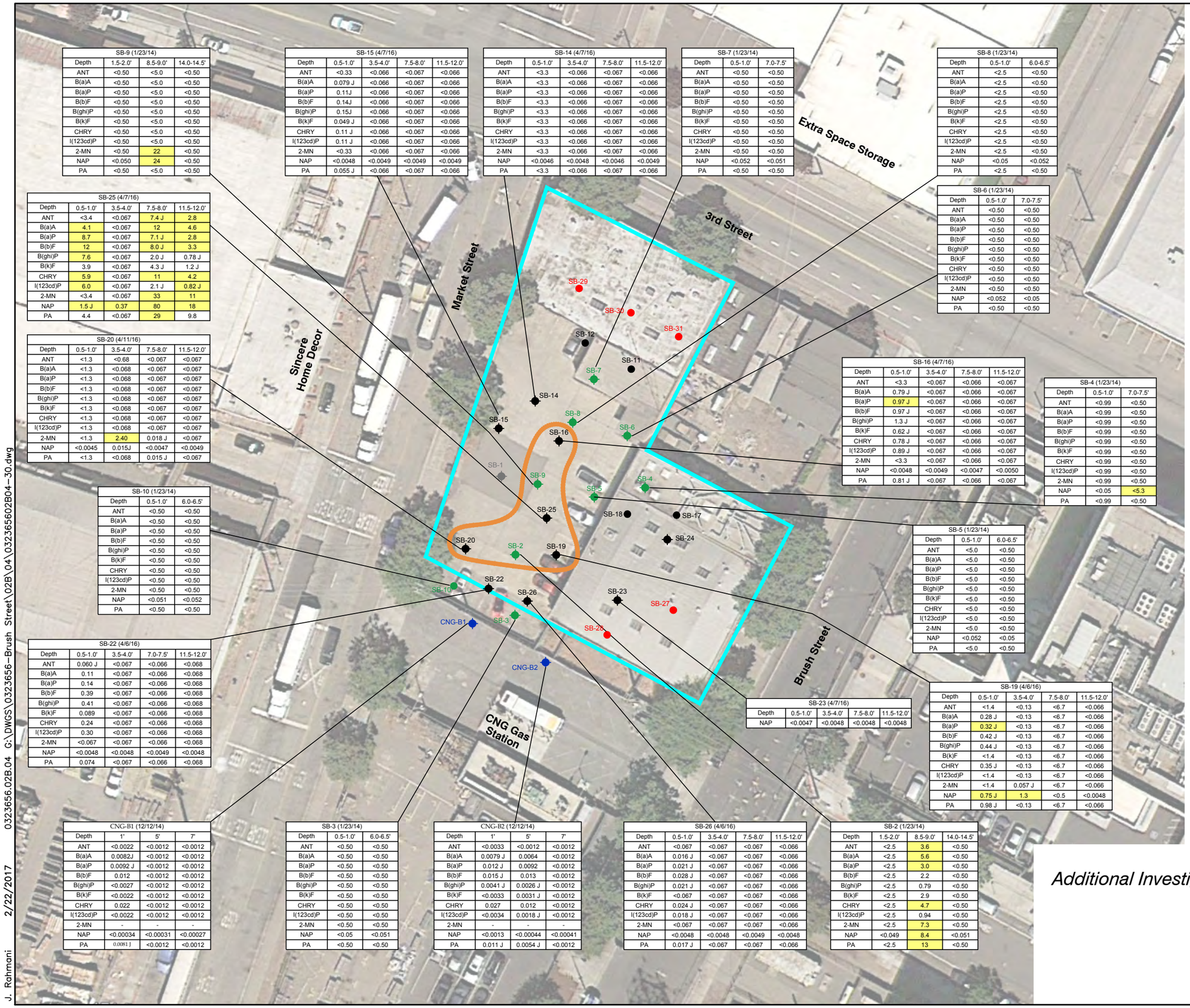
Additional Investigation, In Site Chemical Oxidation Pilot Study And Bench-Scale Testing Work Plan

205 Brush Street

Oakland, California

Environmental Resources Management
www.erm.com
ERM

J. Rahmani 2/22/2017 0323656.02B.04 G:\DWGS\0323656-Brush Street\02B\04\0323656.02B.04-17.dwg



SB-9 (1/23/14)			
Depth	1.5-2.0'	8.5-9.0'	14.0-14.5'
ANT	<0.50	<5.0	<0.50
B(a)A	<0.50	<5.0	<0.50
B(a)P	<0.50	<5.0	<0.50
B(b)F	<0.50	<5.0	<0.50
B(ghi)P	<0.50	<5.0	<0.50
B(k)F	<0.50	<5.0	<0.50
CHRY	<0.50	<5.0	<0.50
I(123cd)P	<0.50	<5.0	<0.50
2-MN	<0.50	22	<0.50
NAP	<0.050	24	<0.50
PA	<0.50	<5.0	<0.50

SB-15 (4/7/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
ANT	<0.33	<0.066	<0.067	<0.066
B(a)A	0.079 J	<0.066	<0.067	<0.066
B(a)P	0.11J	<0.066	<0.067	<0.066
B(b)F	0.14J	<0.066	<0.067	<0.066
B(ghi)P	0.15J	<0.066	<0.067	<0.066
B(k)F	0.049 J	<0.066	<0.067	<0.066
CHRY	0.11 J	<0.066	<0.067	<0.066
I(123cd)P	0.11 J	<0.066	<0.067	<0.066
2-MN	<0.33	<0.066	<0.067	<0.066
NAP	<0.0048	<0.0049	<0.0049	<0.0049
PA	0.055 J	<0.066	<0.067	<0.066

SB-14 (4/7/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
ANT	<3.3	<0.066	<0.067	<0.066
B(a)A	<3.3	<0.066	<0.067	<0.066
B(a)P	<3.3	<0.066	<0.067	<0.066
B(b)F	<3.3	<0.066	<0.067	<0.066
B(ghi)P	<3.3	<0.066	<0.067	<0.066
B(k)F	<3.3	<0.066	<0.067	<0.066
CHRY	<3.3	<0.066	<0.067	<0.066
I(123cd)P	<3.3	<0.066	<0.067	<0.066
2-MN	<3.3	<0.066	<0.067	<0.066
NAP	<0.0046	<0.0048	<0.0046	<0.0049
PA	<3.3	<0.066	<0.067	<0.066

SB-7 (1/23/14)		
Depth	0.5-1.0'	7.0-7.5'
ANT	<0.50	<0.50
B(a)A	<0.50	<0.50
B(a)P	<0.50	<0.50
B(b)F	<0.50	<0.50
B(ghi)P	<0.50	<0.50
B(k)F	<0.50	<0.50
CHRY	<0.50	<0.50
I(123cd)P	<0.50	<0.50
2-MN	<0.50	<0.50
NAP	<0.052	<0.051
PA	<0.50	<0.50

SB-8 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
ANT	<2.5	<0.50
B(a)A	<2.5	<0.50
B(a)P	<2.5	<0.50
B(b)F	<2.5	<0.50
B(ghi)P	<2.5	<0.50
B(k)F	<2.5	<0.50
CHRY	<2.5	<0.50
I(123cd)P	<2.5	<0.50
2-MN	<2.5	<0.50
NAP	<0.05	<0.052
PA	<2.5	<0.50

SB-6 (1/23/14)		
Depth	0.5-1.0'	7.0-7.5'
ANT	<0.50	<0.50
B(a)A	<0.50	<0.50
B(a)P	<0.50	<0.50
B(b)F	<0.50	<0.50
B(ghi)P	<0.50	<0.50
B(k)F	<0.50	<0.50
CHRY	<0.50	<0.50
I(123cd)P	<0.50	<0.50
2-MN	<0.50	<0.50
NAP	<0.052	<0.05
PA	<0.50	<0.50

SB-25 (4/7/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
ANT	<3.4	<0.067	7.4 J	2.8
B(a)A	4.1	<0.067	12	4.6
B(a)P	8.7	<0.067	7.1 J	2.8
B(b)F	12	<0.067	8.0 J	3.3
B(ghi)P	7.6	<0.067	2.0 J	0.78 J
B(k)F	3.9	<0.067	4.3 J	1.2 J
CHRY	5.9	<0.067	11	4.2
I(123cd)P	6.0	<0.067	2.1 J	0.82 J
2-MN	<3.4	<0.067	33	11
NAP	1.5 J	0.37	80	18
PA	4.4	<0.067	29	9.8

SB-20 (4/11/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
ANT	<1.3	<0.68	<0.067	<0.067
B(a)A	<1.3	<0.068	<0.067	<0.067
B(a)P	<1.3	<0.068	<0.067	<0.067
B(b)F	<1.3	<0.068	<0.067	<0.067
B(ghi)P	<1.3	<0.068	<0.067	<0.067
B(k)F	<1.3	<0.068	<0.067	<0.067
CHRY	<1.3	<0.068	<0.067	<0.067
I(123cd)P	<1.3	<0.068	<0.067	<0.067
2-MN	<1.3	2.40	0.018 J	<0.067
NAP	<0.0045	0.015J	<0.0047	<0.0049
PA	<1.3	<0.068	0.015 J	<0.067

SB-10 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
ANT	<0.50	<0.50
B(a)A	<0.50	<0.50
B(a)P	<0.50	<0.50
B(b)F	<0.50	<0.50
B(ghi)P	<0.50	<0.50
B(k)F	<0.50	<0.50
CHRY	<0.50	<0.50
I(123cd)P	<0.50	<0.50
2-MN	<0.50	<0.50
NAP	<0.051	<0.052
PA	<0.50	<0.50

SB-22 (4/6/16)				
Depth	0.5-1.0'	3.5-4.0'	7.0-7.5'	11.5-12.0'
ANT	0.060 J	<0.067	<0.066	<0.068
B(a)A	0.11	<0.067	<0.066	<0.068
B(a)P	0.14	<0.067	<0.066	<0.068
B(b)F	0.39	<0.067	<0.066	<0.068
B(ghi)P	0.41	<0.067	<0.066	<0.068
B(k)F	0.089	<0.067	<0.066	<0.068
CHRY	0.24	<0.067	<0.066	<0.068
I(123cd)P	0.30	<0.067	<0.066	<0.068
2-MN	<0.067	<0.067	<0.066	<0.068
NAP	<0.0048	<0.0048	<0.0049	<0.0048
PA	0.074	<0.067	<0.066	<0.068

CNG-B1 (12/12/14)			
Depth	1'	5'	7'
ANT	<0.0022	<0.0012	<0.0012
B(a)A	0.0082J	<0.0012	<0.0012
B(a)P	0.0092 J	<0.0012	<0.0012
B(b)F	0.012	<0.0012	<0.0012
B(ghi)P	<0.0027	<0.0012	<0.0012
B(k)F	<0.0022	<0.0012	<0.0012
CHRY	0.022	<0.0012	<0.0012
I(123cd)P	<0.0022	<0.0012	<0.0012
2-MN	-	-	-
NAP	<0.00034	<0.00031	<0.00027
PA	0.0081 J	<0.0012	<0.0012

SB-3 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
ANT	<0.50	<0.50
B(a)A	<0.50	<0.50
B(a)P	<0.50	<0.50
B(b)F	<0.50	<0.50
B(ghi)P	<0.50	<0.50
B(k)F	<0.50	<0.50
CHRY	<0.50	<0.50
I(123cd)P	<0.50	<0.50
2-MN	<0.50	<0.50
NAP	<0.05	<0.051
PA	<0.50	<0.50

CNG-B2 (12/12/14)			
Depth	1'	5'	7'
ANT	<0.0033	<0.0012	<0.0012
B(a)A	0.0079 J	0.0064	<0.0012
B(a)P	0.012 J	0.0092	<0.0012
B(b)F	0.015 J	0.013	<0.0012
B(ghi)P	0.0041 J	0.0026 J	<0.0012
B(k)F	<0.0033	0.0031 J	<0.0012
CHRY	0.027	0.012	<0.0012
I(123cd)P	<0.0034	0.0018 J	<0.0012
2-MN	-	-	-
NAP	<0.0013	<0.00044	<0.00041
PA	0.011 J	0.0054 J	<0.0012

SB-26 (4/6/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
ANT	<0.067	<0.067	<0.067	<0.066
B(a)A	0.016 J	<0.067	<0.067	<0.066
B(a)P	0.021 J	<0.067	<0.067	<0.066
B(b)F	0.028 J	<0.067	<0.067	<0.066
B(ghi)P	0.021 J	<0.067	<0.067	<0.066
B(k)F	<0.067	<0.067	<0.067	<0.066
CHRY	0.024 J	<0.067	<0.067	<0.066
I(123cd)P	0.018 J	<0.067	<0.067	<0.066
2-MN	<0.067	<0.067	<0.067	<0.066
NAP	<0.0048	<0.0048	<0.0049	<0.0048
PA	0.017 J	<0.067	<0.067	<0.066

SB-2 (1/23/14)				
Depth	1.5-2.0'	8.5-9.0'	14.0-14.5'	
ANT	<2.5	3.6	<0.50	
B(a)A	<2.5	5.6	<0.50	
B(a)P	<2.5	3.0	<0.50	
B(b)F	<2.5	2.2	<0.50	
B(ghi)P	<2.5	0.79	<0.50	
B(k)F	<2.5	2.9	<0.50	
CHRY	<2.5	4.7	<0.50	
I(123cd)P	<2.5	0.94	<0.50	
2-MN	<2.5	7.3	<0.50	
NAP	<0.049	8.4	<0.051	
PA	<2.5	13	<0.50	

SB-23 (4/7/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
NAP	<0.0047	<0.0048	<0.0048	<0.0048

SB-19 (4/6/16)					
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'	
ANT	<1.4	<0.13	<6.7	<0.066	
B(a)A	0.28 J	<0.13	<6.7	<0.066	
B(a)P	0.32 J	<0.13	<6.7	<0.066	
B(b)F	0.42 J	<0.13	<6.7	<0.066	
B(ghi)P	0.44 J	<0.13	<6.7	<0.066	
B(k)F	<1.4	<0.13	<6.7	<0.066	
CHRY	0.35 J	<0.13	<6.7	<0.066	
I(123cd)P	<1.4	<0.13	<6.7	<0.066	
2-MN	<1.4	0.057 J	<6.7	<0.066	
NAP	0.75 J	1.3	<0.5	<0.0048	
PA	0.98 J	<0.13	<6.7	<0.066	

SB-16 (4/7/16)				
Depth	0.5-1.0'	3.5-4.0'	7.5-8.0'	11.5-12.0'
ANT	<3.3	<0.067	<0.066	<0.067
B(a)A	0.79 J	<0.067	<0.066	<0.067
B(a)P	0.97 J	<0.067	<0.066	<0.067
B(b)F	0.97 J	<0.067	<0.066	<0.067
B(ghi)P	1.3 J	<0.067	<0.066	<0.067
B(k)F	0.62 J	<0.067	<0.066	<0.067
CHRY	0.78 J	<0.067	<0.066	<0.067
I(123cd)P	0.89 J	<0.067	<0.066	<0.067
2-MN	<3.3	<0.067	<0.066	<0.067
NAP	<0.0048	<0.0049	<0.0047	<0.0050
PA	0.81 J	<0.067	<0.066	<0.067

SB-4 (1/23/14)		
Depth	0.5-1.0'	7.0-7.5'
ANT	<0.99	<0.50
B(a)A	<0.99	<0.50
B(a)P	<0.99	<0.50
B(b)F	<0.99	<0.50
B(ghi)P	<0.99	<0.50
B(k)F	<0.99	<0.50
CHRY	<0.99	<0.50
I(123cd)P	<0.99	<0.50
2-MN	<0.99	<0.50
NAP	<0.05	<5.3
PA	<0.99	<0.50

SB-5 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
ANT	<5.0	<0.50
B(a)A	<5.0	<0.50
B(a)P	<5.0	<0.50
B(b)F	<5.0	<0.50
B(ghi)P	<5.0	<0.50
B(k)F	<5.0	<0.50
CHRY	<5.0	<0.50
I(123cd)P	<5.0	<0.50
2-MN	<5.0	<0.50
NAP	<0.052	<0.05
PA	<5.0	<0.50

Legend

- 2014 Soil and Grab Groundwater Sampling Location
- 2014 Soil Sampling Location
- Phase 1 Soil and Grab Groundwater Sampling Location
- Phase 1 Soil Sampling Location
- Phase 2 Soil Sampling Location
- 2014 CNG Sampling Locations
- Site Boundary
- Approximate Area of Soil with SVOC COCs Exceeding ESLs

SB-22 (4/6/14)	
Depth	0.5-1.0'
ANT	0.060 J

Sample Identifier and Date of Sample
Sample Depth (ft. bgs)
Concentration in mg/kg
Chemical Depth

Yellow shading indicates concentrations above applicable ESLs based on current and future site usage.

Applicable ESLs

Anthracene	2.8
Benzo(a)Anthracene	2.9
Benzo(a)Pyrene	0.29
Benzo(b)Fluoranthene	2.9
Benzo(g,h,i)Perylene	2.5
Benzo(k)Fluoranthene	29
Chrysene	3.8
Indeno(1,2,3-c,d)Pyrene	2.9
2-Methylnaphthalene	0.25
Naphthalene	0.033
Phenanthrene	11

Note:
Naphthalene was analyzed by USEPA methods 8260B and 8270C. Maximum concentration detected and/or the lower reporting limit is presented.

J	Lab Qualifier - Estimated Value
ANT	Anthracene
B(a)A	Benzo(a)Anthracene
B(a)P	Benzo(a)Pyrene
B(b)F	Benzo(b)Fluoranthene
B(ghi)P	Benzo(g,h,i)Perylene
B(k)F	Benzo(k)Fluoranthene
CHRY	Chrysene
I(123-c,d)P	Indeno(1,2,3-c,d)Pyrene
2-MN	2-Methylnaphthalene
NAP	Naphthalene
PA	Phenanthrene
COC	Chemical of Concern

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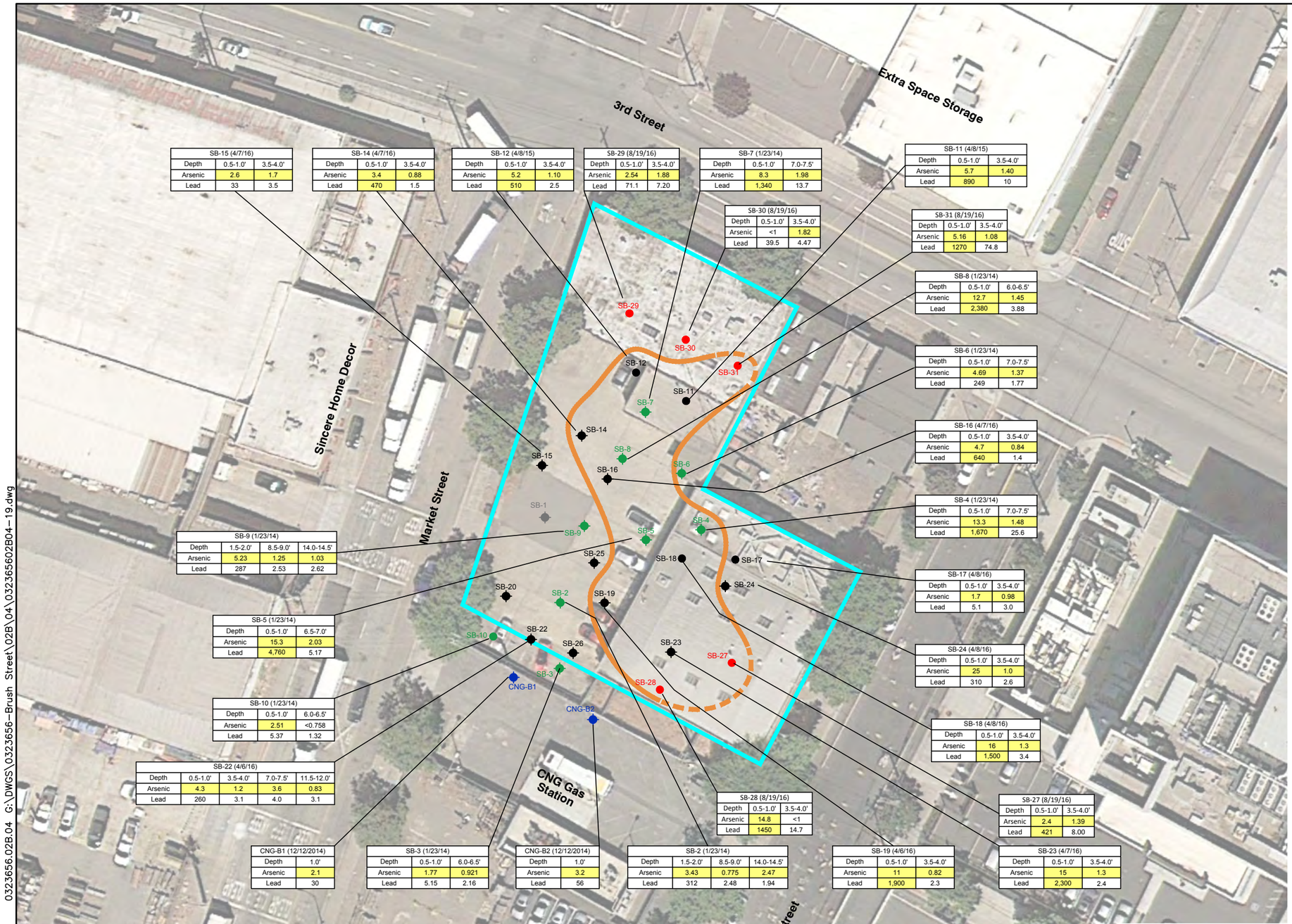
0 50 N
Approx. Scale (feet)

Figure 1-4
SVOCs in Soil
Additional Investigation, In Site Chemical Oxidation Pilot Study And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

Environmental Resources Management
www.erm.com
ERM

J. Rahmani 2/22/2017 0323656.02B.04 G:\DWGS\0323656-Brush Street\02B\04\0323656.02B.04_0323656002B04-30.dwg



SB-15 (4/7/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	2.6	1.7
Lead	33	3.5

SB-14 (4/7/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	3.4	0.88
Lead	470	1.5

SB-12 (4/8/15)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	5.2	1.10
Lead	510	2.5

SB-29 (8/19/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	2.54	1.88
Lead	71.1	7.20

SB-7 (1/23/14)		
Depth	0.5-1.0'	7.0-7.5'
Arsenic	8.3	1.98
Lead	1,340	13.7

SB-30 (8/19/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	<1	1.82
Lead	39.5	4.47

SB-11 (4/8/15)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	5.7	1.40
Lead	890	10

SB-31 (8/19/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	5.16	1.08
Lead	1270	74.8

SB-8 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
Arsenic	12.7	1.45
Lead	2,380	3.88

SB-6 (1/23/14)		
Depth	0.5-1.0'	7.0-7.5'
Arsenic	4.69	1.37
Lead	249	1.77

SB-16 (4/7/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	4.7	0.84
Lead	640	1.4

SB-4 (1/23/14)		
Depth	0.5-1.0'	7.0-7.5'
Arsenic	13.3	1.48
Lead	1,670	25.6

SB-17 (4/8/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	1.7	0.98
Lead	5.1	3.0

SB-24 (4/8/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	25	1.0
Lead	310	2.6

SB-18 (4/8/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	16	1.3
Lead	1,500	3.4

SB-27 (8/19/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	2.4	1.39
Lead	421	8.00

SB-23 (4/7/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	15	1.3
Lead	2,300	2.4

SB-19 (4/6/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	11	0.82
Lead	1,900	2.3

SB-2 (1/23/14)			
Depth	1.5-2.0'	8.5-9.0'	14.0-14.5'
Arsenic	3.43	0.775	2.47
Lead	312	2.48	1.94

SB-28 (8/19/16)		
Depth	0.5-1.0'	3.5-4.0'
Arsenic	14.8	<1
Lead	1450	14.7

CNG-B2 (12/12/2014)	
Depth	1.0'
Arsenic	3.2
Lead	56

SB-3 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
Arsenic	1.77	0.921
Lead	5.15	2.16

CNG-B1 (12/12/2014)	
Depth	1.0'
Arsenic	2.1
Lead	30

SB-22 (4/6/16)				
Depth	0.5-1.0'	3.5-4.0'	7.0-7.5'	11.5-12.0'
Arsenic	4.3	1.2	3.6	0.83
Lead	260	3.1	4.0	3.1

SB-10 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
Arsenic	2.51	<0.758
Lead	5.37	1.32

SB-5 (1/23/14)		
Depth	0.5-1.0'	6.5-7.0'
Arsenic	15.3	2.03
Lead	4,760	5.17

SB-9 (1/23/14)			
Depth	1.5-2.0'	8.5-9.0'	14.0-14.5'
Arsenic	5.23	1.25	1.03
Lead	287	2.53	2.62

Legend

- 2014 Soil and Grab Groundwater Sampling Location
- 2014 Soil Sampling Location
- Phase 1 Soil and Grab Groundwater Sampling Location
- Phase 1 Soil Sampling Location
- Phase 2 Soil Sampling Location
- 2014 CNG Sampling Locations
- Site Boundary
- Approximate Area of Soil with Lead Exceeding ESLs

SB-16 (4/7/14)	
Depth	0.5-1.0'
Arsenic	4.7

- Sample Identifier and Date of Sample
- Sample Depth (ft. bgs)
- Concentration in mg/kg
- Chemical Depth

Yellow shading indicates concentrations above applicable ESLs based on current and future site usage.

