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RECEIVED
By Alameda County Environmental Health at 9:56 am, Feb 25, 2015

February 23, 2015

Mr. Mathew Soby
Alameda County Health Care Services Agency
Environmental Health Services
Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject: Proposed Data Gap Investigation Workplan to Address Potential Impact from a Former Leaking Underground Heating Oil Tank located at 811 Paramount, Oakland, CA. (Alameda County Fuel Leak Case No. RO0003143 and CA GeoTracker Global ID T10000006106)

Dear Mr. Soby:

INTRODUCTION AND BACKGROUND

On behalf of the property owners (Mr. Mark A. Jacobson & Ms. Ilona J. Frieden) and their counsel (Mr. Amitai Schwartz) Stellar Environmental Solutions, Inc. (Stellar Environmental) is providing to Alameda County Health Care Services (ACHCS), this Workplan for additional investigation concerning the subject property to address data gaps and potential environmental impacts, outlined in the ACHCS letter, dated December 15, 2014. The subject property is located in a residential area at 811 Paramount Road in Oakland, California. Attached Figure 1 shows the general site location.

The underground storage tank (UST) removal report, dated January 14, 2014 prepared by Golden Gate Tank Removal, Inc. documents the December 2013 removal of one 350-gallon heating oil UST at the subject site. The UST was found to be in poor condition with at least one visible hole. Soil discoloration and hydrocarbon odors were noted to be associated with overburden soil and soil underlying the UST. Two soil samples were collected at 7 feet below ground surface (bgs) from the east and west ends of the UST on December 16, 2013. The general groundwater gradient in this area of Oakland is toward the west and slightly southwest.

The initial soil samples were collected at a depth of 7 feet on both the east end and west end beneath the UST after its removal. The analytical at 7 feet bgs on the east end (sample E7) was reported at 9,290 milligrams per kilogram (mg/kg) Total Petroleum Hydrocarbons in the carbon C10-C28 range, which includes the upper C8-C10 range of gasoline (TPHg), the full (C10-C23) range of diesel (TPHd) and into the motor oil (C18-C35) range (TPHmo). The 9,290 mg/kg exceeds the applicable Environmental Screening Limits (ESLs) for TPHg, TPHd and TPHmo. Also reported in sample E7 was 1.1 mg/kg ethylbenzene, 1.37 mg/kg total xylenes and 47.3 mg/kg naphthalene, with naphthalene above the ESL. Benzene and toluene were both below the laboratory method detection limit of 380 µg/kg.

The west end sample (sample W7) concentrations at 7 feet bgs were detected at 1,390 mg/kg in the C10-C28 range. The BTEX concentrations were near to below laboratory Reporting Limits (RLs) of 79 µg/kg or less, and naphthalene concentration was 7.72 mg/kg, above it's ESL.

Over-excavation to 12 feet bgs was subsequently performed on December 24, 2013. East end sample (sample E12) concentrations decreased two to three orders of magnitude to 28.0 mg/kg of TPH C10-C28, while BTEX and naphthalene concentrations were near to below RLs. The west end sample (sample E12) concentrations increased with depth to 3,960 mg/kg TPHd, and naphthalene concentrations increased to 25.2 mg/kg, in excess of their respective ESLs; BTEX concentrations were near to below RLs. MTBE was not analyzed in any of the samples.

This Workplan has been prepared to address ACHCS correspondence in their letter dated December 15, 2014 requesting additional investigation to fill site data gaps and evaluate the site for closure under the State Water Resources Control Board Low-Threat Underground Storage Tank Policy (LTCP) Title 23, 2923 (OAL File No. 2012-0618-02 S), adopted on May 1, 2012 and effective as of August 17, 2012 (Water Board 2