Applicable ESLs

Arsenic	0.31
Lead	320

NA Not Available

J Lab Qualifier - Estimated Value

Aerial Photo Source: © 2009 Google Earth Pro Ver 5.0.11733.9347

N

0 50

Approx. Scale (feet)

Figure 1-5

Metals in Soil

Additional Investigation, In Site Chemical Oxidation Pilot Study And Bench-Scale Testing Work Plan

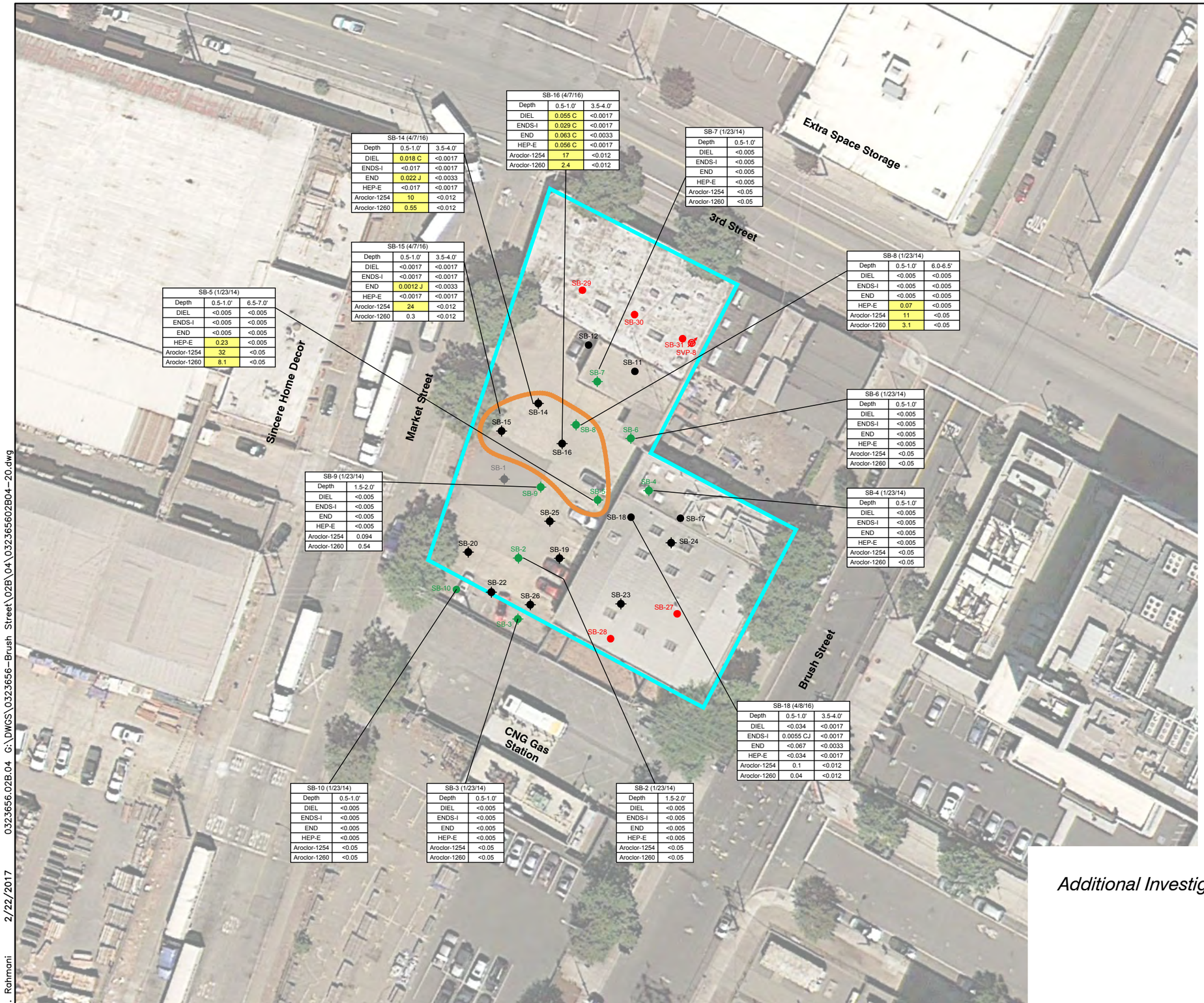
205 Brush Street

Oakland, California

Environmental Resources Management
www.erm.com

ERM

J. Rahmani 2/23/2017 0323656.02B.04 G:\DWGS\0323656-Brush Street\02B\04\0323656002B04-19.dwg



SB-16 (4/7/16)		
Depth	0.5-1.0'	3.5-4.0'
DIEL	0.055 C	<0.0017
ENDS-I	0.029 C	<0.0017
END	0.063 C	<0.0033
HEP-E	0.056 C	<0.0017
Aroclor-1254	17	<0.012
Aroclor-1260	2.4	<0.012

SB-14 (4/7/16)		
Depth	0.5-1.0'	3.5-4.0'
DIEL	0.018 C	<0.0017
ENDS-I	<0.017	<0.0017
END	0.022 J	<0.0033
HEP-E	<0.017	<0.0017
Aroclor-1254	10	<0.012
Aroclor-1260	0.55	<0.012

SB-7 (1/23/14)	
Depth	0.5-1.0'
DIEL	<0.005
ENDS-I	<0.005
END	<0.005
HEP-E	<0.005
Aroclor-1254	<0.05
Aroclor-1260	<0.05

SB-15 (4/7/16)		
Depth	0.5-1.0'	3.5-4.0'
DIEL	<0.0017	<0.0017
ENDS-I	<0.0017	<0.0017
END	0.0012 J	<0.0033
HEP-E	<0.0017	<0.0017
Aroclor-1254	24	<0.012
Aroclor-1260	0.3	<0.012

SB-8 (1/23/14)		
Depth	0.5-1.0'	6.0-6.5'
DIEL	<0.005	<0.005
ENDS-I	<0.005	<0.005
END	<0.005	<0.005
HEP-E	0.07	<0.005
Aroclor-1254	11	<0.05
Aroclor-1260	3.1	<0.05

SB-5 (1/23/14)		
Depth	0.5-1.0'	6.5-7.0'
DIEL	<0.005	<0.005
ENDS-I	<0.005	<0.005
END	<0.005	<0.005
HEP-E	0.23	<0.005
Aroclor-1254	32	<0.05
Aroclor-1260	8.1	<0.05

SB-6 (1/23/14)	
Depth	0.5-1.0'
DIEL	<0.005
ENDS-I	<0.005
END	<0.005
HEP-E	<0.005
Aroclor-1254	<0.05
Aroclor-1260	<0.05

SB-9 (1/23/14)	
Depth	1.5-2.0'
DIEL	<0.005
ENDS-I	<0.005
END	<0.005
HEP-E	<0.005
Aroclor-1254	0.094
Aroclor-1260	0.54

SB-4 (1/23/14)	
Depth	0.5-1.0'
DIEL	<0.005
ENDS-I	<0.005
END	<0.005
HEP-E	<0.005
Aroclor-1254	<0.05
Aroclor-1260	<0.05

SB-18 (4/8/16)		
Depth	0.5-1.0'	3.5-4.0'
DIEL	<0.034	<0.0017
ENDS-I	0.0055 CJ	<0.0017
END	<0.067	<0.0033
HEP-E	<0.034	<0.0017
Aroclor-1254	0.1	<0.012
Aroclor-1260	0.04	<0.012

SB-10 (1/23/14)	
Depth	0.5-1.0'
DIEL	<0.005
ENDS-I	<0.005
END	<0.005
HEP-E	<0.005
Aroclor-1254	<0.05
Aroclor-1260	<0.05

SB-3 (1/23/14)	
Depth	0.5-1.0'
DIEL	<0.005
ENDS-I	<0.005
END	<0.005
HEP-E	<0.005
Aroclor-1254	<0.05
Aroclor-1260	<0.05

SB-2 (1/23/14)	
Depth	1.5-2.0'
DIEL	<0.005
ENDS-I	<0.005
END	<0.005
HEP-E	<0.005
Aroclor-1254	<0.05
Aroclor-1260	<0.05

Legend

- 2014 Soil and Grab Groundwater Sampling Location
- 2014 Soil Sampling Location
- Phase 1 Soil and Grab Groundwater Sampling Location
- Phase 1 Soil Sampling Location
- Phase 2 Soil Sampling Location
- Site Boundary
- Approximate Area of Soil with Pesticide/PCB COCs Exceeding ESLs

SB-2 (1/23/14)	
Depth	1.5-2.0'
HEP-E	<0.005

Sample Identifier and Date of Sample
Sample Depth (ft. bgs)
Concentration in mg/kg
Chemical Depth

Yellow shading indicates concentrations above applicable ESLs based on current and future site usage.

Applicable ESLs	
Dieldrin	0.0023
Endosulfan I	0.0046
Endrin	0.00065
HEP-E	0.00042
Aroclor-1254	1.0
Aroclor-1260	1.0

NA	Not Available
C	Lab Qualifier, Presence Confirmed but RPD between columns exceeds 40%
J	Lab Qualifier, Estimated Value
ESL	Environmental Screening Level
DIEL	Dieldrin
ENDS-I	Endosulfan I
END	Endrin
HEP-E	Heptachlor epoxide
COC	Chemical of Concern

Aerial Photo Source: © 2009 Google Earth Pro Ver 5.0.11733.9347

N

0 50

Approx. Scale (feet)

Figure 1-6

Pesticides and PCBs in Soil
Additional Investigation, In Site Chemical Oxidation Pilot Study
And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

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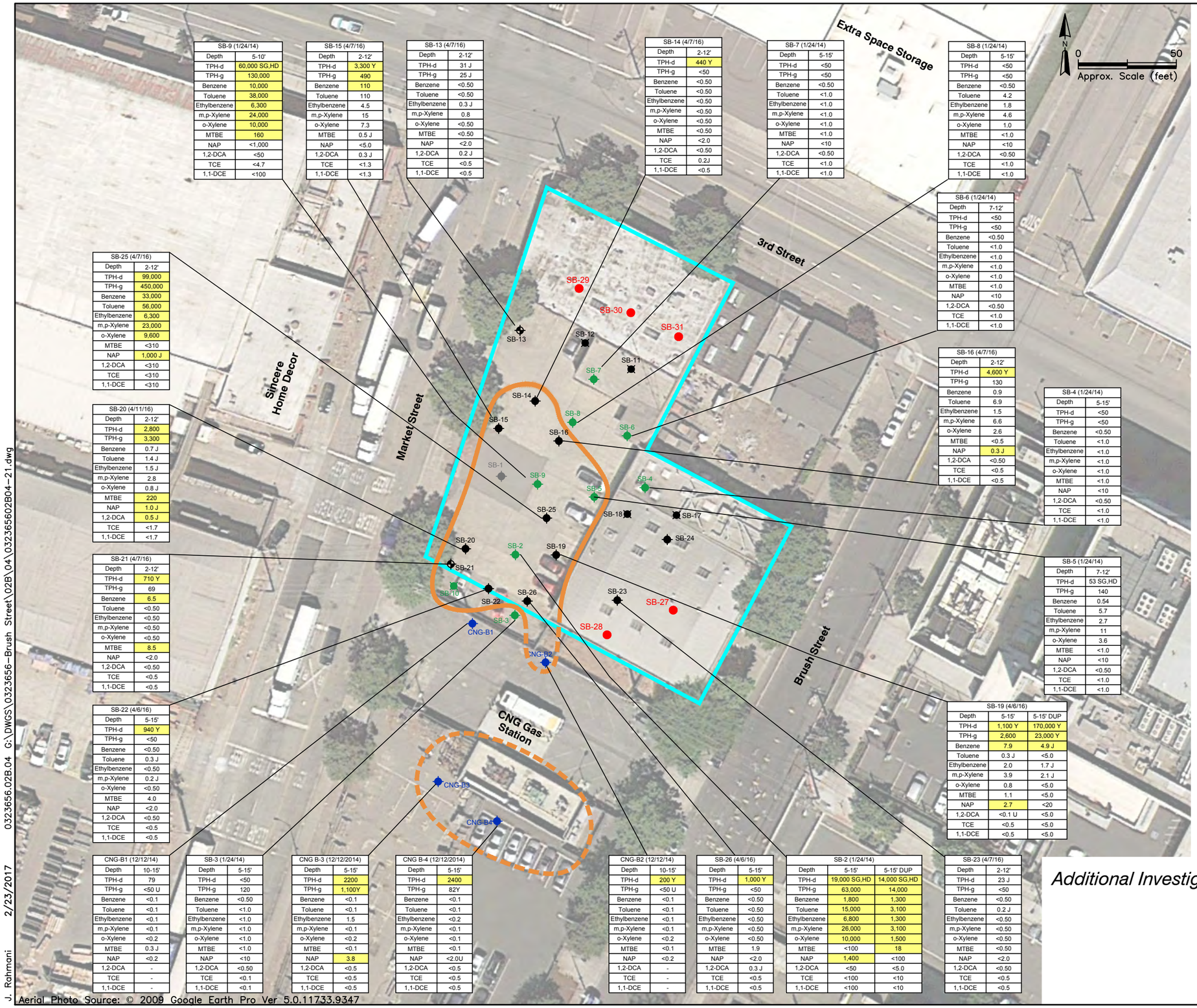

SB-9 (1/24/14)	
Depth	5-10'
TPH-d	60,000 SG,HD
TPH-g	130,000
Benzene	10,000
Toluene	38,000
Ethylbenzene	6,300
m,p-Xylene	24,000
o-Xylene	10,000
MTBE	160
NAP	<1,000
1,2-DCA	<50
TCE	<4.7
1,1-DCE	<100

SB-15 (4/7/16)	
Depth	2-12'
TPH-d	3,300 Y
TPH-g	490
Benzene	110
Toluene	110
Ethylbenzene	4.5
m,p-Xylene	15
o-Xylene	7.3
MTBE	0.5 J
NAP	<5.0
1,2-DCA	0.3 J
TCE	<1.3
1,1-DCE	<1.3

SB-13 (4/7/16)	
Depth	2-12'
TPH-d	31 J
TPH-g	25 J
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	0.3 J
m,p-Xylene	0.8
o-Xylene	<0.50
MTBE	<0.50
NAP	<2.0
1,2-DCA	0.2 J
TCE	<0.5
1,1-DCE	<0.5

SB-14 (4/7/16)	
Depth	2-12'
TPH-d	440 Y
TPH-g	<50
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
m,p-Xylene	<0.50
o-Xylene	<0.50
MTBE	<0.50
NAP	<2.0
1,2-DCA	<0.50
TCE	0.2J
1,1-DCE	<0.5

SB-7 (1/24/14)	
Depth	5-15'
TPH-d	<50
TPH-g	<50
Benzene	<0.50
Toluene	<1.0
Ethylbenzene	<1.0
m,p-Xylene	<1.0
o-Xylene	<1.0
MTBE	<1.0
NAP	<10
1,2-DCA	<0.50
TCE	<1.0
1,1-DCE	<1.0

SB-8 (1/24/14)	
Depth	5-15'
TPH-d	<50
TPH-g	<50
Benzene	<0.50
Toluene	4.2
Ethylbenzene	1.8
m,p-Xylene	4.6
o-Xylene	1.0
MTBE	<1.0
NAP	<10
1,2-DCA	<0.50
TCE	<1.0
1,1-DCE	<1.0

SB-6 (1/24/14)	
Depth	7-12'
TPH-d	<50
TPH-g	<50
Benzene	<0.50
Toluene	<1.0
Ethylbenzene	<1.0
m,p-Xylene	<1.0
o-Xylene	<1.0
MTBE	<1.0
NAP	<10
1,2-DCA	<0.50
TCE	<1.0
1,1-DCE	<1.0

SB-25 (4/7/16)	
Depth	2-12'
TPH-d	99,000
TPH-g	450,000
Benzene	33,000
Toluene	56,000
Ethylbenzene	6,300
m,p-Xylene	23,000
o-Xylene	9,600
MTBE	<310
NAP	1,000 J
1,2-DCA	<310
TCE	<310
1,1-DCE	<310

SB-16 (4/7/16)	
Depth	2-12'
TPH-d	4,600 Y
TPH-g	130
Benzene	0.9
Toluene	6.9
Ethylbenzene	1.5
m,p-Xylene	6.6
o-Xylene	2.6
MTBE	<0.5
NAP	0.3 J
1,2-DCA	<0.50
TCE	<0.5
1,1-DCE	<0.5

SB-4 (1/24/14)	
Depth	5-15'
TPH-d	<50
TPH-g	<50
Benzene	<0.50
Toluene	<1.0
Ethylbenzene	<1.0
m,p-Xylene	<1.0
o-Xylene	<1.0
MTBE	<1.0
NAP	<10
1,2-DCA	<0.50
TCE	<1.0
1,1-DCE	<1.0

SB-20 (4/11/16)	
Depth	2-12'
TPH-d	2,800
TPH-g	3,300
Benzene	0.7 J
Toluene	1.4 J
Ethylbenzene	1.5 J
m,p-Xylene	2.8
o-Xylene	0.8 J
MTBE	220
NAP	1.0 J
1,2-DCA	0.5 J
TCE	<1.7
1,1-DCE	<1.7

SB-5 (1/24/14)	
Depth	7-12'
TPH-d	53 SG,HD
TPH-g	140
Benzene	0.54
Toluene	5.7
Ethylbenzene	2.7
m,p-Xylene	11
o-Xylene	3.6
MTBE	<1.0
NAP	<10
1,2-DCA	<0.50
TCE	<1.0
1,1-DCE	<1.0

SB-21 (4/7/16)	
Depth	2-12'
TPH-d	710 Y
TPH-g	69
Benzene	6.5
Toluene	<0.50
Ethylbenzene	<0.50
m,p-Xylene	<0.50
o-Xylene	<0.50
MTBE	8.5
NAP	<2.0
1,2-DCA	<0.50
TCE	<0.5
1,1-DCE	<0.5

SB-19 (4/6/16)		
Depth	5-15'	5-15' DUP
TPH-d	1,100 Y	170,000 Y
TPH-g	2,600	23,000 Y
Benzene	7.9	4.9 J
Toluene	0.3 J	<5.0
Ethylbenzene	2.0	1.7 J
m,p-Xylene	3.9	2.1 J
o-Xylene	0.8	<5.0
MTBE	1.1	<5.0
NAP	2.7	<20
1,2-DCA	<0.1 U	<5.0
TCE	<0.5	<5.0
1,1-DCE	<0.5	<5.0

SB-22 (4/6/16)	
Depth	5-15'
TPH-d	940 Y
TPH-g	<50
Benzene	<0.50
Toluene	0.3 J
Ethylbenzene	<0.50
m,p-Xylene	0.2 J
o-Xylene	<0.50
MTBE	4.0
NAP	<2.0
1,2-DCA	<0.50
TCE	<0.5
1,1-DCE	<0.5

CNG-B1 (12/12/14)	
Depth	10-15'
TPH-d	79
TPH-g	<50 U
Benzene	<0.1
Toluene	<0.1
Ethylbenzene	<0.1
m,p-Xylene	<0.1
o-Xylene	<0.2
MTBE	0.3 J
NAP	<0.2
1,2-DCA	-
TCE	-
1,1-DCE	-

SB-3 (1/24/14)	
Depth	5-15'
TPH-d	<50
TPH-g	120
Benzene	<0.50
Toluene	<1.0
Ethylbenzene	<1.0
m,p-Xylene	<1.0
o-Xylene	<1.0
MTBE	<1.0
NAP	<10
1,2-DCA	<0.50
TCE	<0.1
1,1-DCE	<0.1

CNG B-3 (12/12/2014)	
Depth	5-15'
TPH-d	2200
TPH-g	1,100Y
Benzene	<0.1
Toluene	<0.1
Ethylbenzene	1.5
m,p-Xylene	<0.1
o-Xylene	<0.2
MTBE	<0.1
NAP	3.8
1,2-DCA	<0.5
TCE	<0.5
1,1-DCE	<0.5

CNG B-4 (12/12/2014)	
Depth	5-15'
TPH-d	2400
TPH-g	82Y
Benzene	<0.1
Toluene	<0.1
Ethylbenzene	<0.2
m,p-Xylene	<0.1
o-Xylene	<0.1
MTBE	<0.1
NAP	<2.0U
1,2-DCA	<0.5
TCE	<0.5
1,1-DCE	<0.5

CNG-B2 (12/12/14)	
Depth	10-15'
TPH-d	200 Y
TPH-g	<50 U
Benzene	<0.1
Toluene	<0.1
Ethylbenzene	<0.1
m,p-Xylene	<0.1
o-Xylene	<0.2
MTBE	<0.1
NAP	<0.2
1,2-DCA	-
TCE	-
1,1-DCE	-

SB-26 (4/6/16)	
Depth	5-15'
TPH-d	1,000 Y
TPH-g	<50
Benzene	<0.50
Toluene	<0.50
Ethylbenzene	<0.50
m,p-Xylene	<0.50
o-Xylene	<0.50
MTBE	1.9
NAP	<2.0
1,2-DCA	0.3 J
TCE	<0.5
1,1-DCE	<0.5

SB-2 (1/24/14)		
Depth	5-15'	5-15' DUP
TPH-d	19,000 SG,HD	14,000 SG,HD
TPH-g	63,000	14,000
Benzene	1,800	1,300
Toluene	15,000	3,100
Ethylbenzene	6,800	1,300
m,p-Xylene	26,000	3,100
o-Xylene	10,000	1,500
MTBE	<100	18
NAP	1,400	<100
1,2-DCA	<50	<5.0
TCE	<100	<10
1,1-DCE	<100	<10

SB-23 (4/7/16)	
Depth	2-12'
TPH-d	23 J
TPH-g	<50
Benzene	<0.50
Toluene	0.2 J
Ethylbenzene	<0.50
m,p-Xylene	<0.50
o-Xylene	<0.50
MTBE	<0.50
NAP	<2.0
1,2-DCA	<0.50
TCE	<0.5
1,1-DCE	<0.5

Legend

- 2014 Soil and Grab Groundwater Sampling Location
- Phase 1 Soil and Grab Groundwater Sampling Location
- Phase 2 Soil Sampling Location
- 2014 CNG Sampling Locations
- Site Boundary
- Approximate Area of Groundwater with TPH COCs Exceeding ESLs

SB-16 (4/7/16)	
Depth	2-12'
Benzene	0.9

Sample Identifier and Date of Sample
Sample Screen Interval (ft. bgs)
Concentration in $\mu g/L$
Chemical Depth

Yellow shading indicates concentrations above applicable ESLs based on current and future site usage.

Applicable ESLs	
TPH-d	150
TPH-g	220
Benzene	1.0
Toluene	150
Ethylbenzene	30
m,p-Xylenes	190
o-Xylene	190
MTBE	5.0
NAP	0.17
1,2-DCA	0.5
TCE	5.0
1,1-DCE	6.0

NA Not Available

HD Chromatographic Pattern was Inconsistent with Profile of Reference Fuel Standard

SG Sample Extract was Subjected to Silica Gel Treatment Prior to Analysis

J Lab Qualifier - Estimated Value

U ERM Lab Qualifier - Nondetected

Y Lab Qualifier - Estimated Value, Chromatogram did not Resemble Standard Hydrocarbon Pattern

Z Lab Qualifier - Sample Exhibited Unknown Single Peak or Peaks

TPH-g Total Petroleum Hydrocarbons as Gasoline
TPH-d Total Petroleum Hydrocarbons as Diesel
TPH-mo Total Petroleum Hydrocarbons as Motor Oil
MTBE Methyl Tert-butyl Ether
NAP Naphthalene
1,2-DCA 1,2-Dichloroethane
TCE Trichloroethene
1,1-DCE 1,1-Dichloroethene
ESL Environmental Screening Level
COC Chemical of Concern

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Figure 1-7

TPH and VOCs in Shallow Groundwater
Additional Investigation, In Site Chemical Oxidation Pilot Study
And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

Environmental Resources Management
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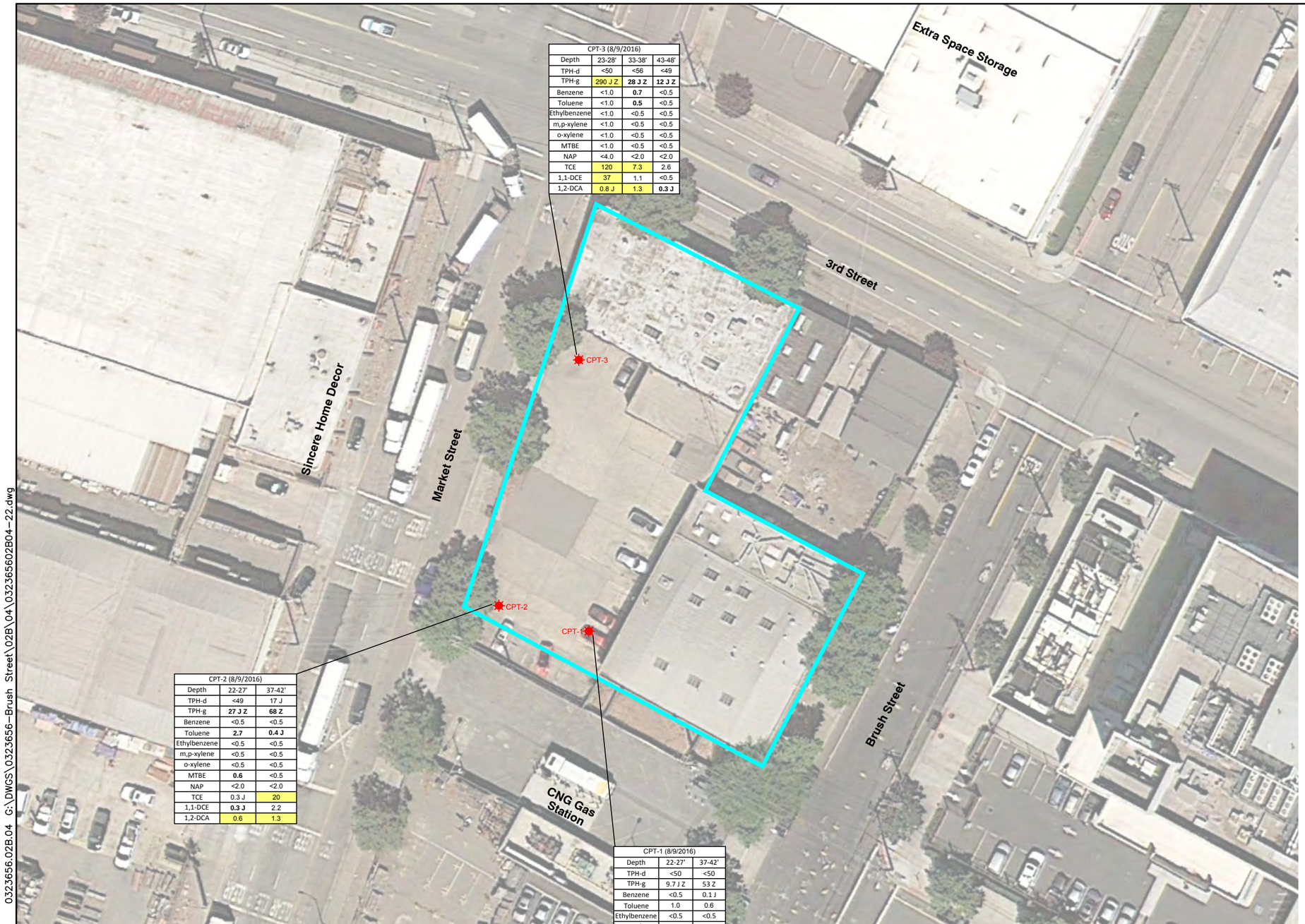

Legend

- Phase 2 CPT Location
- 2014 CNG Sampling Locations
- Site Boundary

SB-16 (4/7/16)	
Depth	2-12'
Benzene	0.9

- Sample Identifier and Date of Sample
- Sample Screen Interval (ft. bgs)
- Concentration in µg/L
- Chemical Depth

Yellow shading indicates concentrations above applicable ESLs based on current and future site usage.

Applicable ESLs	
TPH-d	150
TPH-g	220
Benzene	1.0
Toluene	150
Ethylbenzene	30
m,p-Xylenes	190
o-Xylene	190
MTBE	5.0
NAP	0.17
1,2-DCA	0.5
TCE	5.0
1,1-DCE	6.0

NA	Not Available
HD	Chromatographic Pattern was Inconsistent with Profile of Reference Fuel Standard
SG	Sample Extract was Subjected to Silica Gel Treatment Prior to Analysis
J	Lab Qualifier - Estimated Value
Y	Lab Qualifier - Estimated Value, Chromatogram did not Resemble Standard Hydrocarbon Pattern
Z	Lab Qualifier - Sample Exhibited Unknown Single Peak or Peaks
TPH-g	Total Petroleum Hydrocarbons as Gasoline
TPH-d	Total Petroleum Hydrocarbons as Diesel
TPH-mo	Total Petroleum Hydrocarbons as Motor Oil
MTBE	Methyl Tert-butyl Ether
NAP	Naphthalene
1,2-DCA	1,2-Dichloroethane
TCE	Trichloroethene
1,1-DCE	1,1-Dichloroethene
ESL	Environmental Screening Level

N

0 50

Approx. Scale (feet)

Figure 1-8

TPH and VOCs in Deep Groundwater
Additional Investigation, In Site Chemical Oxidation Pilot Study
And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

Environmental Resources Management
www.erm.com

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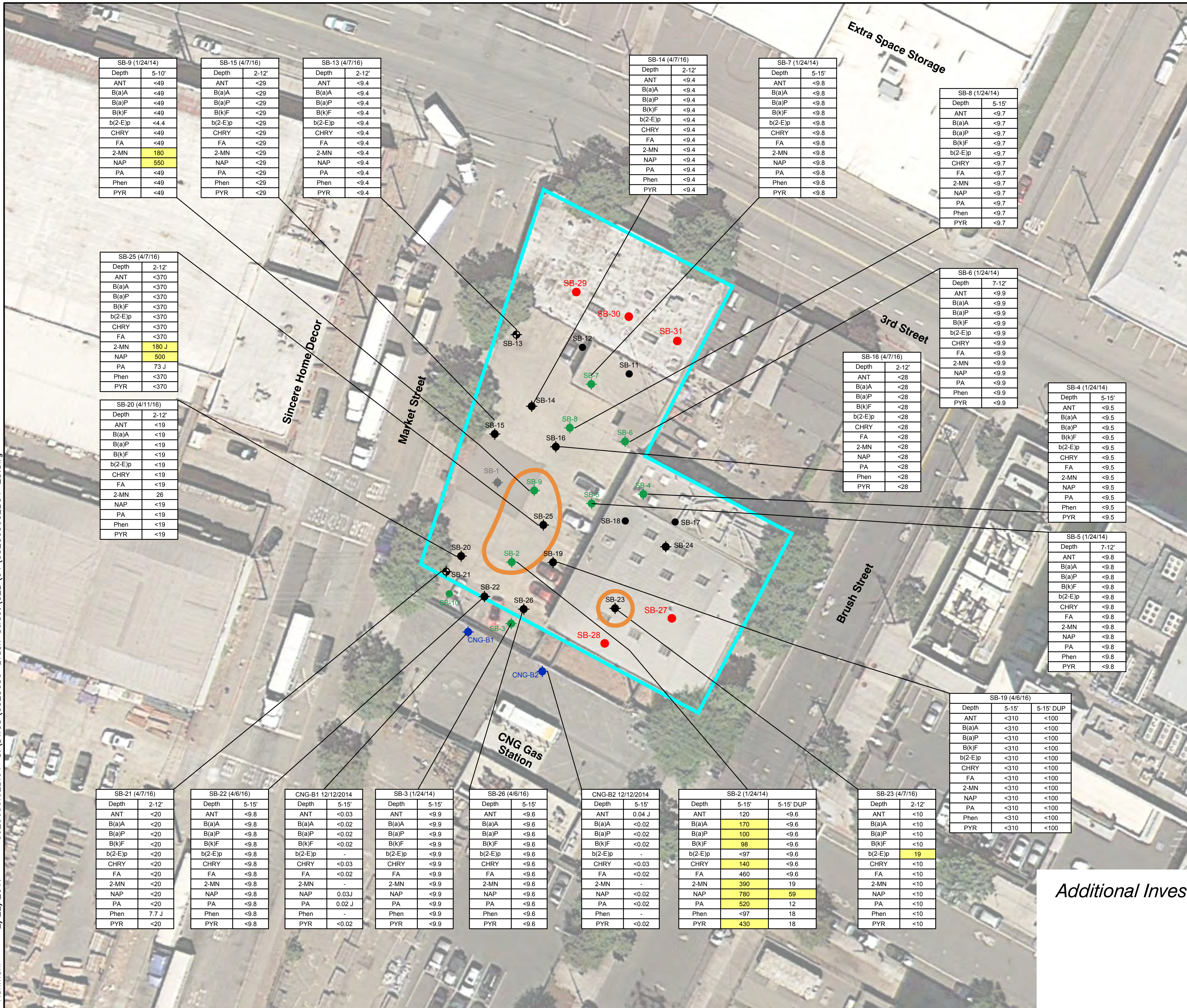

SB-9 (1/24/14)	
Depth	5-10'
ANT	<49
B(a)A	<49
B(a)P	<49
B(k)F	<49
b(2-E)p	<4.4
CHRY	<49
FA	<49
2-MN	180
NAP	550
PA	<49
Phen	<49
PYR	<49

SB-15 (4/7/16)	
Depth	2-12'
ANT	<29
B(a)A	<29
B(a)P	<29
B(k)F	<29
b(2-E)p	<29
CHRY	<29
FA	<29
2-MN	<29
NAP	<29
PA	<29
Phen	<29
PYR	<29

SB-13 (4/7/16)	
Depth	2-12'
ANT	<9.4
B(a)A	<9.4
B(a)P	<9.4
B(k)F	<9.4
b(2-E)p	<9.4
CHRY	<9.4
FA	<9.4
2-MN	<9.4
NAP	<9.4
PA	<9.4
Phen	<9.4
PYR	<9.4

SB-14 (4/7/16)	
Depth	2-12'
ANT	<9.4
B(a)A	<9.4
B(a)P	<9.4
B(k)F	<9.4
b(2-E)p	<9.4
CHRY	<9.4
FA	<9.4
2-MN	<9.4
NAP	<9.4
PA	<9.4
Phen	<9.4
PYR	<9.4

SB-7 (1/24/14)	
Depth	5-15'
ANT	<9.8
B(a)A	<9.8
B(a)P	<9.8
B(k)F	<9.8
b(2-E)p	<9.8
CHRY	<9.8
FA	<9.8
2-MN	<9.8
NAP	<9.8
PA	<9.8
Phen	<9.8
PYR	<9.8

SB-8 (1/24/14)	
Depth	5-15'
ANT	<9.7
B(a)A	<9.7
B(a)P	<9.7
B(k)F	<9.7
b(2-E)p	<9.7
CHRY	<9.7
FA	<9.7
2-MN	<9.7
NAP	<9.7
PA	<9.7
Phen	<9.7
PYR	<9.7

SB-25 (4/7/16)	
Depth	2-12'
ANT	<370
B(a)A	<370
B(a)P	<370
B(k)F	<370
b(2-E)p	<370
CHRY	<370
FA	<370
2-MN	180 J
NAP	500
PA	73 J
Phen	<370
PYR	<370

SB-20 (4/11/16)	
Depth	2-12'
ANT	<19
B(a)A	<19
B(a)P	<19
B(k)F	<19
b(2-E)p	<19
CHRY	<19
FA	<19
2-MN	26
NAP	<19
PA	<19
Phen	<19
PYR	<19

SB-6 (1/24/14)	
Depth	7-12'
ANT	<9.9
B(a)A	<9.9
B(a)P	<9.9
B(k)F	<9.9
b(2-E)p	<9.9
CHRY	<9.9
FA	<9.9
2-MN	<9.9
NAP	<9.9
PA	<9.9
Phen	<9.9
PYR	<9.9

SB-16 (4/7/16)	
Depth	2-12'
ANT	<28
B(a)A	<28
B(a)P	<28
B(k)F	<28
b(2-E)p	<28
CHRY	<28
FA	<28
2-MN	<28
NAP	<28
PA	<28
Phen	<28
PYR	<28

SB-4 (1/24/14)	
Depth	5-15'
ANT	<9.5
B(a)A	<9.5
B(a)P	<9.5
B(k)F	<9.5
b(2-E)p	<9.5
CHRY	<9.5
FA	<9.5
2-MN	<9.5
NAP	<9.5
PA	<9.5
Phen	<9.5
PYR	<9.5

SB-5 (1/24/14)	
Depth	7-12'
ANT	<9.8
B(a)A	<9.8
B(a)P	<9.8
B(k)F	<9.8
b(2-E)p	<9.8
CHRY	<9.8
FA	<9.8
2-MN	<9.8
NAP	<9.8
PA	<9.8
Phen	<9.8
PYR	<9.8

SB-19 (4/6/16)		
Depth	5-15'	5-15' DUP
ANT	<310	<100
B(a)A	<310	<100
B(a)P	<310	<100
B(k)F	<310	<100
b(2-E)p	<310	<100
CHRY	<310	<100
FA	<310	<100
2-MN	<310	<100
NAP	<310	<100
PA	<310	<100
Phen	<310	<100
PYR	<310	<100

SB-21 (4/7/16)	
Depth	2-12'
ANT	<20
B(a)A	<20
B(a)P	<20
B(k)F	<20
b(2-E)p	<20
CHRY	<20
FA	<20
2-MN	<20
NAP	<20
PA	<20
Phen	7.7 J
PYR	<20

SB-22 (4/6/16)	
Depth	5-15'
ANT	<9.8
B(a)A	<9.8
B(a)P	<9.8
B(k)F	<9.8
b(2-E)p	<9.8
CHRY	<9.8
FA	<9.8
2-MN	<9.8
NAP	<9.8
PA	<9.8
Phen	<9.8
PYR	<9.8

CNG-B1 12/12/2014	
Depth	5-15'
ANT	<0.03
B(a)A	<0.02
B(a)P	<0.02
B(k)F	<0.02
b(2-E)p	-
CHRY	<0.03
FA	<0.02
2-MN	-
NAP	0.03J
PA	0.02 J
Phen	-
PYR	<0.02

SB-3 (1/24/14)	
Depth	5-15'
ANT	<9.9
B(a)A	<9.9
B(a)P	<9.9
B(k)F	<9.9
b(2-E)p	<9.9
CHRY	<9.9
FA	<9.9
2-MN	<9.9
NAP	<9.9
PA	<9.9
Phen	<9.9
PYR	<9.9

SB-26 (4/6/16)	
Depth	5-15'
ANT	<9.6
B(a)A	<9.6
B(a)P	<9.6
B(k)F	<9.6
b(2-E)p	<9.6
CHRY	<9.6
FA	<9.6
2-MN	<9.6
NAP	<9.6
PA	<9.6
Phen	<9.6
PYR	<9.6

CNG-B2 12/12/2014	
Depth	5-15'
ANT	0.04 J
B(a)A	<0.02
B(a)P	<0.02
B(k)F	<0.02
b(2-E)p	-
CHRY	<0.03
FA	<0.02
2-MN	-
NAP	<0.02
PA	<0.02
Phen	-
PYR	<0.02

SB-2 (1/24/14)		
Depth	5-15'	5-15' DUP
ANT	120	<9.6
B(a)A	170	<9.6
B(a)P	100	<9.6
B(k)F	98	<9.6
b(2-E)p	<97	<9.6
CHRY	140	<9.6
FA	460	<9.6
2-MN	390	19
NAP	780	59
PA	520	12
Phen	<97	18
PYR	430	18

SB-23 (4/7/16)	
Depth	2-12'
ANT	<10
B(a)A	<10
B(a)P	<10
B(k)F	<10
b(2-E)p	19
CHRY	<10
FA	<10
2-MN	<10
NAP	<10
PA	<10
Phen	<10
PYR	<10

Legend

- 2014 Soil and Grab Groundwater Sampling Location
- Phase 1 Soil and Grab Groundwater Sampling Location
- Phase 2 Soil Sampling Location
- 2014 CNG Sampling Locations
- Site Boundary
- Approximate Area of Groundwater with SVOC COCs Exceeding ESLs

SB-16 (4/7/16)	
Depth	2-12'
ANT	<28

Sample Identifier and Date of Sample
Sample Screen Interval (ft. bgs)
Concentration in μg/L
Chemical Depth

Yellow shading indicates concentrations above applicable ESLs based on current and future site usage.

Applicable ESLs

Anthracene	1,800
Benzo(a)Anthracene	0.034
Benzo(a)Pyrene	0.2
Benzo(b)Fluoranthene	0.012
Benzo(k)Fluoranthene	0.017
Chrysene	0.017
2-Methylnaphthalene	36
Naphthalene	0.17
Phenanthrene	410
Bis(2-Ethylhexyl) phthalate	4.0
Phenol	4,200

J	Lab Qualifier - Estimated Value
ANT	Anthracene
B(a)A	Benzo(a)Anthracene
B(a)P	Benzo(a)Pyrene
B(k)F	Benzo(k)Fluoranthene
CHRY	Chrysene
FA	Fluoranthene
2-MN	2-Methylnaphthalene
NAP	Naphthalene
PA	Phenanthrene
Phen	Phenol
PYR	Pyrene
b(2-E)p	bis(2-Ethylhexyl) phthalate
COC	Chemical of Concern

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N
0 50
Approx. Scale (feet)

Figure 1-9

SVOCs in Shallow Groundwater
Additional Investigation, In Site Chemical Oxidation Pilot Study And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

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Legend

Phase 2 CPT Location

Site Boundary

Sample Identifier and Date of Sample

SB-16 (4/7/16)	
Depth	2-12'
ANT	<28

Sample Screen Interval (ft. bgs)

Concentration in μg/L

Chemical Depth

Yellow shading indicates concentrations above applicable ESLs based on current and future site usage.

COC Chemical of Concern

Applicable ESLs	
Anthracene	1,800
Benzo(a)Anthracene	0.034
Benzo(a)Pyrene	0.2
Benzo(b)Fluoranthene	0.012
Benzo(k)Fluoranthene	0.017
Chrysene	0.017
2-Methylnaphthalene	36
Naphthalene	0.17
Phenanthrene	410
Bis(2-Ethylhexyl) phthalate	4.0
Phenol	4,200

J	Lab Qualifier - Estimated Value
ANT	Anthracene
B(a)A	Benzo(a)Anthracene
B(a)P	Benzo(a)Pyrene
B(k)F	Benzo(k)Fluoranthene
CHRY	Chrysene
FA	Fluoranthene
2-MN	2-Methylnaphthalene
NAP	Naphthalene
PA	Phenanthrene
Phen	Phenol
PYR	Pyrene
b(2-E)p	bis(2-Ethylhexyl) phthalate

Aerial Photo Source: © 2009 Google Earth Pro Ver 5.0.11733.9347

N

0 50

Approx. Scale (feet)

Figure 1-10

SVOCs in Deep Groundwater

Additional Investigation, In Site Chemical Oxidation Pilot Study And Bench-Scale Testing Work Plan

205 Brush Street

Oakland, California

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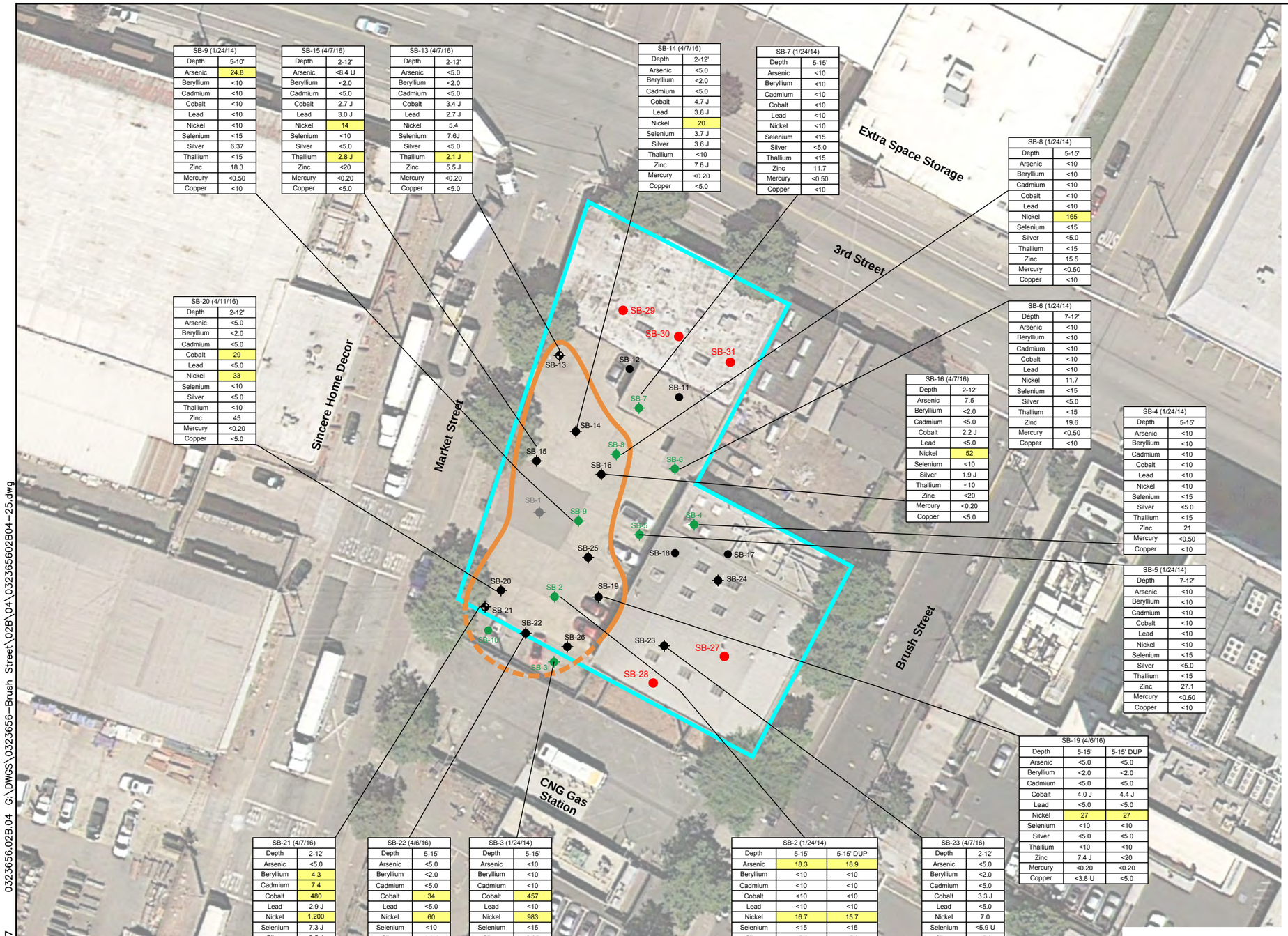

SB-9 (1/24/14)	
Depth	5-10'
Arsenic	24.8
Beryllium	<10
Cadmium	<10
Cobalt	<10
Lead	<10
Nickel	<10
Selenium	<15
Silver	6.37
Thallium	<15
Zinc	18.3
Mercury	<0.50
Copper	<10

SB-15 (4/7/16)	
Depth	2-12'
Arsenic	<8.4 U
Beryllium	<2.0
Cadmium	<5.0
Cobalt	2.7 J
Lead	3.0 J
Nickel	14
Selenium	<10
Silver	<5.0
Thallium	2.8 J
Zinc	<20
Mercury	<0.20
Copper	<5.0

SB-13 (4/7/16)	
Depth	2-12'
Arsenic	<5.0
Beryllium	<2.0
Cadmium	<5.0
Cobalt	3.4 J
Lead	2.7 J
Nickel	5.4
Selenium	7.6J
Silver	<5.0
Thallium	2.1 J
Zinc	5.5 J
Mercury	<0.20
Copper	<5.0

SB-14 (4/7/16)	
Depth	2-12'
Arsenic	<5.0
Beryllium	<2.0
Cadmium	<5.0
Cobalt	4.7 J
Lead	3.8 J
Nickel	20
Selenium	3.7 J
Silver	3.6 J
Thallium	<10
Zinc	7.6 J
Mercury	<0.20
Copper	<5.0

SB-7 (1/24/14)	
Depth	5-15'
Arsenic	<10
Beryllium	<10
Cadmium	<10
Cobalt	<10
Lead	<10
Nickel	<10
Selenium	<15
Silver	<5.0
Thallium	<15
Zinc	11.7
Mercury	<0.50
Copper	<10

SB-8 (1/24/14)	
Depth	5-15'
Arsenic	<10
Beryllium	<10
Cadmium	<10
Cobalt	<10
Lead	<10
Nickel	165
Selenium	<15
Silver	<5.0
Thallium	<15
Zinc	15.5
Mercury	<0.50
Copper	<10

SB-20 (4/11/16)	
Depth	2-12'
Arsenic	<5.0
Beryllium	<2.0
Cadmium	<5.0
Cobalt	29
Lead	<5.0
Nickel	33
Selenium	<10
Silver	<5.0
Thallium	<10
Zinc	45
Mercury	<0.20
Copper	<5.0

SB-6 (1/24/14)	
Depth	7-12'
Arsenic	<10
Beryllium	<10
Cadmium	<10
Cobalt	<10
Lead	<10
Nickel	11.7
Selenium	<15
Silver	<5.0
Thallium	<15
Zinc	19.6
Mercury	<0.50
Copper	<10

SB-16 (4/7/16)	
Depth	2-12'
Arsenic	7.5
Beryllium	<2.0
Cadmium	<5.0
Cobalt	2.2 J
Lead	<5.0
Nickel	52
Selenium	<10
Silver	1.9 J
Thallium	<10
Zinc	<20
Mercury	<0.20
Copper	<5.0

SB-4 (1/24/14)	
Depth	5-15'
Arsenic	<10
Beryllium	<10
Cadmium	<10
Cobalt	<10
Lead	<10
Nickel	<10
Selenium	<15
Silver	<5.0
Thallium	<15
Zinc	21
Mercury	<0.50
Copper	<10

SB-5 (1/24/14)	
Depth	7-12'
Arsenic	<10
Beryllium	<10
Cadmium	<10
Cobalt	<10
Lead	<10
Nickel	<10
Selenium	<15
Silver	<5.0
Thallium	<15
Zinc	27.1
Mercury	<0.50
Copper	<10

SB-19 (4/6/16)		
Depth	5-15'	5-15' DUP
Arsenic	<5.0	<5.0
Beryllium	<2.0	<2.0
Cadmium	<5.0	<5.0
Cobalt	4.0 J	4.4 J
Lead	<5.0	<5.0
Nickel	27	27
Selenium	<10	<10
Silver	<5.0	<5.0
Thallium	<10	<10
Zinc	7.4 J	<20
Mercury	<0.20	<0.20
Copper	<3.8 U	<5.0

SB-21 (4/7/16)	
Depth	2-12'
Arsenic	<5.0
Beryllium	4.3
Cadmium	7.4
Cobalt	480
Lead	2.9 J
Nickel	1,200
Selenium	7.3 J
Silver	3.5 J
Thallium	9.1 J
Zinc	4,900
Mercury	0.16 J
Copper	<5.0

SB-22 (4/6/16)	
Depth	5-15'
Arsenic	<5.0
Beryllium	<2.0
Cadmium	<5.0
Cobalt	34
Lead	<5.0
Nickel	60
Selenium	<10
Silver	1.1 J
Thallium	8.7 J
Zinc	17 J
Mercury	<0.20
Copper	<5.0

SB-3 (1/24/14)	
Depth	5-15'
Arsenic	<10
Beryllium	<10
Cadmium	<10
Cobalt	457
Lead	<10
Nickel	983
Selenium	<15
Silver	8.95
Thallium	<15
Zinc	1,260
Mercury	<0.50
Copper	<10

SB-2 (1/24/14)		
Depth	5-15'	5-15' DUP
Arsenic	18.3	18.9
Beryllium	<10	<10
Cadmium	<10	<10
Cobalt	<10	<10
Lead	<10	<10
Nickel	16.7	15.7
Selenium	<15	<15
Silver	<5.0	<5.0
Thallium	<15	<15
Zinc	11.9	12.9
Mercury	<0.50	<0.50
Copper	<10	<10

SB-23 (4/7/16)	
Depth	2-12'
Arsenic	<5.0
Beryllium	<2.0
Cadmium	<5.0
Cobalt	3.3 J
Lead	<5.0
Nickel	7.0
Selenium	<5.9 U
Silver	<5.0
Thallium	<4.7 U
Zinc	20
Mercury	<0.20
Copper	<5.0

Legend

- 2014 Soil and Grab Groundwater Sampling Location
- Phase 1 Soil and Grab Groundwater Sampling Location
- Phase 2 Soil Sampling Location
- Site Boundary
- Approximate Area of Groundwater with Metals Exceeding ESLs

SB-16 (4/7/16)	
Depth	2-12'
Arsenic	7.5

- Sample Identifier and Date of Sample
- Sample Screen Interval (ft. bgs)
- Concentration in µg/L
- Chemical Depth

Yellow shading indicates concentrations above applicable ESLs based on current and future site usage.

Applicable ESLs	
Arsenic	6
Beryllium	4
Cadmium	5
Cobalt	6
Lead	15
Nickel	12
Selenium	30
Silver	54
Thallium	2.0
Zinc	5,000
Mercury	1.2
Copper	300

J Lab Qualifier - Estimated Value

U ERM Lab Qualifier - Nondetected

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N

0 50

Approx. Scale (feet)

Figure 1-11

Metals in Shallow Groundwater

Additional Investigation, In Site Chemical Oxidation Pilot Study And Bench-Scale Testing Work Plan

205 Brush Street

Oakland, California

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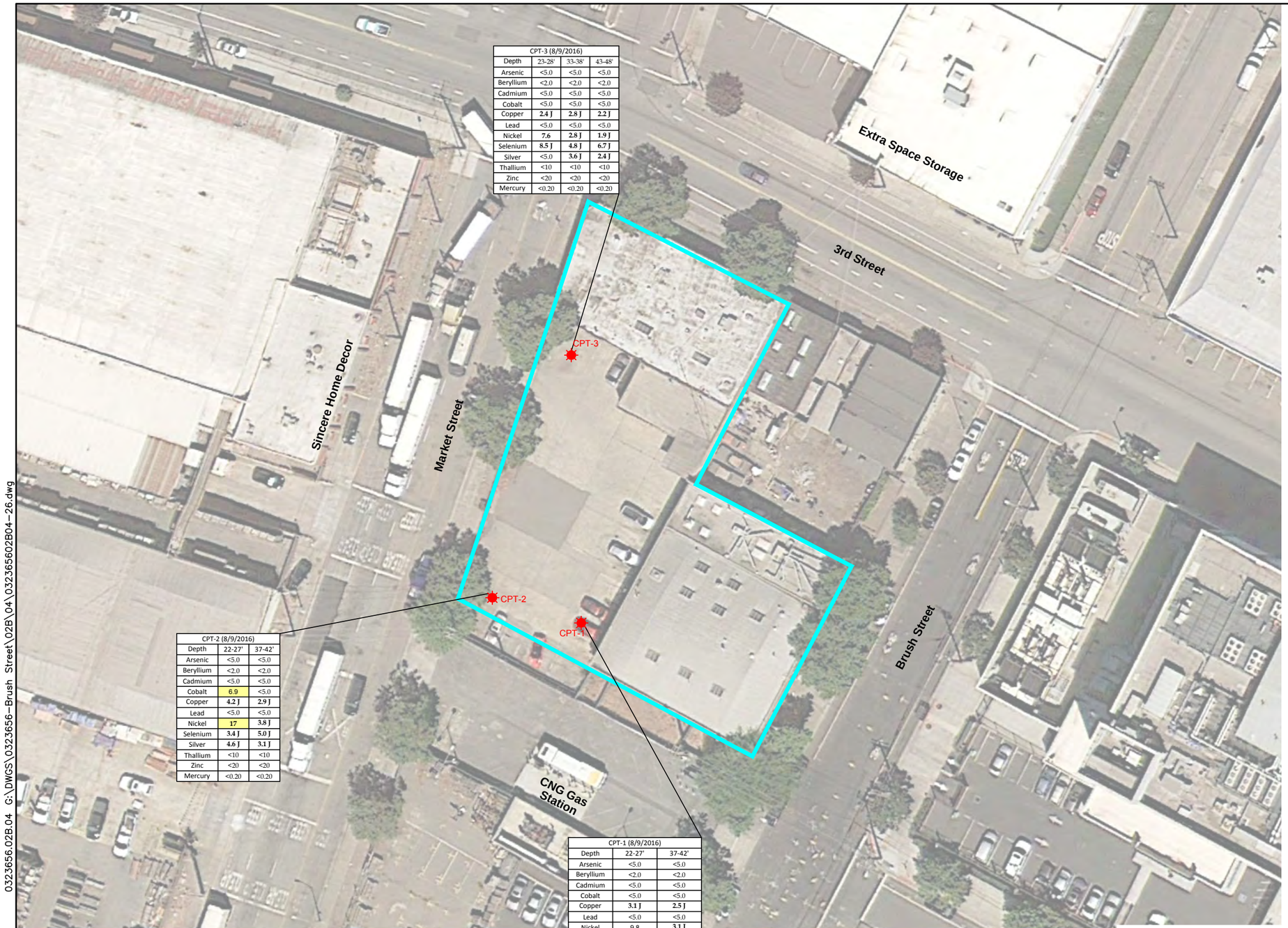

Legend

- Phase 2 CPT Location
- Site Boundary
- Sample Identifier and Date of Sample
- Sample Screen Interval (ft. bgs)
- Concentration in µg/L
- Chemical Depth

SB-16 (4/7/16)	
Depth	2-12'
Arsenic	7.5

Yellow shading indicates concentrations above applicable ESLs based on current and future site usage.

Applicable ESLs	
Arsenic	6
Beryllium	4
Cadmium	5
Cobalt	6
Lead	15
Nickel	12
Selenium	30
Silver	54
Thallium	2.0
Zinc	5,000
Mercury	1.2
Copper	300

J Lab Qualifier - Estimated Value

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N

0 50

Approx. Scale (feet)

Figure 1-12

Metals in Deep Groundwater

Additional Investigation, In Site Chemical Oxidation Pilot Study And Bench-Scale Testing Work Plan

205 Brush Street

Oakland, California

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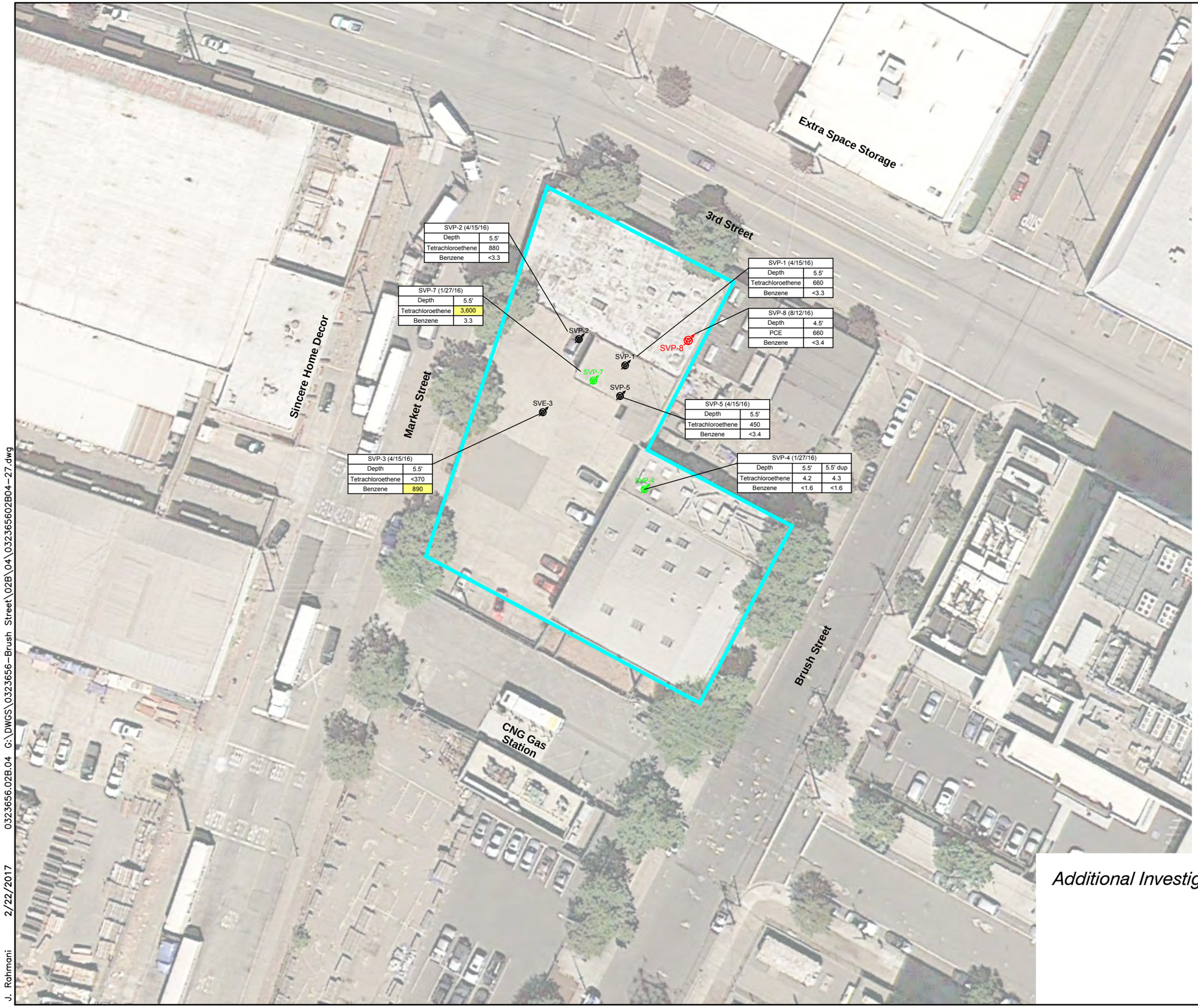

Legend

- Phase 1 Soil Vapor Point
- 2014 Soil Vapor Point
- Phase 2 Soil Vapor Point
- Site Boundary

SV-4 (1/27/14)	
Depth	5.5'
Tetrachloroethene	4.2

- Sample Identifier and Date of Sample
- Sample Depth (ft. bgs)
- Concentration in $\mu g/m^3$
- Chemical Depth

Yellow shading indicates concentrations above Commercial/Industrial ESL.

Applicable ESLs
Tetrachloroethene 2,100
Benzene 420

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N
0 50
Approx. Scale (feet)

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Figure 1-13
Volatile Organic Compounds in Soil Vapor
Additional Investigation, In Site Chemical Oxidation Pilot Study
And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

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Legend

- 2014 Soil and Grab Groundwater Sampling Location
- 2014 Soil Sampling Location
- Phase 1 Soil and Grab Groundwater Sampling Location
- Phase 1 Soil Sampling Location
- Phase 2 Soil Sampling Location
- Proposed Soil Boring Locations
- Site Boundary
- Approximate Area of Soil with Lead Exceeding ESLs
- Sample Identifier and Date of Sample

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N

0 50

Approx. Scale (feet)

Figure 2-1

Proposed Soil Boring Locations
Additional Investigation, In Site Chemical Oxidation Pilot Study
And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

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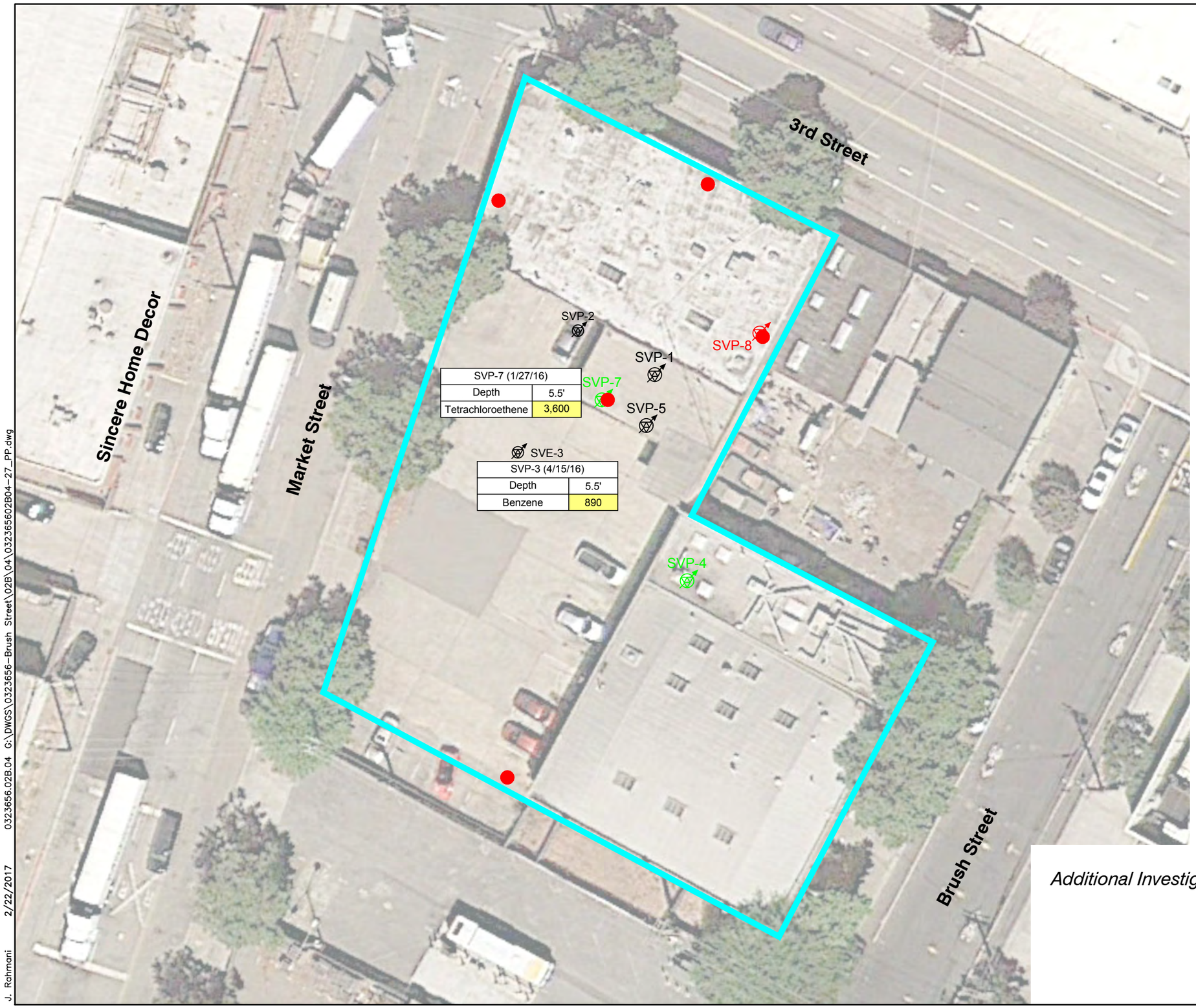

Legend

- Phase 1 Soil Vapor Point
- 2014 Soil Vapor Point
- Phase 2 Soil Vapor Point
- Proposed Permanent Soil Vapor Probe Locations
- Site Boundary

SV-4 (1/27/14)	
Depth	5.5'
Tetrachloroethene	4.2

- Sample Identifier and Date of Sample
- Sample Depth (ft. bgs)
- Concentration in $\mu g/m^3$
- Chemical Depth

Yellow shading indicates concentrations above Commercial/Industrial Direct Exposure ESL.

Applicable ESLs

Tetrachloroethene	2,100
Benzene	420

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N

0 30

Approx. Scale (feet)

Figure 2-2

Proposed Soil Vapor Probe Locations
Additional Investigation, In Site Chemical Oxidation Pilot Study
And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

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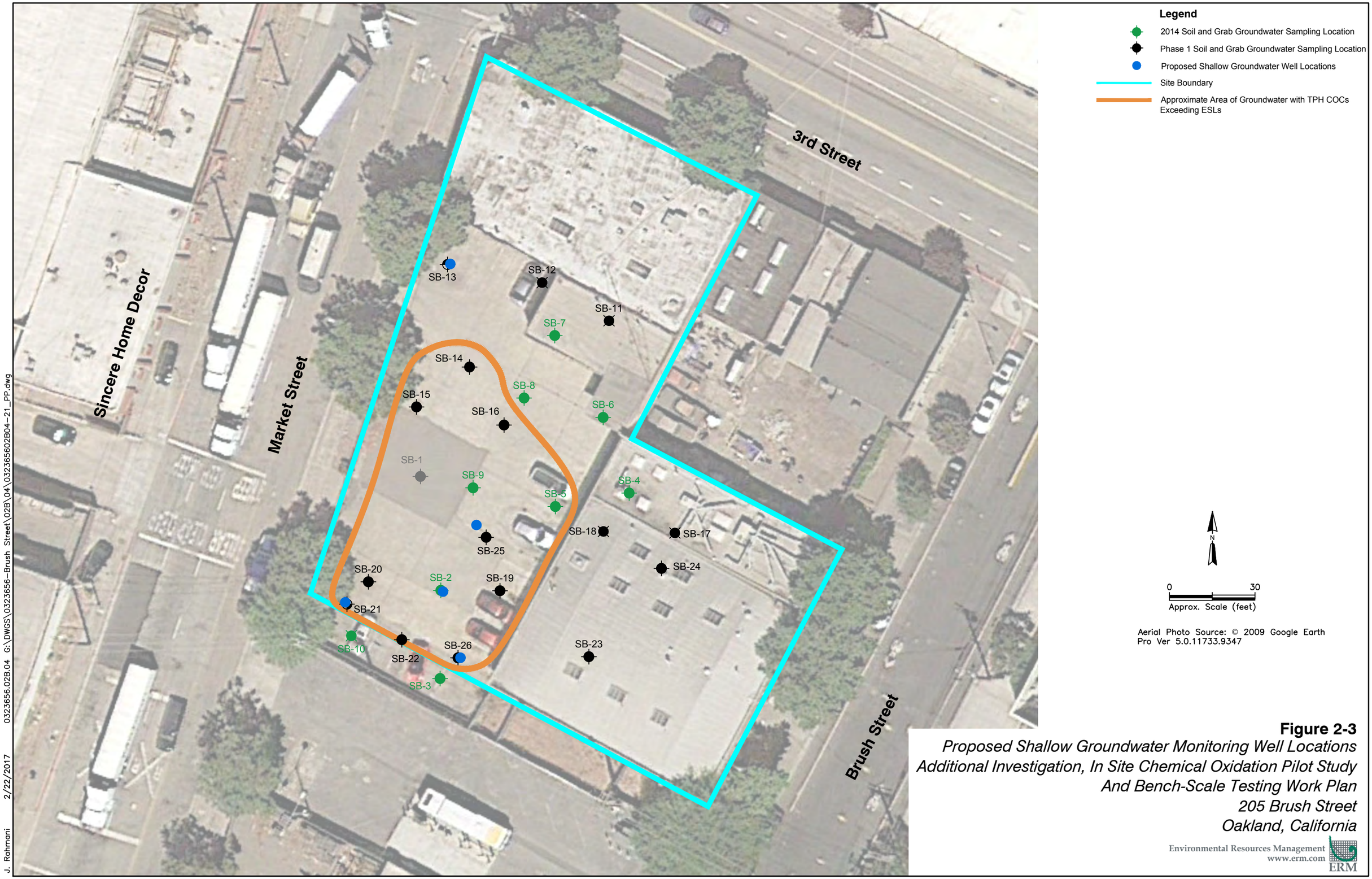

Figure 2-3

Proposed Shallow Groundwater Monitoring Well Locations
Additional Investigation, In Site Chemical Oxidation Pilot Study
And Bench-Scale Testing Work Plan
205 Brush Street
Oakland, California

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Legend

- 2014 Soil and Grab Groundwater Sampling Location
- Phase 1 Soil and Grab Groundwater Sampling Location
- Proposed Injection Locatoion
- Site Boundary
- Approximate Onsite Area of Groundwater with TPH COCs Exceeding ESLs

N

0 30

Approx. Scale (feet)

Aerial Photo Source: © 2009 Google Earth Pro Ver 5.0.11733.9347

Figure 3-1

Proposed Chemical Oxidant Injection Locations
Additional Investigation, In Site Chemical Oxidation Pilot Study
And Bench-Scale Testing Work Plan
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Appendix A
Data Tables

Table A-1
Total Petroleum Hydrocarbons and Volatile Organic Compounds in Soil
Site Characterization Summary Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Depth (ft bgs)	Date Sampled	TPH-d*	TPH-mo*	TPH-g*	Acetone	Benzene	Toluene	Ethylbenzene	m,p-Xylenes	o-Xylene	MTBE	Naphthalene	Tetrachloroethene	1,1,2-Trichloroethane	1,2,4-Trimethylbenzene	1,2,3-Trichloropropane	1,3,5-Trimethylbenzene	2-Butanone	Isopropylbenzene	para-Isopropyl Toluene	Propylbenzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene
		Tier-1 ESLs	*230*	*5,100*	*100*	*0.5*	*0.044*	*2.9*	*1.4*	*2.3*	*2.3*	*0.023*	*0.033*	*0.42*	*0.07*	---	---	---	*2.8*	---	---	---	---	---	---
		Applicable ESLs	*1,100*	*5,100*	*500*	*0.5*	*0.044*	*2.9*	*1.4*	*2.3*	*2.3*	*0.023*	*0.033*	*0.42*	*0.07*	---	---	---	*2.8*	---	---	---	---	---	---
	January 2014 Event																								
SB-2	1.5 - 2.0	1/23/2014	**170 HD,SG**	**370 HD, SG**	**3.7 HD**	<0.12	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	**0.0052**	<0.0049	**0.015**	<0.0049	<0.0049	<0.0049
SB-2	8.5 - 9.0	1/23/2014	**80 HD,SG**	**65 HD, SG**	**2,300**	<12	<5	**100**	**54**	**220**	**81**	<5	<50	<5	<5	**99**	<5	**32**	<50	<5	<5	**17**	**8.1**	<5	<5
SB-2	14.0 - 14.5	1/23/2014	<5.0 SG	<25 SG	<0.50	<0.13	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
SB-3	0.5 - 1.0	1/23/2014	<4.9	<24	<0.50	<0.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SB-3	6.0 - 6.5	1/23/2014	<5.0	<25	<0.50	<0.13	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
SB-4	0.5 - 1.0	1/24/2014	**70 SG,HD**	**380 SG,HD**	<0.50	<0.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SB-4	4.5	8/12/2016	<26	<13	<8.1	**11**	<3.8	<3.7	<5.0	<3.4	<4.4	NA	**5.3**	31.00	<5.8	<5.9	<4.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SB-5	0.5 - 1.0	1/23/2014	**390 HD,SG**	**680 HD,SG**	<0.50	<0.13	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052
SB-5	6.5 - 7.0	1/23/2014	<4.9 SG	<24 SG	<0.50	<0.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SB-6	0.5 - 1.0	1/23/2014	**15 HD,SG**	**34 HD,SG**	<0.50	<0.13	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052
SB-6	7.0 - 7.5	1/23/2014	<4.9 SG	<24 SG	<0.50	<0.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SB-7	0.5 - 1.0	1/24/2014	**22 SG,HD**	**58 SG,HD**	<0.50	<0.13	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.052	**0.006**	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052
SB-7	7.0 - 7.5	1/24/2014	<5.0	<25	<0.50	<0.13	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.051	<0.0052	<0.0051	<0.0052	<0.0051	<0.0052	<0.0051	<0.0052	<0.0051	<0.0052	<0.0052	<0.0052	<0.0051
SB-8	0.5 - 1.0	1/23/2014	**9,900 HD,SG**	**10,000 HD,SG**	**1.6 HD**	<0.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
SB-8	6.0 - 6.5	1/23/2014	<5.0 SG	<25 SG	<0.50	<0.13	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052
SB-9	2.5 - 3.0	1/23/2014	**13 HD,SG**	<25 SG	**2.5 HD**	<0.13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.0082**	<0.005	<0.005	<0.005
SB-9	6.0 - 6.5	1/23/2014	**560 HD,SG**	**67 HD,SG**	**1,600**	<25	**1.1**	<1	**21**	**1.5**	<1	<1	**24**	<1	<1	**2.5**	<1	**1**	<10	**8.8**	<1	**36**	**17**	**5.5**	<1
SB-9	11.5 - 12.0	1/23/2014	<5.0 SG	<25 SG	**66**	<13	**3.1**	**3.5**	**1.9**	**6.8**	**2.1**	<0.51	<5.1	<0.51	<0.51	**2.8**	<0.51	**0.85**	<5.1	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51
SB-10	0.5 - 1.0	1/24/2014	<5.0	<25	<0.50	<130	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
SB-10	6.0 - 6.5	1/24/2014	<5.0	<25	<0.50	<130	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052
	April 2016 Event																								
SB-14	0.5-1.0	4/7/2016	**250 NJ**	**280**	<0.11 U	**0.0077 J**	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0093	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046
SB-14	3.5-4.0	4/7/2016	**0.55 J**	<5.0	<0.11 U	**0.043**	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	**0.0072 J**	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
SB-14	7.5-8.0	4/7/2016	**0.93 J**	<5.0	<0.096 U	**0.016 J b**	<0.0046	<0.0046	<0.0046	**0.0011 J**	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	**0.0019 J**	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046
SB-14	11.5-12.0	4/7/2016	<1.0	<5.0	<0.088 U	<0.020	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049
SB-15	0.5-1.0	4/7/2016	**180 NJ**	**360**	<0.080 U	<0.019	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0096	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
SB-15	3.5-4.0	4/7/2016	**0.52 J**	**2.1 J**	<0.11 U	**0.053**	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	**0.011**	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049
SB-15	7.5-8.0	4/7/2016	**0.46 J**	<5.0	<0.075 U	**0.018 J**	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	**0.002 J**	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049
SB-15	11.5-12.0	4/7/2016	<1.0	<5.0	<0.12 U	**0.0046 J**	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049
SB-16	0.5-1.0	4/7/2016	**340 NJ**	**580**	<0.12 U	<0.019	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0095	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
SB-16	3.5-4.0	4/7/2016	**0.85 J**	<5.0	<0.12 U	**0.041**	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	**0.0079 J**	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049
SB-16	7.5-8.0	4/7/2016	**0.37 J**	<5.0	<0.089 U	**0.024**	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	**0.0026 J**	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047
SB-16	11.5-12.0	4/7/2016	**3.2 NJ**	<5.0	<0.085 U	<0.020	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
SB-18	0.5-1.0	4/8/2016	**58 NJ**	**340**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-18	3.5-4.0	4/8/2016	**0.81 J**	**15**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-19	0.5-1.0	4/6/2016	**930 NJ**	**180**	**2,900 NJ J+**	**0.04 J**	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	**0.0063 J**	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024
SB-19	3.5-4.0	4/6/2016	**98 NJ**	**30**	**900 NJ**	**0.1 J**	<0.050	<0.050	**0.0077 J**	**0.041 J**	**0.0096 J**	<0.050	**0.840**	<0.050	<0.050	**1.1**	<0.050	**0.2**	**0.016 J**	**0.18**	**0.18**	**0.48**	**0.28**	**0.23**	**0.014 J**
SB-19	7.5-8.0	4/6/2016	**4,400 NJ**	**260**	**14,000 NJ J+**	<2.0	**0.047 J**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	**6.0**	**3.5**	**14**	**19**	**11**	**0.48 J**
SB-19	11.5-12.0	4/6/2016	**7.9 NJ**	<5.0	**5.6 NJ**	**0.018 J**	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	**0.0019 J**	<0.0048	<0.0048	<0.0048	<0.0048	**0.0021 J**	<0.0048
SB-20	0.5-1.0	4/11/2016	**42 NJ**	**250**	**1.9 NJ**	**0.011 J+**	<0.0045	<0.0045	**0.0017 J**	**0.0098**	**0.0022 J**	<0.0045	<0.0045	<0.0045	<0.0045	**0.0018 J**	<0.0045	**0.0011 J**	**0.0023 J**	**0.0027 J**	<0.0045	**0.0025 J**	<0.0045	<0.0045	<0.0045
SB-20	3.5-4.0	4/11/2016	**29 NJ**	**6.5**	**36 NJ**	**0.095**	<0.0045	**0.0005 J**	**0.0007 J**	**0.0018 J**	**0.0004 J**	**0.0007 J**	**0.0015 J**	<0.0045	**0.0008 J**	<0.0045	**0.0056**	<0.0045	**0.011**	**0.032**	<0.0045	**0.13**	**0.066**	**0.013**	**0.0016 J**
SB-20	7.5-8.0	4/11/2016	**0.72 J**	<5.0	<0.17 U	**0.018 J+**	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	**0.0035 J**	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	**0.0033 J**	**0.0005 J**	<0.0047	**0.0024 J**	**0.0020 J**	<0.0047	<0.0047
SB-20	11.5-12.0	4/11/2016	**1.8 NJ**	**<5.0**	**0.12 J**	**0.0048 J+**	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	**0.0022 J**	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049
SB-22	0.5-1.0	4/6/2016	**27 NJ**	**59**	<0.096 U	<0.019	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0097	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
SB-22	3.5-4.0	4/6/2016	**1.3 NJ**	**4.5 J**	<0.010 U	<0.018	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0088	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044
SB-22	7.0-7.5	4/6/2016	**19 NJ**	**22**	<0.010 U	<0.020	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
SB-22	11.5-12.0	4/6/2016	<1.0	<5.0	<0.011 U	<0.019	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0096	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
SB-23	0.5-1.0	4/7/2016	**62 NJ**	**440**	<0.010 U	<0.019	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0094	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047
SB-23	3.5-4.0	4/7/2016	**0.41 J**	**4.9 J**	<0.010 U	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0096	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
SB-23	7.5-8.0	4/7/2016	<1.0	<5.0	<0.012 U	<0.019	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0097	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
SB-23	11.5-12.0	4/7/2016	<1.0	<5.0	<0.011 U	**0.0048 J+**	<0.0048	<0.0048	<0.0048	**0.0010 J**	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0096	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
SB-25	0.5-1.0	4/7/2016	**1,700 NJ**	**3,400**	**40 NJ J+**	**0.033**	**0.0085**	<0.0050	**0.0040 J**	**0.0056**	**0.0044 J**	<0.0050	**0.0020 J**	<0.0050	<0.0050	**0.051**	<0.0050	**0.010**	**0.0045 J**	**0.0026 J**	**0.0093**	**0.0032 J**	**0.0056**	**0.0054**	<0.0050
SB-25	3.5-4.0	4/7/2016	**40 NJ**	**5.3**	**180 NJ**	**0.110 J b**	<0.047	<0.047	**0.0044 J**	**0.015 J**	<0.047	<0.047	**0.210**	<0.047	<0.047	**0.096**	<0.047	**0.019 J**	**0.019 J**	**0.022 J**	**0.024 J**	**0.084**	**0.150**	**0.075**	**0.0045 J**
SB-25	7.5-8.0	4/7/2016	**2,500 NJ**	**280**	**20,000**	<10	**46**	**80**	**250**	**830**	**230**	<2.5	**80**	<2.5	<2.5	**540**	<2.5	**180**	<5.0	**26**	**8**	**92**	**47**	**12**	**0.390 J**
SB-25	11.5-12.0	4/7/2016	**410 NJ**	**48 J**	**2,500**	<25	**13**	**170**	**55**	**220**	**88**	<6.3	**18**	<6.3	<6.3	**120**	<6.3	**37**	<13	**4.6 J**	**1.5 J**	**19**	**10**	**2.1 J**	<6.3
SB-26	0.5-1.0	4/6/2016	**6.7 NJ**	**20**	<0.099 U	<0.019	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0097	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
SB-26	3.5-4.0	4/6/2016	**1.7 NJ**	**7.0**	<0.080 U	<0.019	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0098	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
SB-26	7.5-8.0	4/6/2016	**0.77 J**	<5.0	<0.12 U	<0.020	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0099	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049
SB-26	11.5-12.0	4/6/2016	<1.0	**3.4 J**	<0.096 U	<0.019	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0096	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048
	CNG Fueling Station																								
B-2	NA	12/12/2014	<1.0	-	<1.1	-	<0.0053	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
B-2	NA	12/12/2014	**15**	-	<1.0	-	**0.0075**	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
B-2	NA	12/12/2014	<1.0	-	<0.95	-	<0.0048	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
CNG-B1	1	12/12/2014	**13**	**18**	**0.027 J**	**0.0057 J**	<0.00098	<0.00077	<0.00074	<0.0014	<0.00068	<0.0011	<0.00034	-	-	-	-	<0.00062	<0.0015	<0.00054	<0.00046	<0.00048	<0.00041	<0.00045	<0.00044
CNG-B1	5	12/12/2014	<0.37	<1.8	<0.011	**0.0061 J**	<0.00090	<0.00071	<0.00068	<0.0012	<0.00063	<0.0010	<0.00031	-	-	-	-	<0.00057	<0.0013	<0.00050	<0.00042	<0.00044	<0.00038	<0.00042	<0.00040
CNG-B1	7	12/12/2014	**1.6 Y**	<1.9	**0.015 J**	**0.0077 J**	<0.00078	<0.00061	<0.00059	<0.0011	<0.00054	<0.00086	<0.00027	-	-	-	-	<0.00049	<0.0012	<0.00043	<0.00037	<0.00038	<0.00033	<0.00036	<0.00035
CNG-B2	1	12/12/2014	**19 Y**	**230**	**0.028 J**	<0.026 U	<0.00089	<0.00098	<0.00091	<0.0018	<0.00076	<0.00062	<0.0013	-	-	-	-	<0.00083	<0.00086	<0.00083	<0.00079	<0.00085	<0.00075	<0.00078	<0.00090
CNG-B2	5	12/12/2014	**7.9 Y**	**77**	**0.015 J**	<0.017 U	<0.00060	<0.00040	<0.00053	<0.0011	<0.00059	<0.00087	<0.00044	-	-	-	-	<0.00054	<0.0010	<0.00057	<0.00056	<0.00067	<0.00054	<0.00055	<0.00068
CNG-B2	7	12/12/2014	**3.8 Y**	**42**	**0.016 J**	<0.016 U	<0.00056	<0.00037	<0.00049	<0.0011	<0.00055	<0.00081	<0.00041	-	-	-	-	<0.00050	<0.00094	<0.00053	<0.00052	<0.00062	<0.00050	<0.00052	<0.00063
		Tier-1 ESLs	*230*	*5,100*	*100*	*0.5*	*0.044*	*2.9*	*1.4*	*2.3*	*2.3*	*0.023*	*0.033*	*0.42*	*0.07*	---	---	---	*2.8*	---	---	---	---	---	---
		Applicable ESLs	*1,100*	*5,100*	*500*	*0.5*	*0.044*	*2.9*	*1.4*	*2.3*	*2.3*	*0.023*	*0.033*	*0.42*	*0.07*	---	---	---	*2.8*	---	---	---	---	---	---

Legend:
ft bgs = feet below ground surface
TPH-d = Total Petroleum Hydrocarbons as Diesel
TPH-mo = Total Petroleum Hydrocarbons as Motor Oil
TPH-g = Total Petroleum Hydrocarbons as Gasoline
C/I = Commercial/Industrial
ESL = Environmental Screening Level
--- = No screening level established
SB-# = Soil Boring Location
< = Analyte not detected at or above the stated laboratory reporting limit
NA = Not analyzed

Qualifiers:
HD = The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
J+ = ERM qualifier. Detected result qualified as estimated and biased high.
NJ = ERM qualifier. Estimated value - chromatogram did not resemble the standard hydrocarbon pattern.
SG - The sample extract was subjected to Silica Gel treatment prior to analysis.
U = Nondetected

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
* = Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 8015B Modified (M) with silica gel cleanup.
Samples were analyzed by USEPA Method 8260B.
Tier-1 ESL = Tier 1 Environmental Screening Level for Shallow Soils, San Francisco Bay Regional Water Quality Control Board, ESL Workbook, Tier-1 ESL Table, February 2016.
Applicable ESL = Appropriate ESL based on current and future site use as a Commercial/Industrial site using the Soil Summary Table from the San Francisco Bay Regional Water Quality Control Board ESL Workbook, February 2016.
Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the Applicable ESLs. Assumes direct exposure for a commercial/industrial site.

Table A-2
Semivolatile Organic Compounds in Soil
Site Characterization Summary Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Depth (ft bgs)	Date Sampled	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) Anthracene	Benzo (a) Pyrene	Benzo (b) Fluoranthene	Benzo (g,h,i) Perylene	Benzo (k) Fluoranthene	bis (2-Ethylhexyl) phthalate	Chrysene	Dibenzofuran	Fluoranthene	Fluorene	Indeno (1,2,3-c,d) Pyrene	2-Methylnaphthalene	1-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
		Tier-1 ESLs	*16*	*13*	*2.8*	*0.16*	*0.016*	*0.16*	*2.5*	*1.6*	*39*	*3.8*	*---*	*60*	*8.9*	*0.16*	*0.25*	*---*	*0.033*	*11*	*85*
		Applicable Soil ESLs	*16*	*13*	*2.8*	*2.9*	*0.29*	*2.9*	*2.5*	*29*	*160*	*3.8*	*---*	*60*	*8.9*	*2.9*	*0.25*	*---*	*0.033*	*11*	*85*
January 2014 Event																					
SB-2	1.5 - 2.0	1/23/2014	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
SB-2	8.5 - 9.0	1/23/2014	**1.7**	<0.50	**3.6**	**5.6**	**3.0**	**2.2**	**0.79**	**2.9**	<0.50	**4.7**	**0.92**	**12**	**1.9**	**0.94**	**7.3**	**3.9**	**8.4**	**13**	**13**
SB-2	14.0 - 14.5	1/23/2014	<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	<0.50	<0.50
SB-3	0.5 - 1.0	1/23/2014	<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	<0.50	<0.50
SB-3	6.0 - 6.5	1/23/2014	<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	<0.50	<0.50
SB-4	0.5 - 1.0	1/24/2014	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	**1.4**	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	**1.4**
SB-4	4.5	8/12/2016	<26	<13	<8.1	**11**	<3.8	<3.7	<5.0	<3.4	<4.4	NA	5.3	31	<5.8	<5.9	<4.7	<0.50	<0.50	<0.50	<0.50
SB-5	0.5 - 1.0	1/23/2014	<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	<5.0
SB-5	6.5 - 7.0	1/23/2014	<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	<0.50	<0.50
SB-6	0.5 - 1.0	1/23/2014	<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	<0.50	<0.50
SB-6	7.0 - 7.5	1/23/2014	<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	<0.50	<0.50
SB-7	0.5 - 1.0	1/24/2014	<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	<0.50	<0.50
SB-7	7.0 - 7.5	1/24/2014	<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	<0.50	<0.50
SB-8	0.5 - 1.0	1/23/2014	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
SB-8	6.0 - 6.5	1/23/2014	<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	<0.50	<0.50
SB-9	2.5 - 3.0	1/23/2014	<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	<0.50	<0.50
SB-9	6.0 - 6.5	1/23/2014	<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	**22**	**12**	**18**	<5.0	<5.0
SB-9	11.5 - 12.0	1/23/2014	<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	<0.50	<0.50
SB-10	0.5 - 1.0	1/24/2014	<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	<0.50	<0.50
SB-10	6.0 - 6.5	1/24/2014	<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	<0.50	<0.50
April 2016 Event																					
SB-14	0.5-1.0	4/7/2016	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<17	<3.3	<17	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3
SB-14	3.5-4.0	4/7/2016	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.33	<0.066	<0.33	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066
SB-14	7.5-8.0	4/7/2016	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.33	<0.067	<0.33	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
SB-14	11.5-12.0	4/7/2016	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.33	<0.066	<0.33	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066
SB-15	0.5-1.0	4/7/2016	<0.33	<0.33	<0.33	**0.079 J**	**0.11 J**	**0.14 J**	**0.15 J**	**0.049 J**	<1.7	**0.11 J**	<1.7	**0.10 J**	<0.33	**0.11 J**	<0.33	<0.33	<0.33	**0.055 J**	**0.12 J**
SB-15	3.5-4.0	4/7/2016	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.33	<0.066	<0.33	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066
SB-15	7.5-8.0	4/7/2016	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.33	<0.067	<0.33	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
SB-15	11.5-12.0	4/7/2016	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.33	<0.066	<0.33	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066
SB-16	0.5-1.0	4/7/2016	<3.3	<3.3	<3.3	**0.79 J**	**0.97 J**	**0.97 J**	**1.3 J**	**0.62 J**	<17	**0.78 J**	<17	**1.4 J**	<3.3	**0.89 J**	<3.3	<3.3	<3.3	**0.81 J**	**1.3 J**
SB-16	3.5-4.0	4/7/2016	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.33	<0.067	<0.33	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
SB-16	7.5-8.0	4/7/2016	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.33	<0.066	<0.33	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066
SB-16	11.5-12.0	4/7/2016	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.34	<0.067	<0.34	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
SB-19	0.5-1.0	4/6/2016	<1.4	<6.8	<1.4	**0.28 J**	**0.32 J**	**0.42 J**	**0.44 J**	<1.4	<6.8	**0.35 J**	<6.8	**0.71 J**	**0.36 J**	<1.4	<1.4	<1.4	**0.75 J**	**0.98 J**	**0.82 J**
SB-19	3.5-4.0	4/6/2016	<0.13	**0.028 J**	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.028 U	<0.13	<0.66	**0.023 J**	<0.13	<0.13	**0.057 J**	**0.028 J**	**1.3**	<0.13	**0.03 J**
SB-19	7.5-8.0	4/6/2016	<6.7	<33	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	<33	<6.7	<33	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7
SB-19	11.5-12.0	4/6/2016	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.029 U	<0.066	<33	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066
SB-20	0.5-1.0	4/11/2016	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<6.7	<1.3	<6.7	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
SB-20	3.5-4.0	4/11/2016	**0.030 J**	<0.068	<0.68	<0.068	<0.068	<0.068	<0.068	<0.068	<0.340	<0.068	**0.010 J**	<0.068	**0.023 J**	<0.068	**2.4**	**1.1**	<0.068	<0.068	<0.068
SB-20	7.5-8.0	4/11/2016	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.330	<0.067	<0.330	**0.026 J**	<0.067	<0.067	**0.018 J**	<0.067	<0.067	**0.015 J**	**0.020 J**
SB-20	11.5-12.0	4/11/2016	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.340	<0.067	<0.340	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
SB-22	0.5-1.0	4/6/2016	<0.067	**0.028 J**	**0.060 J**	**0.11**	**0.14**	**0.39**	**0.41**	**0.089**	<0.026 U	**0.24**	<0.34	**0.32**	<0.067	**0.30**	<0.067	<0.067	<0.067	**0.074**	**0.33**
SB-22	3.5-4.0	4/6/2016	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.020 U	<0.067	<0.34	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
SB-22	7.0-7.5	4/6/2016	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.016 U	<0.067	<0.33	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066
SB-22	11.5-12.0	4/6/2016	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	<0.026 U	<0.068	<0.34	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068
SB-25	0.5-1.0	4/7/2016	<3.4	**0.91 J**	<3.4	**4.1**	**8.7**	**12**	**7.6**	**3.9**	<17	**5.9**	<17	**11**	<3.4	**6.0**	<3.4	<3.4	**1.5 J**	**4.4**	**14**
SB-25	3.5-4.0	4/7/2016	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.34	<0.067	<0.34	<0.067	<0.067	<0.067	**0.018 J**	<0.067	**0.37**	<0.067	<0.067
SB-25	7.5-8.0	4/7/2016	**3.2 J**	<10	**7.4 J**	**12**	**7.1 J**	**8.0 J**	**2.0 J**	**4.3 J**	<50	**11**	**1.7 J**	**29**	**3.1 J**	**2.1 J**	**33**	**18**	**43**	**29**	**25**
SB-25	11.5-12.0	4/7/2016	**1.1 J**	<1.3	**2.8**	**4.6**	**2.8**	**3.3**	**0.78 J**	**1.2 J**	<6.7	**4.2**	**0.67 J**	**10**	**1.3 J**	**0.82 J**	**11**	**6.1**	**12**	**9.8**	**8.7**
SB-26	0.5-1.0	4/6/2016	<0.067	<0.34	<0.067	**0.016 J**	**0.021 J**	**0.028 J**	**0.021 J**	<0.067	<0.34	**0.024 J**	<0.34	**0.031 J**	<0.067	**0.018 J**	<0.067	<0.067	<0.067	**0.017 J**	**0.036 J**
SB-26	3.5-4.0	4/6/2016	<0.067	<0.33	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.33	<0.067	<0.33	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
SB-26	7.5-8.0	4/6/2016	<0.067	<0.34	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.34	<0.067	<0.34	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067	<0.067
SB-26	11.5-12.0	4/6/2016	<0.066	<0.33	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.33	<0.066	<0.33	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066
CNG Fueling Station																					
CNG-B1	1	12/12/2014	<0.0022	<0.0022	<0.0022	**0.0082J**	**0.0092 J**	**0.012**	<0.0027	<0.0022	-	**0.022**	-	**0.0047 J**	<0.0022	<0.0022	-	-	<0.00034	**0.0081 J**	0.0074 J
CNG-B1	5	12/12/2014	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	-	<0.0012	-	<0.0012	<0.0012	<0.0012	-	-	<0.00031	<0.0012	<0.0012
CNG-B1	7	12/12/2014	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	-	<0.0012	-	<0.0012	<0.0012	<0.0012	-	-	<0.00027	<0.0012	<0.0012
CNG-B2	1	12/12/2014	<0.0033	<0.0033	<0.0033	**0.0079 J**	**0.012 J**	**0.015 J**	**0.0041 J**	<0.0033	-	**0.027**	-	**0.0072 J**	<0.0033	<0.0034	-	-	<0.0013	**0.011 J**	**0.011 J**
CNG-B2	5	12/12/2014	<0.0012	**0.0012 J**	<0.0012	**0.0064**	**0.0092**	**0.013**	**0.0026 J**	**0.0031 J**	-	**0.012**	-	**0.0066**	<0.0012	**0.0018 J**	-	-	<0.00044	**0.0054 J**	**0.0075**
CNG-B2	7	12/12/2014	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	<0.0012	-	<0.0012	-	<0.0012	<0.0012	<0.0012	-	-	<0.00041	<0.0012	<0.0012
		Tier-1 ESLs	*16*	*13*	*2.8*	*0.16*	*0.016*	*0.16*	*2.5*	*1.6*	*39*	*3.8*	*---*	*60*	*8.9*	*0.16*	*0.25*	*---*	*0.033*	*11*	*85*
		Applicable ESLs	*16*	*13*	*2.8*	*2.9*	*0.29*	*2.9*	*2.5*	*29*	*160*	*3.8*	*---*	*60*	*8.9*	*2.9*	*0.25*	*---*	*0.033*	*11*	*85*

Legend:
ft bgs = feet below ground surface
C/I = Commercial/Industrial
ESL = Environmental Screening Level
--- = No screening level established
SB-# = Soil Boring Location
< = Analyte not detected at or above the stated laboratory reporting limit
J = Lab Qualifier - Estimated Value
U - Nondetected

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 8270C.
Tier-1 ESL = Tier 1 Environmental Screening Level for Shallow Soils, San Francisco Bay Regional Water Quality Control Board, ESL Workbook, Tier-1 ESL Table, February 2016.
Applicable ESL = Appropriate ESL based on current and future site use as a Commercial/Industrial site using the Soil Summary Table from the San Francisco Bay Regional Water Quality Control Board ESL Workbook, February 2016.
Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the Applicable ESLs. Assumes direct exposure for a commercial/industrial site.

Table A-3
Total Metals in Soil
Site Characterization Summary Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Depth (ft bgs)	Date Sampled	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
		Tier-1 ESLs	*31*	*0.067*	*3,000*	*42*	*39*	*120,000*	*23*	*3,100*	*80*	*390*	*86*	*390*	*390*	*0.78*	*390*	*23,000*	*13*
		Applicable ESLs	*470*	*0.31*	*220,000*	*2,200*	*580*	*1,800,000*	*350*	*47,000*	*320*	*5,800*	*11,000*	*5,800*	*5,800*	*12*	*5,800*	*350,000*	*190*
January 2014 Event																			
SB-2	1.5 - 2.0	1/23/2014	<0.765	**3.43**	**120**	**0.312**	**0.661**	**22.9**	**5.99**	**55.8**	**312**	**0.400**	**23.1**	<0.765	<0.255	<0.765	**20.0**	**339**	**4.50**
SB-2	8.5 - 9.0	1/23/2014	<0.732	**0.775**	**59.7**	<0.244	<0.488	**43.6**	**7.06**	**8.47**	**2.48**	<0.244	**33.5**	<0.732	<0.244	<0.732	**27.1**	**22.2**	<0.0845
SB-2	14.0 - 14.5	1/23/2014	<0.773	**2.47**	**63.8**	<0.258	<0.515	**39.3**	**7.95**	**8.90**	**1.94**	<0.258	**33.1**	<0.773	<0.258	<0.773	**27.6**	**21.2**	<0.0820
SB-3	0.5 - 1.0	1/23/2014	<0.769	**1.77**	**61.2**	<0.256	<0.513	**5.68**	**5.33**	**25.8**	**5.15**	<0.256	**6.79**	<0.769	<0.256	<0.769	**19.6**	**66.0**	**0.134**
SB-3	6.0 - 6.5	1/23/2014	<0.773	**0.921**	**46.4**	<0.258	<0.515	**28.3**	**2.45**	**9.34**	**2.16**	<0.258	**13.9**	<0.773	<0.258	<0.773	**17.5**	**20.1**	<0.0805
SB-4	0.5 - 1.0	1/24/2014	**1.16**	**13.3**	**309**	**0.522**	**4.98**	**36.2**	**9.65**	**385**	**1,670**	<0.251	**43.1**	<0.754	<0.251	<0.754	**23.8**	**2,080**	**1.55**
SB-4	4.5	8/12/2016	<26	**<13**	<8.1	**11**	<3.8	**<3.7**	**<5.0**	**<3.4**	**<4.4**	NA	**5.3**	31	<5.8	<5.9	<4.7	**37.5**	<0.0835
SB-5	0.5 - 1.0	1/23/2014	**33.5**	**15.3**	**921**	**0.267**	**4.89**	**50.9**	**13.6**	**1,840**	**4,760**	**50.1**	**73.9**	<0.773	**0.448**	<0.773	**28.5**	**3,420**	**7.14**
SB-5	6.5 - 7.0	1/23/2014	<0.758	**2.03**	**58.0**	<0.253	<0.505	**36.1**	**9.11**	**10.3**	**5.17**	**0.361**	**28.1**	<0.758	<0.253	<0.758	**27.7**	**20.5**	<0.0805
SB-6	0.5 - 1.0	1/23/2014	<0.758	**4.69**	**87.1**	<0.253	**0.657**	**30.7**	**4.34**	**37.3**	**249**	**1.10**	**22.3**	<0.758	<0.253	<0.253	**21.1**	**447**	**0.876**
SB-6	7.0 - 7.5	1/23/2014	<0.725	**1.37**	**42.8**	<0.242	<0.483	**37.3**	**3.52**	**6.15**	**1.77**	**0.607**	**22.6**	<0.725	<0.242	<0.725	**23.1**	**15.5**	<0.0835
SB-7	0.5 - 1.0	1/24/2014	**4.88**	**8.3**	**99.4**	**0.265**	**1.59**	**42**	**3.79**	**1,100**	**1,340**	<0.250	**21.7**	<0.750	<0.250	<0.750	**27**	**515**	**3.34**
SB-7	7.0 - 7.5	1/24/2014	<0.735	**1.98**	**55.4**	**0.294**	<0.490	**42.7**	**7.28**	**14.8**	**13.7**	<0.245	**31.6**	<0.735	<0.245	<0.735	**28.8**	**29.1**	<0.0835
SB-8	0.5 - 1.0	1/23/2014	**12.0**	**12.7**	**513**	<0.244	**7.19**	**44.9**	**8.09**	**3,890**	**2,380**	**6.22**	**47.2**	<0.732	**1.31**	<0.732	**26.4**	**2,800**	**8.10**
SB-8	6.0 - 6.5	1/23/2014	<0.735	**1.45**	**57.9**	<0.245	<0.490	**32.1**	**11.0**	**11.1**	**3.88**	<0.245	**27.0**	<0.735	<0.245	<0.735	**25.4**	**20.6**	<0.0835
SB-9	2.5 - 3.0	1/23/2014	<0.743	**5.23**	**219**	<0.248	**0.518**	**35.3**	**7.16**	**130**	**287**	**15.3**	**44.4**	<0.743	**0.776**	<0.743	**31.3**	**256**	<0.0875
SB-9	6.0 - 6.5	1/23/2014	<0.714	**1.25**	**51.0**	<0.238	<0.476	**31.3**	**5.53**	**7.99**	**2.53**	<0.238	**22.2**	<0.714	<0.238	<0.714	**20.3**	**17.3**	<0.0835
SB-9	11.5 - 12.0	1/23/2014	<0.754	**1.03**	**74.7**	**0.273**	<0.503	**73.4**	**7.54**	**11.8**	**2.62**	<0.251	**44.9**	<0.754	<0.251	<0.754	**36.1**	**24.8**	<0.0845
SB-10	0.5 - 1.0	1/24/2014	<0.718	**2.51**	**125**	**0.317**	<0.478	**7.95**	**7.3**	**29.1**	**5.37**	<0.239	**8.61**	<0.718	<0.239	<0.718	**26.6**	**86.1**	**0.139**
SB-10	6.0 - 6.5	1/24/2014	<0.758	<0.758	**28.5**	<0.253	<0.505	**29.4**	**1.9**	**11.1**	**1.32**	<0.253	**9.56**	<0.758	<0.253	<0.758	**18.4**	**11.6**	<0.0845
April 2016 Event																			
SB-11	0.5-1.0	4/8/2016	**3.1**	**5.7**	**210**	**0.22**	**3.1**	**91**	**6.1**	**210**	**890**	**0.75**	**28**	<0.26 U	<0.33 U	<0.54	**29**	**910**	**2.2**
SB-11	3.5-4.0	4/8/2016	**0.55**	**1.4**	**57**	**0.16**	**0.36**	**29**	**3.4**	**10**	**10**	**0.21 J**	**16**	<0.53	<0.23 U	<0.53	**19**	**55**	**0.079**
SB-12	0.5-1.0	4/8/2016	**3.6**	**5.2**	**300**	**0.27**	**3.3**	**42**	**6.9**	**780**	**510**	**1.9**	**26**	<0.52	**0.43 J**	<0.52	**27**	**730**	**3.6**
SB-12	3.5-4.0	4/8/2016	**0.28 J**	**1.1**	**69**	**0.17**	**0.33**	**25**	**3.4**	**6.8**	**2.5**	**0.22 J**	**16**	<0.52	<0.13 U	<0.52	**18**	**28**	**0.031**
SB-14	0.5-1.0	4/7/2016	**3.8**	**3.4**	**200**	**0.46**	**2.5**	**27**	**18**	**330**	**470**	**0.71**	**46**	<0.48	**0.47 J**	<0.48	**31**	**580**	**0.94**
SB-14	3.5-4.0	4/7/2016	**0.5**	**0.88**	**42**	**0.16**	**0.29**	**26**	**3.2**	**4.3**	**1.5**	**0.10 J**	**13**	<0.46	**0.10 J**	**0.24 J**	**18**	**13**	<0.0081 U
SB-15	0.5-1.0	4/7/2016	**1.1**	**2.6**	**130**	**0.62**	**0.68**	**15**	**8.0**	**22**	**33**	**0.23**	**16**	<0.54	**0.12 J**	<0.54	**26**	**83**	**0.55**
SB-15	3.5-4.0	4/7/2016	**0.66**	**1.7**	**49**	**0.15**	**0.28**	**25**	**3.5**	**4.9**	**3.5**	**0.080 J**	**12**	<0.55	<0.27	**0.20 J**	**18**	**13**	**0.020**
SB-16	0.5-1.0	4/7/2016	**4.7**	**4.7**	**210**	**0.61**	**1.9**	**20**	**7.8**	**440**	**640**	**0.46**	**21**	<0.54	**0.44 J**	<0.54	**26**	**890**	**7.5**
SB-16	3.5-4.0	4/7/2016	**0.59**	**0.84**	**50**	**0.17**	**0.3**	**26**	**3.5**	**4.0**	**1.4**	**0.14 J**	**14**	<0.49	**0.11 J**	**0.22 J**	**19**	**14**	<0.014 U
SB-17	0.5-1.0	4/8/2016	**0.55**	**1.7**	**69**	**0.30**	**0.60**	**51**	**7.5**	**8.7**	**5.1**	**0.32**	**38**	<0.17 U	<0.14 U	**0.26 J**	**32**	**26**	**0.035**
SB-17	3.5-4.0	4/8/2016	**0.44 J**	**0.98**	**78**	**0.17**	**0.33**	**25**	**3.8**	**5.7**	**3.0**	**0.20 J**	**17**	<0.18 U	<0.11 U	<0.51	**18**	**21**	**0.029**
SB-18	0.5-1.0	4/8/2016	**13**	**16**	**220**	**0.26**	**3.2**	**30**	**5.6**	**840**	**1,500**	**0.59**	**27**	<0.74 U	**0.94 J**	**2.8**	**28**	**1,900**	**1.7**
SB-18	3.5-4.0	4/8/2016	**0.60**	**1.3**	**47**	**0.17**	**0.31**	**25**	**3.7**	**6.2**	**3.4**	**0.21 J**	**15**	<0.40 U	<0.19 U	<0.54	**18**	**20**	**0.024**
SB-19	0.5-1.0	4/6/2016	**1.7**	**11**	**310**	**0.21**	**0.76**	**28**	**5.4**	**56**	**1,900**	**0.15 J**	**20**	<0.48	<0.24	**0.41 J**	**26**	**190**	**0.20**
SB-19	3.5-4.0	4/6/2016	<0.49	**0.82**	**67**	**0.17**	**0.018 J**	**25**	**3.4**	**5.9**	**2.3**	**0.082 J**	**15**	<0.49	<0.24	**0.23 J**	**20**	**16**	**0.017**
SB-22	0.5-1.0	4/6/2016	**1.5**	**4.3**	**110**	**0.22**	**0.31**	**32**	**5.7**	**33**	**260**	**0.10 J**	**23**	<0.50	<0.25	<0.50	**27**	**170**	**0.12**
SB-22	3.5-4.0	4/6/2016	**0.54**	**1.2**	**77**	**0.17**	**0.048 J**	**26**	**4.9**	**11**	**3.1**	**0.071 J**	**17**	**0.21 J**	<0.25	<0.50	**19**	**22**	**0.047**
SB-22	7.0-7.5	4/6/2016	**0.79**	**3.6**	**59**	**0.20**	**0.051 J**	**34**	**7.0**	**11**	**4.0**	<0.23	**24**	**0.30 J**	<0.23	<0.46	**31**	**32**	**0.063**
SB-22	11.5-12.0	4/6/2016	**1.8**	**0.83**	**63**	**0.24**	**0.16 J**	**56**	**5.3**	**8.7**	**3.1**	<0.24	**30**	<0.48	<0.24	<0.48	**28**	**43**	**0.024**
SB-23	0.5-1.0	4/7/2016	**8.0**	**15**	**360**	**0.27**	**6.1**	**26**	**7.5**	**280**	**2,300**	**0.85**	**32**	**7.8**	<0.76 U	<0.47	**30**	**2,400**	NA
SB-23	3.5-4.0	4/7/2016	<0.54 U	**1.3**	**65**	**0.17**	**0.35**	**27**	**3.6**	**5.5**	**2.4**	**0.21 J**	**15**	**1.7**	<0.047 U	<0.52	**20**	**18**	NA
SB-24	0.5-1.0	4/8/2016	**1.3**	**25**	**160**	**0.20**	**0.83**	**33**	**2.9**	**200**	**310**	**0.36**	**12**	<0.52	<0.24 U	**0.15 J**	**20**	**130**	**17**
SB-24	3.5-4.0	4/8/2016	**0.46 J**	**1.0**	**65**	**0.17**	**0.51**	**25**	**2.8**	**14**	**2.6**	**0.20 J**	**12**	<0.31 U	<0.26	<0.53	**18**	**27**	**0.044**
August 2016 Event																			
SB-27	0.5-1.0	8/19/2016	<3	**2.40**	**145**	<0.5	**0.58**	**19.8**	**6.74**	**94.8**	**421**	<1	**16.2**	<1	<0.5	<1	**25.3**	**241**	**1.6**
SB-27	3.5-4.0	8/19/2016	<3	**1.39**	**72.0**	<0.5	<0.5	**28.1**	**4.05**	**6.23**	**8.00**	<1	**16.0**	<1	<0.5	**1.13**	**19.8**	**22.6**	**0.045**
SB-28	0.5-1.0	8/19/2016	<3	**14.8**	**345**	<0.5	**4.56**	**28.4**	**12.7**	**375**	**1,450**	<1	**41.1**	<1	<0.5	<1	**41.7**	**1,150**	**4.3**
SB-28	3.5-4.0	8/19/2016	<3	<1	**85.1**	<0.5	<0.5	**32.2**	**3.11**	**7.31**	**14.7**	<1	**16.9**	<1	<0.5	<1	**22.1**	**113**	**0.041**
SB-29	0.5-1.0	8/19/2016	<3	**2.54**	**79.8**	<0.5	<0.5	**22.2**	**3.63**	**12.2**	**71.1**	<1	**15.0**	<1	<0.5	<1	**17.2**	**64.0**	**0.84**
SB-29	3.5-4.0	8/19/2016	<3	**1.88**	**67.4**	<0.5	<0.5	**28.4**	**3.80**	**5.59**	**7.20**	<1	**15.6**	<1	<0.5	<1	**19.0**	**20.90**	**0.043**
SB-30	0.5-1.0	8/19/2016	<3	<1	**103**	<0.5	<0.5	**14.4**	**6.45**	**7.88**	**39.5**	<1	**14.1**	<1	<0.5	**2.14**	**16.6**	**43.0**	**1.5**
SB-30	3.5-4.0	8/19/2016	<3	**1.82**	**82.0**	<0.5	<0.5	**32.7**	**4.65**	**6.38**	**4.47**	<1	**19.1**	<1	<0.5	<1	**22.5**	**21.3**	**0.015 J**
SB-31	0.5-1.0	8/19/2016	<3	**5.16**	**227**	<0.5	**1.07**	**31.4**	**13.2**	**504**	**1,270**	**<1**	**268**	<1	**<0.5**	<1	**165**	**308**	**5.0**
SB-31	3.5-4.0	8/19/2016	<3	**1.08**	**120**	<0.5	<0.5	**35.8**	**5.37**	**35.0**	**74.8**	<1	**29.0**	<1	**<0.5**	<1	**28.8**	**54.9**	**0.13**
CNG Fueling Station																			
CNG-B1	1	12/12/2014	**0.41 J**	**2.1**	**69**	**0.29**	**0.80**	**28**	**5.9**	**13**	**30**	0.19 J	**19**	<0.17	<0.041	<0.15	**28**	**82**	**0.18**
CNG-B2	1	12/12/2014	**0.24 J**	**3.2**	**81**	**0.30**	**0.85**	**26**	**5.5**	**21**	**56**	**0.40**	**14**	<0.19	<0.048	<0.17	**29**	**75**	**0.21**
		Tier-1 ESLs	*31*	*0.067*	*3,000*	*42*	*39*	*120,000*	*23*	*3,100*	*80*	*390*	*820*	*390*	*390*	*0.78*	*390*	*23,000*	*13*
		Applicable ESLs	*470*	*0.31*	*220,000*	*2,200*	*580*	*1,800,000*	*350*	*47,000*	*320*	*5,800*	*11,000*	*5,800*	*5,800*	*12*	*5,800*	*350,000*	*190*

Legend:
ft bgs = feet below ground surface
C/I = Commercial/Industrial
ESL = Environmental Screening Level
SB-# = Soil Boring Location
< = Analyte not detected at or above the stated laboratory reporting limit
J = Lab Qualifier - Estimated Value
U - Nondetected

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 6010/7000 series.
Tier-1 ESL = Tier 1 Environmental Screening Level for Shallow Soils, San Francisco Bay Regional Water Quality Control Board, ESL Workbook, Tier-1 ESL Table, February 2016.
Applicable ESL = Appropriate ESL based on current and future site use as a Commercial/Industrial site using the Soil Summary Table from the San Francisco Bay Regional Water Quality Control Board ESL Workbook, February 2016.
Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the Applicable ESLs. Assumes direct exposure for a commercial/industrial site.

Table A-4
Organochlorine Pesticides in Soil
Site Characterization Summary Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Depth (ft bgs)	Date Sampled	Chlordane	4,4'-DDD	4,4'-DDE	4,4'-DDT	Dieldrin	Endosulfan I	Endrin	Endrin Aldehyde	Gamma-Chlordane	Heptachlor Epoxide
		Tier 1 ESLs	*0.48*	*2.7*	*1.9*	*1.9*	*0.00017*	*0.0046*	*0.00065*	---	---	*0.00042*
		Applicable ESLs	*2.2*	*12.0*	*8.5*	*8.5*	*0.00017*	*0.0046*	*0.00065*	---	---	*0.00042*
January 2014 Event												
SB-2	1.5 - 2.0	1/23/2014	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005
SB-3	0.5 - 1.0	1/23/2014	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005
SB-4	0.5 - 1.0	1/24/2014	<0.05	**0.026**	<0.005	**0.028**	<0.005	<0.005	<0.005	<0.005	NA	<0.005
SB-5	0.5 - 1.0	1/23/2014	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	**0.23**
SB-5	4.5	8/12/2016	**11**	<3.8	<3.7	<5.0	<4.4	NA	<5.8	<5.9	NA	<0.005
SB-6	0.5 - 1.0	1/23/2014	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005
SB-7	0.5 - 1.0	1/24/2014	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005
SB-8	0.5 - 1.0	1/23/2014	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	**0.07**
SB-8	6.0 - 6.5	1/23/2014	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005
SB-9	2.5 - 3.0	1/23/2014	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005
SB-10	0.5 - 1.0	1/24/2014	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005
April 2016 Event												
SB-14	0.5-1.0	4/7/2016	**0.072 CJ**	<0.033	**0.042 C**	<0.033	**0.018 C**	<0.017	**0.022 J**	<0.033 #	<0.017	<0.017
SB-14	3.5-4.0	4/7/2016	<0.0017	<0.0033	<0.0033	<0.0033	<0.0017	<0.0017	<0.0033	<0.0033 #	<0.0017	<0.0017
SB-15	0.5-1.0	4/7/2016	<0.0017	<0.0033	**0.0028 J**	**0.011**	<0.0017	<0.0017	**0.0012 J**	<0.0033 #	**0.0034**	<0.0017
SB-15	3.5-4.0	4/7/2016	<0.0017	<0.0033	<0.0033	<0.0033	<0.0017	<0.0017 #	<0.0033	<0.0033 #	<0.0017 #	<0.0017
SB-16	0.5-1.0	4/7/2016	**0.012 J**	<0.034	**0.30**	<0.034	**0.055 C**	**0.029 C**	**0.063 C**	**0.13 CJ**	**0.13 CJ**	**0.056 C**
SB-16	3.5-4.0	4/7/2016	<0.0017	<0.0033	<0.0033	<0.0033	<0.0017	<0.0017	<0.0033	<0.0033 #	<0.0017 #	<0.0017
SB-18	0.5-1.0	4/8/2016	<0.034	<0.067	<0.067	**0.023**	<0.034	**0.0055 CJ**	<0.067	<0.067	<0.034	<0.034
SB-18	3.5-4.0	4/8/2016	<0.0017	<0.0033	<0.0033	<0.0033	<0.0017	<0.0017	<0.0033	<0.0033	<0.0017	<0.0017
		Tier 1 ESLs	*0.48*	*2.7*	*1.9*	*1.9*	*0.00017*	*0.0046*	*0.00065*	---	---	*0.00042*
		Applicable ESLs	*2.2*	*12.0*	*8.5*	*8.5*	*0.00017*	*0.0046*	*0.00065*	---	---	*0.00042*

Legend:
ft bgs = feet below ground surface
DDD = Dichlorodiphenyldichloroethane
DDE = Dichlorodiphenyldichloroethylene
DDT = Dichlorodiphenyltrichloroethane
ESL = Environmental Screening Level
--- = No screening level established
SB-# = Soil Boring Location
< = Analyte not detected at or above the stated laboratory reporting limit
NA = Not analyzed
C = Lab qualifier. Presence confirmed, but RPD between columns exceeds 40%.
J = Estimated detected result.
# = CCV drift outside limits: average CCV drift within limits per method requirements.

Notes:
All concentrations reported in milligrams per kilogram (mg/kg).
Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 8081A.
Pesticides not listed were not detected above laboratory reporting limits.
Tier-1 ESL = Tier 1 Environmental Screening Level for Shallow Soils, San Francisco Bay Regional Water Quality Control Board, *ESL Workbook*, Tier-1 ESL Table, February 2016.
Applicable ESL = Appropriate ESL based on current and future site use as a Commercial/Industrial site using the Soil Summary Table from the San Francisco Bay Regional Water Quality Control Board *ESL Workbook* , February 2016.
Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the Applicable ESLs.

Table A-5
Polychlorinated Biphenyls in Soil
Site Characterization Summary Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Depth (ft bgs)	Date Sampled	Aroclor- 1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260
		Tier 1 ESLs	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*
		Applicable ESLs	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
January 2014 Event									
SB-2	1.5 - 2.0	1/23/2014	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SB-3	0.5 - 1.0	1/23/2014	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SB-4	0.5 - 1.0	1/24/2014	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SB-5	0.5 - 1.0	1/23/2014	<5	<5	<5	<5	<5	**32**	**8.1**
SB-5	6.5 - 7.0	1/23/2014	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SB-6	0.5 - 1.0	1/23/2014	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SB-7	0.5 - 1.0	1/24/2014	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SB-8	0.5 - 1.0	1/23/2014	<0.5	<0.5	<0.5	<0.5	<0.5	**11**	**3.1**
SB-8	4.5	8/12/2016	<26	<13	<8.1	**11**	<3.8	<3.7	<5.0
SB-9	2.5 - 3.0	1/23/2014	<0.05	<0.05	<0.05	<0.05	<0.05	**0.094**	**0.054**
SB-10	0.5 - 1.0	1/24/2014	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
April 2016 Event									
SB-14	0.5-1.0	4/7/2016	<0.160	<0.330	<0.160	<0.160	<0.160	**10**	**0.55**
SB-14	3.5-4.0	4/7/2016	<0.012	<0.024	<0.012	<0.012	<0.012	<0.012	<0.012
SB-15	0.5-1.0	4/7/2016	<0.084	<0.170	<0.084	<0.084	<0.084	**2.4**	**0.3**
SB-15	3.5-4.0	4/7/2016	<0.012	<0.024	<0.012	<0.012	<0.012	<0.012	<0.012
SB-16	0.5-1.0	4/7/2016	<0.420	<0.840	<0.420	<0.420	<0.420	**17**	**2.4**
SB-16	3.5-4.0	4/7/2016	<0.012	<0.024	<0.012	<0.012	<0.012	<0.012	<0.012
SB-18	0.5-1.0	4/8/2016	<0.012	<0.024	<0.012	<0.012	<0.012	**0.1**	**0.04**
SB-18	3.5-4.0	4/8/2016	<0.012	<0.024	<0.012	<0.012	<0.012	<0.012	<0.012
		Tier 1 ESLs	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*	*0.25*
		Applicable ESLs	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*

Legend:

ft bgs = feet below ground surface
C/I = Commercial/Industrial
ESL = Environmental Screening Level
--- = No screening level established
SB-# = Soil Boring Location
< = Analyte not detected at or above the stated laboratory reporting limit
NA = Not analyzed

Notes:

All concentrations reported in milligrams per kilogram (mg/kg).
Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 8082.
PCBs not listed were not detected above laboratory reporting limits.
Tier-1 ESL = Tier 1 Environmental Screening Level for Shallow Soils, San Francisco Bay Regional Water Quality Control Board, ESL Workbook, Tier-1 ESL Table, February 2016.

Applicable ESL = Appropriate ESL based on current and future site use as a Commercial/Industrial site using the Soil Summary Table from the San Francisco Bay Regional Water Quality Control Board *ESL Workbook*, February 2016.

Bold values indicate detections at or above the laboratory reporting limit.
Values shaded light gray indicate concentrations detected above the Applicable ESLs.

Table A-6
Total Petroleum Hydrocarbons and Volatile Organic Compounds in Groundwater
Site Characterization Summary Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Interval / Screen Interval (ft bgs)	Date Sampled	TPH-d[a]	TPH-mo[a]	TPH-g[a]	Acetone	Benzene	Carbon Disulfide	Chloroform	Toluene	Ethylbenzene	gm-Xylenes	o-Xylene	Methyl-t-butyl-ether (MTBE)	Naphthalene	Styrene/Bromoform	Tert-butylbenzene	Tert-butylmethoxymethane	1,1-Dichloroethane	1,2-Dichloroethane	1,3-Dichloroethane	1,4-Dichlorobenzene	cis-1,2-Dichloroethene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	trans-1,2-Dichloroethene	2-Butanone	Isopropylbenzene	para-Isopropyl Toluene	Phenylbenzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene
		Tier-1 ESL	*100*	*50,000* [1]	*100*	*1,500*	*1*	---	*2.3*	*40*	*13*	*20*	*20*	*5*	*0.17*	*5*	*5*	---	*5*	*5.2*	*0.5*	*14*	*6*	---	---	*1.0*	*5,600*	---	---	---	---	---	---	---
		ESL Direct Exposure	*150*	*50,000*	*220*	*14,000*	*1*	---	*80*	*150*	*30*	*390*	*190*	*13*	*0.17*	*5*	*5*	---	*5*	*6.0*	*0.5*	*100*	*6*	---	---	*10*	*5,600*	---	---	---	---	---	---	---
		GW Groundwater ESLs for Vapor Intrusion	---	---	---	*290,000,000*	*9.7*	---	*20*	*50,000*	*110*	*11,000*	*11,000*	*11,000*	*170*	*3*	*49*	---	*380*	*1,400*	*55*	*300,000*	*950*	---	---	*30,000*	*15,000,000*	---	---	---	---	---	---	---
		MCLs	---	---	---	---	*5*	---	---	*1,000*	*700*	*10,000*	*20,000*	---	---	*5*	*5*	*150*	---	*6.0*	*5*	*600*	*6*	---	---	*10*	---	---	---	---	---	---	---	---
January 2014 Event																																		
SB-2	5 - 15	1/24/2014	**10,000 SG,HD**	**480 SG,HD**	**63,000**	<2000	**1,800**	<1000	<100	**15,000**	**6,800**	**26,000**	**10,000**	<100	**1,400**	<100	<100	<1,000	<100	<100	<50	<100	<100	**6,600**	**1,800**	<100	<1000	**390**	<100	**1,500**	**760**	**150**	<100
SB-2-DUP	5 - 15	1/24/2014	**14,000 SG,HD**	**360 SG,HD**	**14,000**	<200	**1,300**	<100	<10	**3,100**	**1,300**	**5,100**	**1,500**	**16**	<100	<10	<10	<100	<10	<10	<5.0	<10	<10	**560**	**160**	<10	<100	**63**	<10	**140**	**17**	<10	<10
SB-3	5 - 15	1/24/2014	<50	<250	**120**	<20	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
SB-4	5 - 15	1/27/2014	<50	<250	<50	<20	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
SB-5	7 - 12	1/24/2014	**53 SG,HD**	<250	**140**	<20	**0.54**	<10	<1.0	**5.7**	**2.7**	**11**	**3.6**	<1.0	<10	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
SB-6	7 - 12	1/24/2014	<50	<250	<50	<20	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
SB-7	5 - 15	1/24/2014	<50	<250	<50	<20	<0.50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
SB-8	5 - 15	1/24/2014	<50	<250	<50	<20	<0.50	<10	<1.0	**4.2**	**1.8**	**4.6**	**1.0**	<1.0	<10	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
SB-9	4.5	8/12/2016	<26	<13	<8.1	**31**	<3.8	<5.7	<5.0	<5.4	<4.4	NA	5.3	51.10	<5.8	<5.9	<4.7	<1,000	<100	<100	<50	<100	<100	**6,600**	**1,800**	<100	<1000	**220**	<100	**810**	**370**	<100	<100
April 2016 Event																																		
SB-13	2-12	4/7/2016	**31 J**	<310	**25 J**	**3.9 J**	<0.5	<0.5	<0.5	<0.5	**0.3 J**	**0.8**	<0.5	<0.5	<2.0	<0.5	<0.5	<1.0	**0.3 J**	<0.5	**0.2 J**	<0.5	<0.5	**0.6**	**0.2 J**	<0.5	<10	**0.8**	<0.5	**0.9**	<0.5	**0.2 J**	<0.5
SB-14	2-12	4/7/2016	**440 NJ**	**410**	<50	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	**1.3**	**0.2 J**	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	**0.6 J**	<0.5	<0.5	<0.5	<0.5	<0.5
SB-15	2-12	4/7/2016	**3,300 NJ**	**2,100**	**490**	**8.4 J**	**110**	<1.3	<1.3	**110**	**4.5**	**15**	**7.3**	**0.5 J**	<5.0	<1.3	<1.3	<2.5	<1.3	<1.3	**0.3 J**	<1.3	<1.3	**1.4**	**0.5 J**	<1.3	**<25**	<1.3	<1.3	**0.3 J**	<1.3	<1.3	<1.3
SB-16	2-12	4/7/2016	**4,600 NJ**	**3,900**	**130**	**9.0 J**	**0.9**	<0.5	<0.5	**6.9**	**1.5**	**6.6**	**2.6**	<0.5	**0.3 J**	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	**2.4**	**0.8**	<0.5	**1.5 J**	**0.2 J**	<0.5	**0.5**	**0.2 J**	**0.2 J**	<0.5
SB-19	5-15	4/6/2016	**1,100 NJ**	**840**	**2,600**	**9.0 J**	**7.9**	<0.5	<0.5	**0.3 J**	**2.0**	**3.9**	**0.8**	**1.1**	**2.7**	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.1 U	**0.2 J**	<0.5	**1.1**	**1.0**	<0.5	**1.6 J**	**36**	**8.5**	**70**	**44**	**35**	**1.9**
SB-19-DUP	5-15	4/6/2016	**170,000 NJ**	**10,000**	**23000 NJ**	<100	**4.9**	<5.0	<5.0	<5.0	**1.7 J**	**2.1 J**	<5.0	<5.0	<20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**7.2**	**1.9 J**	<5.0	<100	**25**	**14**	**50**	**40**	**34**	**1.6 J**
SB-20	2-12	4/11/2016	**2,800**	**1,600**	**3,300**	**19 J**	**0.7 J**	<1.7	<1.7	**1.4 J**	**1.5 J**	**2.6**	**0.8 J**	**220**	**1.0 J**	<1.7	<1.7	<3.3	<1.7	<1.7	**0.3 J**	<1.7	<1.7	**0.7 J**	<1.7	<1.7	**6.0 J**	**37**	<1.7	**99**	**15**	**7.7**	**1.8**
SB-21	2-12	4/7/2016	**710 NJ**	**290 J**	**69**	**5.0 J**	**0.5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.5**	<2.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	**1.1 J**	<0.5	<0.5	<0.5	<0.5	**0.1 J**
SB-22	5-15	4/6/2016	**940 NJ**	**1,200**	<50	<10	<0.5	**0.2 J**	<0.5	**0.3 J**	<0.5	**0.2 J**	<0.5	**4.0**	<2.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	**0.1 J**	<0.5	<0.5	<10	**0.4 J**	<0.5	<0.5	<0.5	<0.5	<0.5
SB-23	2-12	4/7/2016	**25 J**	<300	<50	**4.4 J**	<0.5	<0.5	<0.5	**0.2 J**	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	**<0.5**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5
SB-25	2-12	4/7/2016	**99,000**	**20,000**	**490,000**	<6,300	**35,000**	<310	<310	**56,000**	**6,300**	**25,000**	**9,600**	<310	**1,000 J**	<310	<310	<310	<310	<310	<310	<310	<310	**7,300**	**2,300**	<310	<6,300	**320**	<310	**1,000**	**260 J**	**120 J**	<310
SB-26	5-15	4/6/2016	**1,000 NJ**	**1,600**	<50	**4.0 J**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.9**	<2.0	<0.5	<0.5	<1.0	<0.5	<0.5	**0.3 J**	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
August 2016 Event																																		
CPT-1-27	22-27	8/9/2016	<50	<300	**9.7 NJ**	<10	<0.5	<0.5	<0.5	**1.0**	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	**0.4 J**	**0.2 J**	**0.7**	<0.5	**0.3 J**	<0.5	**0.3 J**	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-3-42	37-42	8/9/2016	<50	<300	**53 NJ**	<10	**0.3 J**	<0.5	**0.4 J**	**0.6**	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	**22**	**4.3**	**0.5**	**1.9**	**1.1**	<0.5	**4.8**	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-2-27	22-27	8/9/2016	<49	<290	**27 NJ**	<10	<0.5	<0.5	<0.5	**2.7**	<0.5	<0.5	<0.5	**0.6**	<2.0	<0.5	*0.3 J*	<1.0	**0.8**	**0.3 J**	**0.6**	<0.5	**1.0**	<0.5	<0.5	<0.5	**0.5 J**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-2-42	37-42	8/9/2016	<48U	<290	**68 NJ**	<10	<0.5	<0.5	**0.3 J**	**0.4 J**	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	**20**	**3.0**	**0.3 J**	**2.2**	**1.3**	<0.5	**5.4**	<0.5	<0.5	**0.2 J**	**0.6 J**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-3-28	23-28	8/9/2016	<50	<300	**280 NJ**	<20	<1.0	<1.0	0.4 J	<1.0	<1.0	<1.0	<1.0	<1.0	<4.0	**1.0 J**	**120**	**1.5 J**	**1.0 J**	**37**	**0.8 J**	<1.0	**12**	<1.0	<1.0	**0.4 J**	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
CPT-3-38	33-38	8/9/2016	<56	<330	**28 NJ**	<10	**0.7**	<0.5	**0.2 J**	**0.5**	<0.5	<0.5	<0.5	<0.5	<2.0	**0.6**	**7.3**	<1.0	<0.5	**1.1**	**1.3**	<0.5	**5.5**	<0.5	<0.5	<0.5	**0.5 J**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CPT-3-48	43-48	8/8/2016	<49	<290	**12 NJ**	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	**0.2 J**	**2.6**	<1.0	<0.5	<0.5	**0.3 J**	<0.5	**0.7**	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CNG Fueling Station																																		
CNG-B1	10-15	12/12/2014	**79**	**1,300**	<50 U	**1.0J**	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.2	**0.3 J**	**0.03 J**	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CNG-B2	10-15	12/12/2014	**200 Y**	**230 J**	<50 U	**1.5 J**	<0.1	<0.5	0.2J	<0.1	<0.1	<0.1	<0.2	<0.1	<0.2	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CNG B-3	10 - 15	12/12/2014	**2200**	**940**	**1,100Y**	**1.3J**	<0.1	**0.2J**	<0.1	<0.1	**1.5**	<0.1	<0.2	<0.1	**3.6**	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**2.1**	<0.5	<0.3	**2.0**	**0.1J**	**2.3**	<0.1	**1.5**	**0.7**
CNG-B4	10 - 15	12/15/2014	**2400**	**5,700**	**827**	**1.1J**	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<2.0U	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.3	<0.1	<0.1	<0.1	<0.1	**0.3J**
		Tier-1 ESLs	*100*	*50,000* [1]	*100*	*1,500*	*1*	---	*2.3*	*40*	*13*	*20*	*20*	*5*	*0.17*	*5*	*5*	---	*5*	*5.2*	*0.5*	*14*	*6*	---	---	*1.0*	*5,600*	---	---	---	---	---	---	---
		ESL Direct Exposure	*150*	*50,000*	*220*	*14,000*	*1*	---	*80*	*150*	*30*	*390*	*190*	*13*	*0.17*	*5*	*5*	---	*5*	*6.0*	*0.5*	*100*	*6*	---	---	*10*	---	---	---	---	---	---	---	---
		GW Groundwater ESLs for Vapor Intrusion	---	---	---	*290,000,000*	*9.7*	---	*20*	*50,000*	*110*	*11,000*	*11,000*	*11,000*	*170*	*3*	*49*	---	*380*	*1,400*	*55*	*300,000*	*950*	---	---	*30,000*	---	---	---	---	---	---	---	---
		MCLs	---	---	---	---	*5*	---	---	*1,000*	*700*	*10,000*	*20,000*	---	---	*5*	*5*	*150*	---	*6.0*	*5*	*600*	*6*	---	---	*10*	---	---	---	---	---	---	---	---

Legend:
ft bgs = feet below ground surface
TPH-d = Total Petroleum Hydrocarbons as Diesel
TPH-mo = Total Petroleum Hydrocarbons as Motor Oil
TPH-g = Total Petroleum Hydrocarbons as Gasoline
C/I = Commercial/Industrial
ESL = Environmental Screening Level
MCL = Maximum Contaminant Level
--- = No screening level established
SB-# = Soil Boring Location
< = Analyte not detected at or above the stated laboratory reporting limit
NA = Not Analyzed

Qualifiers:
HD - The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
SG - The sample extract was subjected to Silica Gel treatment prior to analysis.
U = EIM qualifier - Non-detect
J = Lab Qualifier - Estimated Value
NJ= EIM qualifier. Sample exhibits unknown single peak or peaks. Estimated value - chromatogram did not resemble the standard hydrocarbon pattern.

Notes:
All concentrations reported in micrograms per liter (µg/L).
[a] = Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 8015B Modified (M).
Samples were analyzed by USEPA Method 8260B.
Tier 1 ESLs = Tier 1 Environmental Screening Levels for Groundwater, San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB), *ESL Workbook* , Tier 1 Summary Table, February 2016.
Direct Exposure Groundwater ESLs = San Francisco Bay RWQCB, *ESL Workbook* , Table GW-1, February 2016.
ESLs for Vapor Intrusion = Commercial/Industrial Environmental Screening Levels for Evaluation of Potential Vapor Intrusion, San Francisco Bay RWQCB, *ESL Workbook* , Table GW-3, February 2016.
MCLs = Commercial/Industrial Regional Screening Level, EPA Region 9 PRL Summary Table, November 2015.
Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the applicable ESLs. For groundwater, assumes direct exposure.
1 - Tier 1 for TPH-mo based on gross contamination level as TPH-mo is not soluble in water.

Table A-7
Semivolatile Organic Compounds in Groundwater
Site Characterization Summary Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Interval / Screen Interval (ft bgs)	Date Sampled	Acenaphthene	Anthracene	Benzo (a) Anthracene	Benzo (a) Pyrene	Benzo (b) Fluoranthene	Benzo (g,h,i) Perylene	Benzo (k) Fluoranthene	Benzoic Acid	bis (2-Ethylhexyl) phthalate	Chrysene	Dibenzofuran	Fluoranthene	Fluorene	Indeno (1,2,3-cd) Pyrene	2-Methylnaphthalene	1-Methylnaphthalene	2-Methylphenol	3/4-Methylphenol	2,4-Dimethylphenol	Naphthalene	Phenanthrene	Phenol	Pyrene
		Tier-1 ESL	*20*	*0.73*	*0.027*	*0.014*	*0.012*	*0.1*	*0.017*	---	*4*	*0.049*	---	*8*	*3.9*	*0.034*	*2.1*	-----	---	---	*100*	*0.17*	*4.6*	*5*	*2*
		ESL Direct Exposure	*530*	*1,800*	*0.034*	*0.2*	*0.012*	---	*0.017*	---	*4*	*0.17*	---	*800*	*290*	*0.034*	*36*	---	---	---	*100*	*0.17*	*410*	*4,200*	*120*
		C/I Groundwater ESLs for Vapor Intrusion	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		MCLs	---	---	---	*0.2*	---	---	---	---	*4*	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	January 2014 Event																								
SB-2	5 - 15	1/24/2014	<97	**120**	**170**	**100**	<97	<97	**98**	<480	<97	**140**	<97	**460**	<97	<97	**390**	**210**	<97	<97	<97	**780**	**520**	<97	**430**
SB-2-DUP	5 - 15	1/24/2014	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<48	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	**19**	**11**	**11**	**17**	**16**	**59**	**12**	**18**	**18**
SB-3	5 - 15	1/24/2014	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<50	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9
SB-4	5 - 15	1/27/2014	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<48	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5	<9.5
SB-5	7 - 12	1/24/2014	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<49	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8
SB-6	7 - 12	1/24/2014	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<50	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9	<9.9
SB-7	5 - 15	1/24/2014	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<49	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8
SB-8	5 - 15	1/24/2014	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<48	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7	<9.7
SB-9	4.5	8/12/2016	<26	<13	<8.1	**11**	<3.8	<3.7	<5.0	<3.4	<4.4	NA	5.3	31	<5.8	<5.9	<4.7	**99**	**76**	**130**	<49	**550**	<49	<49	<49
	April 2016 Event																								
SB-13	2-12	4/7/2016	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<47	<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
SB-14	2-12	4/7/2016	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	<9.4	**39 J**	<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
SB-15	2-12	4/7/2016	<29	<29	<29	<29	<29	<29	<29	<150	<29	<29	<29	<29	<29	<29	<29	<29	<29	<29	<29	<29	<29	<29	<29
SB-16	2-12	4/7/2016	<28	<28	<28	<28	<28	<28	<28	<140	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28	<28
SB-19	5-15	4/6/2016	<310	<310	<310	<310	<310	<310	<310	<1,600	<310	<310	<310	<310	<310	<310	<310	<310	<310	<310	<310	<310	<310	<310	<310
SB-19- DUP	5-15	4/6/2016	<100	<100	<100	<100	<100	<100	<100	<510	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
SB-20	2-12	4/12/2016	<19	<19	<19	<19	<19	<19	<19	<96	<19	<19	<19	<19	<19	<19	**26**	**17 J**	<19	<19	<19	<19	<19	<19	<19
SB-21	2-12	4/7/2016	<20	<20	<20	<20	<20	<20	<20	**64 J**	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	**7.7 J**	<20
SB-22	5-15	4/6/2016	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<49	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8	<9.8
SB-23	2-12	4/7/2016	<10	<10	<10	<10	<10	<10	<10	<50	**19**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
SB-25	2-12	4/7/2016	<370	<370	<370	<370	<370	<370	<370	<1,900	<370	<370	<370	<370	<370	<370	**180 J**	**99 J**	<370	<370	<370	**500**	**73 J**	<370	<370
SB-26	5-15	4/6/2016	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<48	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6
	August 2016 Event																								
CPT-1-27	22-27	8/9/2016	<10	<10	<10	<10	<10	<10	<10	<50	**8.0 J**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
CPT-1-42	37-42	8/9/2016	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
CPT-2-27	22-27	8/9/2016	<10	<10	<10	<10	<10	<10	<10	<50	**1.9 J**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
CPT-2-42	37-42	8/9/2016	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
CPT-3-28	23-28	8/9/2016	<10	<10	<10	<10	<10	<10	<10	<50	**77**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
CPT-3-38	33-38	8/9/2016	<11	<11	<11	<11	<11	<11	<11	<56	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11	<11
CPT-3-48	43-48	8/8/2016	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	CNG Fueling Station																								
CNG-B1	10-15	12/12/2014	<0.02	<0.03	<0.02	<0.02	<0.02	<0.03	<0.02	-	-	<0.03	-	<0.02	<0.02	<0.02	-	-	-	-	-	**0.03J**	**0.02 J**	-	<0.02
CNG-B2	10-15	12/12/2014	<0.02	0.04 J	<0.02	<0.02	<0.02	<0.03	<0.02	-	-	<0.03	-	<0.02	<0.02	<0.02	-	-	-	-	-	<0.02	<0.02	-	<0.02
CNG-B3	10 - 15	12/15/2014	**0.08J**	**0.03J**	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	-	**0.05J**	**0.09J**	<0.1	-	-	-	-	-	**4.5**	**0.2**	-	**0.08J**
CNG-B4	10 - 15	12/15/2014	**0.40**	**0.30**	**0.05J**	**0.02J**	**0.02J**	<0.03	<0.1	-	-	**0.04J**	-	**0.3**	**1.2**	<0.1	-	-	-	-	-	**0.8**	**2.1**	-	**0.3**
		Tier-1 ESL	*20*	*0.73*	*0.027*	*0.014*	*0.012*	*0.1*	*0.017*	---	*4*	*0.049*	---	*8*	*3.9*	*0.034*	*2.1*	-----	---	---	*100*	*0.12*	*4.6*	*5*	*2*
		ESL Direct Exposure	*530*	*1,800*	*0.034*	*0.2*	*0.012*	*0.1*	*0.017*	---	*4*	*0.17*	---	*800*	*290*	*0.034*	*36*	---	---	---	*100*	*0.12*	*410*	*4,200*	*120*
		C/I Groundwater ESLs for Vapor Intrusion	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	*170*	---	---	---
		MCLs	---	---	---	*0.2*	---	---	---	---	*4*	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Legend:
ft bgs = feet below ground surface
C/I = Commercial/Industrial
ESL = Environmental Screening Level
MCL = Maximum Contaminant Level
--- = No screening level established
SB-# = Soil Boring Location
< = Analyte not detected at or above the stated laboratory reporting limit
NA = Not Analyzed
J = Lab Qualifier - Estimated Value

Notes:
All concentrations reported in micrograms per liter (µg/L).
Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 8270C.
Tier 1 ESLs = Tier 1 Environmental Screening Levels for Groundwater, San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB), ESL Workbook, Tier 1 Summary Table, February 2016.
Direct Exposure Groundwater ESLs = San Francisco Bay RWQCB, ESL Workbook, Table GW-1, February 2016.

ESLs for Vapor Intrusion = Commercial/Industrial Environmental Screening Levels for Evaluation of Potential Vapor Intrusion, San Francisco Bay RWQCB, ESL Workbook, Table GW-3, February 2016.
MCLs = Commercial/Industrial Regional Screening Level, EPA Region 9 RSL Summary Table, November 2013.
Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the applicable ESLs. For groundwater, assumes direct exposure.

Table A-8
Total Metals in Groundwater
Site Characterization Summary Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Interval / Screen Interval (ft bgs)	Date Sampled	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
		Tier-1 ESL	*6*	*10*	*1,000*	*2.7*	*0.25*	*50*	*3*	*3.1*	*2.5*	*100*	*8.2*	*5*	*0.19*	*2*	*19*	*81*	*0.051*
		ESL Direct Exposure	*6*	*10*	*1,000*	*4*	*5*	*50*	*6*	*300*	*15*	*100*	*12*	*30*	*94*	*2*	*50*	*5,000*	*1.2*
		MCLs	*6*	*10*	*2,000*	*4*	*5*	*100*	---	*1,300*	*15*	---	---	*50*	---	*2*	---	---	*2*
	January 2014 Event																		
SB-2	5 - 15	1/24/2014	<15	**18.3**	**299**	<10	<10	<10	<10	<10	<10	<10	**16.7**	<15	<5	<15	<10	**11.9**	<0.5
SB-2-DUP	5 - 15	1/24/2014	<15	**18.9**	**225**	<10	<10	<10	<10	<10	<10	<10	**15.7**	<15	<5	<15	<10	**12.9**	<0.5
SB-3	5 - 15	1/24/2014	<15	<10	**14.5**	<10	<10	**14.2**	**457**	<10	<10	<10	**983**	<15	**8.95**	<15	<10	**1,260**	<0.5
SB-4	5 - 15	1/27/2014	<15	<10	**36.1**	<10	<10	<10	<10	<10	<10	<10	<10	<15	<5	<15	<10	**21**	<0.5
SB-5	7 - 12	1/24/2014	<15	<10	**159**	<10	<10	<10	<10	<10	<10	**17.1**	<10	<15	<5	<15	<10	**27.1**	<0.5
SB-6	7 - 12	1/24/2014	<15	<10	**156**	<10	<10	<10	<10	<10	<10	<10	**11.7**	<15	<5	<15	<10	**19.6**	<0.5
SB-7	5 - 15	1/24/2014	<15	<10	**64.8**	<10	<10	<10	<10	<10	<10	**13.4**	<10	<15	<5	<15	<10	**11.7**	<0.5
SB-8	5 - 15	1/24/2014	<15	<10	**116**	<10	<10	<10	<10	<10	<10	**24**	**165**	<15	<5	<15	<10	**15.5**	<0.5
SB-9	5 - 10	1/24/2014	<15	**24.8**	**179**	<10	<10	<10	<10	<10	<10	<10	<10	<15	**6.37**	<15	<10	**18.3**	<0.5
	April 2016 Event																		
SB-13	2-12	4/7/2016	<10	<5.0	**72**	<2.0	<5.0	**2.8 J**	**3.4 J**	<5.0	**2.7 J**	**10**	**5.4**	**7.6 J**	<5.0	**2.1 J**	**1.2 J**	**5.5 J**	<0.20
SB-14	2-12	4/7/2016	<10	<5.0	**220**	<2.0	<5.0	<5.0	**4.7 J**	<5.0	**3.8 J**	**20**	**20**	**3.7 J**	**3.6 J**	<10	<5.0	**7.6 J**	<0.20
SB-15	2-12	4/7/2016	<10	<8.4 U	**180**	<2.0	<5.0	**4.3 J**	**2.7 J**	<5.0	**3.0 J**	**26**	**14**	<10	<5.0	**2.8 J**	**2.9 J**	<20	<0.20
SB-16	2-12	4/8/2016	<10	**7.5**	**440**	<2.0	<5.0	**4.7 J**	**2.2 J**	<5.0	<5.0	**19**	**52**	<10	**1.9 J**	<10	<5.0	<20	<0.20
SB-19	5-15	4/6/2016	<10	<5.0	**180**	<2.0	<5.0	<5.0	**4.0 J**	<3.8 U	<5.0	**20**	**27**	<10	<5.0	<10	**7.9**	**7.4 J**	<0.20
SB-19-Dup	5-15	4/6/2016	**3.0 J**	<5.0	**200**	<2.0	<5.0	1.5 J	**4.4 J**	<5.0	<5.0	**18**	**27**	<10	<5.0	<10	**4.1 J**	<20	<0.20
SB-20	2-12	4/12/2016	<10	<5.0	**150**	<2.0	<5.0	**1.6 J**	**29**	<5.0	<5.0	**8.7**	**33**	<10	<5.0	<10	<5.0	**45**	<0.20
SB-21	2-12	4/7/2016	<10	<5.0	**64**	**4.3**	**7.4**	**13**	**480**	<5.0	**2.9 J**	**4.2 J**	**1,200**	**7.3 J**	**3.5 J**	**9.1 J**	**4.9 J**	**4,900**	**0.16 J**
SB-22	5-15	4/6/2016	<10	<5.0	**51**	<2.0	<5.0	<5.0	**34**	<5.0	<5.0	**4.5 J**	**60**	<10	**1.1 J**	**8.7 J**	**1.9 J**	**17 J**	<0.20
SB-23	2-12	4/8/2016	<10	<5.0	**88**	<2.0	<5.0	<5.0	**3.3 J**	<5.0	<5.0	<4.9 U	**7.0**	<5.9 U	<5.0	<4.7 U	**1.0 J**	**20**	<0.20
	August 2016 Event																		
CPT-1-27	22-27	8/9/2016	<10	<5.0	**100**	<2.0	<5.0	<5.0	<5.0	**3.1 J**	<5.0	**7.1**	**9.8**	**5.4 J**	<5 U	<10	**4.3 J**	<20	<0.20
CPT-1-42	37-42	8/9/2016	<10	<5.0	**62**	<2.0	<5.0	**12**	<5.0	**2.5 J**	<5.0	**5.5**	**3.1 J**	**8.6 J**	<5 U	<10	**8.1**	<20	<0.20
CPT-2-27	22-27	8/9/2016	<10	<5.0	**88**	<2.0	<5.0	<5.0	**6.9**	**4.2 J**	<5.0	**9.7**	**17**	**3.4 J**	<5 U	<10	**4.4 J**	<20	<0.20
CPT-2-42	37-42	8/9/2016	<10	<5.0	**72**	<2.0	<5.0	**7.6**	<5.0	**2.9 J**	<5.0	**5.8**	**3.8 J**	**5.0 J**	<5 U	<10	**7.5**	<20	<0.20
CPT-3-28	23-28	8/9/2016	<10	<5.0	**170**	<2.0	<5.0	**24**	<5.0	**2.4 J**	<5.0	**7.2**	**7.6**	**8.5 J**	<5 U	<10	**5.0 J**	<20	<0.20
CPT-3-38	33-38	8/9/2016	<10	<5.0	**59**	<2.0	<5.0	**15**	<5.0	**2.8 J**	<5.0	**5.5**	**2.8 J**	**4.8 J**	<5 U	<10	**8.8**	<20	<0.20
CPT-3-48	43-48	8/8/2016	<10	<5.0	**50**	<2.0	<5.0	**16**	<5.0	**2.2 J**	<5.0	**5.3**	**1.9 J**	**6.7 J**	<5 U	<10	**12**	<20	<0.20
		Tier-1 ESL	*6*	*10*	*1,000*	*2.7*	*0.25*	*50*	*3*	*3.1*	*2.5*	*100*	*8.2*	*5*	*0.19*	*2*	*19*	*81*	*0.051*
		ESL Direct Exposure	*6*	*10*	*1,000*	*4*	*5*	*50*	*6*	*300*	*15*	*100*	*12*	*30*	*94*	*2*	*50*	*5,000*	*1.2*
		MCLs	*6*	*10*	*2,000*	*4*	*5*	*100*	---	*1,300*	*15*	---	---	*50*	---	*2*	---	---	*2*

Legend:

ft bgs = feet below ground surface
C/I = Commercial/Industrial
ESL = Environmental Screening Level
MCL = Maximum Contaminant Level
--- = No screening level established
SB-# = Soil Boring Location
< = Analyte not detected at or above the stated laboratory reporting limit
NA = Not Analyzed
J = Lab Qualifier - Estimated Value
U = ERM qualifier - Non-detect

Notes:

All concentrations reported in micrograms per liter (µg/L).
Samples were analyzed by United States Environmental Protection Agency (USEPA) Method 6010/7000 series.
Samples were field filtered.
Tier 1 ESLs = Tier 1 Environmental Screening Levels for Groundwater, San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB), ESL Workbook, Tier 1 Summary Table, February 2016.
Direct Exposure Groundwater ESLs = San Francisco Bay RWQCB, ESL Workbook, Table GW-1, February 2016.
ESLs for Vapor Intrusion = Commercial/Industrial Environmental Screening Levels for Evaluation of Potential Vapor Intrusion, San Francisco Bay RWQCB, ESL Workbook, Table GW-3, February 2016.
MCLs = Commercial/Industrial Regional Screening Level, EPA Region 9 RSL Summary Table, November 2013.
Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the applicable ESLs. For groundwater, assumes direct exposure.

Table A-9
Volatile Organic Compounds in Soil Vapor
Site Characterization Summary Report
205 Brush Street
Oakland, California

Sample ID Location	Sample Depth (ft bgs)	Date Sampled	Acetone	2-Butanone	Ethanol	2-Propanol	Hexane	Cyclohexane	2,2,4-Trimethylpentane	Benzene	Heptane	Naphthalene	Toluene	Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	m,p-Xylene
		Tier 1 ESL	*15,000,000*	*2,600,000*	---	---	---	---	---	*48*	---	*41*	*160,000*	*240*	*240*	*520,000*	*52,000*
		Applicable ESL	*31,000,000*	*22,000,000*	---	---	---	---	---	*420*	---	*360*	*1,300,000*	*2,100*	*3,000*	*4,400,000*	*440,000*
January 2014 Event																	
SVP-4	5.5	1/27/2014	**11**	<4.6	<9.7	NA	NA	NA	NA	<1.6	NA	<27	<1.9	**4.2**	<2.8	<2.8	<8.9
SVP-4-DUP	5.5	1/27/2014	**16**	<4.5	<9.5	NA	NA	NA	NA	<1.6	NA	<26	<1.9	**4.3**	<2.7	<2.8	<8.8
SVP-7	5.5	1/27/2014	**25**	**41**	<9.4	NA	NA	NA	NA	**3.3**	NA	<26	<1.9	**3,600**	**8**	**130**	<8.7
April 2016 Event																	
SVP-1	4.5	4/15/2016	<24	<12	**40**	<10	<3.6	**3.8**	<4.8	<3.3	<4.2	NA	**7.3**	**660**	<5.5	**96**	**9.2**
SVP-2	4	4/15/2016	<25	<12	**46**	**11**	<3.7	<3.6	<4.9	<3.3	<4.3	NA	**5.9**	**880**	<5.6	**42**	**5.0**
SVP-3	4	4/15/2016	<510	<640	<410	<530	**65,000 E**	**26,000**	**520,000 E**	**890 J+**	**10,000**	NA	**230 J+**	<370	<290	<290	<230
SVP-5	4	4/15/2016	<25	<12	**50**	<10	<3.8	<3.7	<5.0	<3.4	<4.4	NA	**11**	**450**	<5.7	**87**	**9.5**
August 2016 Event																	
SVP-8	4.5	8/12/2016	<26	<13	<8.1	**11**	<3.8	<3.7	<5.0	<3.4	<4.4	NA	**5.3**	**31**	<5.8	<5.9	<4.7

Legend:
ft bgs = feet below ground surface
C/I = Commercial/Industrial
ESL = Environmental Screening Level
CHHSL = California Human Health Screening Level
RSL = Regional Screening Level
--- = No screening level established
SVP-# = Soil Vapor Probe Location
< = Analyte not detected at or above the stated laboratory reporting limit
E = Exceeds instrument calibration range
J+ = ERM qualifier. Detected result qualified as estimated and biased high.
NA = Not Analyzed

Notes:
All concentrations reported in micrograms per cubic meter ($\mu g/m^3$).
Samples were analyzed by United States Environmental Protection Agency (USEPA) Method TO-15.

Tier-1 ESL = Tier 1 Environmental Screening Level for Shallow Soils, San Francisco Bay Regional Water Quality Control Board, ESL Workbook, Tier-1 ESL Table, February 2016.

Applicable ESL = Appropriate ESL based on current and future site use as a Commercial/Industrial site using the Vapor Summary Table from the San Francisco Bay Regional Water Quality Control Board ESL Workbook, February 2016.

Bold values indicate detections at or above the laboratory reporting limit.
Values shaded gray indicate concentrations detected above the Applicable ESLs.

Appendix B
Procedure for Soil Vapor Sampling

PROCEDURE FOR SOIL VAPOR SAMPLING

Soil vapor sampling will be consistent with the DTSC Advisory. Prior to arriving at the site for the soil vapor sampling event, the following activities will be completed:

- Each canister will be inspected for defects and/or physical damage. Any observed defects or damage will be documented in the project logbook. If necessary, the canister will not be used and will be replaced with a new canister.
- The volume of each canister will be measured and documented in the project logbook. Canisters containing less than 25 inch mercury (Hg) vacuum will be returned to the laboratory for a replacement canister.
- The receipt of all laboratory-supplied equipment (i.e., Summa canisters, flow controllers, particulate filters, chain-of-custody forms) was verified.

The following information was recorded on the sample form and/or field logbook prior to collecting soil vapor samples at each location:

- Serial numbers, or other unique identifier, of the Summa canister and flow controller;
- Initial vacuum on the Summa canister, as measured by the gauge on the flow controller, noting any discrepancies between the vacuum readings from the flow controller gauge and separate vacuum gauge;
- Sample date, outdoor temperature, and humidity; and
- Sample location and any comments, notes, or observations related to collecting the sample.

The soil gas sampling equipment will generally be placed in this order, although the actual sampling equipment chain will be determined based on the soil gas sampling container:

1. Below ground soil gas inlet;
2. Tubing from below ground to above ground surface;
3. Manifold with flow controller set to approximately 170 milliliters (mL) per minute;
4. Sample container; and
5. Purge canister/vacuum pump.

Any changes to the sample chain will be noted on the sampling forms.

Once all tubing and sample containers are in place, a purge volume will be calculated. This includes the pore space of the annulus and the internal volume of the below-ground and above-ground tubing. The purge volume will be documented on the *Soil Vapor Probe Purge Calculations* form. For this sampling event, a default of three purge volumes will be used prior to sample

collection. The following steps outline the procedure used to calculate the purge time for three purge volumes:

1. Calculate the appropriate purge volume in mL.

   For 0.188-inch inner diameter tubing:
   1 Purge Volume (mL) = length of tubing (in feet, include tubing above and below ground surface) x 5.45 mL

   For other size tubing:
   1 Purge Volume (mL) = (length of tubing) x (πr_t^2) x (16.38 mL/ inch^3) x N

   Where:

   Length of tubing = length of tubing above and below ground surface, in inches. The length of the tubing that is below ground can be found on each soil vapor probe completion form;

   r_t = the inner radius of the tubing, in inches; and

   N = the number of purge volumes required.

Calculate the purge volume within the sand filter pack void space in mL using the following equation:

$$V_p = \pi \times r_p^2 \times h_p \times 16.38 \text{ mL/inch}^3 \times P_p \times N$$

Where:

V_p = Volume of void space in the sand filter pack in mL.

r_p = Radius of the sand filter pack in inches.

h_p = Height if the filter pack in inches.

P_p = Porosity of the sand filter pack (0.30).

N = number of purge volumes required.

Calculate the purge volume within the dry bentonite void space in mL using the following equation:

$$V_b = \pi \times r_b^2 \times h_b \times 16.38 \text{ mL/ inch}^3 \times P_b \times N$$

Where:

V_b **=** Volume of void space in the dry bentonite in mL

R_b = Radius of the sand filter pack in inches

H_b = Height if the filter pack in inches

P_b = Porosity of the granular bentonite (0.36)

N = number of purge volumes required

2. Calculate the purge time for the appropriate purge volume.

$$\text{Purge time (min)} = \frac{\text{purge volume (mL)}}{\text{Flow controller purge rate (mL/min)}}$$

Flow controller purge rate = 170 mL/minute

3. Sample apparatus pressure test

Prior to purging and sampling, a sample apparatus pressure test is conducted. The pressure test confirms that there is no leak in the sample apparatus, from the well head to the sample container, and therefore the apparatus can be used to collect a representative soil vapor sample. The pressure test procedure is as follows:

- To perform the pressure test, all equipment is connected as described in the sample train. The sample train may be connected to the probe, but the valve to the probe must remain closed.
- The valves to the Summa canister and the probe/sampling point are closed, and the valve to the purge/vacuum pump is opened.
- The vacuum pump is started to evacuate air from the sample train to a minimum vacuum of 7.4 inches of mercury. Once a vacuum equal or greater has been applied, the valve to the purge/vacuum pump will be closed so that the vacuum is held and the vacuum pump is shut off.
- The initial vacuum readings on the flow controller are recorded and the sample train is allowed to sit for at least 1 minute.
- The applied vacuum should hold (within 0.37 inch-Hg) in the line for at least 1 minute.
- If there is any observable loss of vacuum, the fittings are tightened and the pressure test is repeated until the vacuum in the sample train does not noticeably dissipate.

4. Purging

To purge the soil vapor probe, follow these procedures:

- Confirm that the valve on the sample collection Summa canister is still closed.
- Open the two-way shut-off valve.
- Open the purge Summa canister or turn on battery powered pump.
- Run battery powered pump for the length of time calculated in Step 2.
- If using a battery powered pump, monitor the flow rate on the flow meter. If flow is less than 200 mL/min, adjust purge time accordingly.
- Monitor probe pressure during purging. If the formation pressure exceeds -100 inches of water (-7.4 inches Hg) and flow rates below 100 mL/min are observed, stop purge and follow low follow purge and sample techniques as described in the *Advisory – Active Soil Gas Investigations*.
- A PID reading is collected from effluent stream during purging and recorded on the field form.
- After purge volume is achieved close the valve connected to the purge summa or battery powered pump.

5. Leak Detection Test

Isopropyl alcohol will be used as the leak check compound. It is extremely important to prevent cross-contamination while handling the isopropyl alcohol and sampling equipment. One person will be designated as the person to handle the leak detection compound at all locations ("dirty hands") and the other person be designated as the person to handle the sampling equipment for all locations ("clean hands"). While the soil vapor sample is being collected, the leak detection test is conducted by fanning the leak detection compound near each tubing fitting/connection. The used leak detection materials will be discarded in a sealed plastic bag away from the sampling equipment/supplies.

Sample Collection

Soil vapor samples will be collected after the soil vapor probe is purged. Soil vapor sample collection procedures are as follows:

- The two-way shut-off valve on the manifold is confirmed to be open.
- The valve on the sample collection Summa canister is opened, recording the sample start time and the vacuum reading on the flow controller, which should be between 25- and 30-inch Hg.

- The vacuum being pulled on the probe, which is measured by the vacuum gauge on the probe-side of the flow controller, will be recorded on the field form.
- While the soil vapor sample is being collected, the leak detection test will be conducted.
- The sample collection Summa canister will be left open until the vacuum reading is approximately 4-inch of mercury. Because we are using 1-L Summa canisters, this should take less than 10 minutes. If the vacuum does not decrease to 4-inch Hg within 20 minutes, the Project Manager will be notified.
- Monitor probe pressure during purging. If the formation pressure exceeds -100 inches of water (-7.4 inches Hg) and flow rates below 100 mL/min are observed, stop purge and follow low follow purge and sample techniques as described in the *Advisory – Active Soil Gas Investigations*.
- Once the vacuum reading on the sample canister reaches approximately 4-inch Hg, the final vacuum readings on the manifold will be documented, the valve on the sample canister will be closed, and sample end time will be recorded. The canister and manifold will be disconnected, labeled, and documented on the chain of custody.

Each soil vapor sample will be analyzed by a California state-certified laboratory for VOCs by USEPA Method TO-15. The soil vapor samples will be analyzed on a standard turn-around-time of 1 week.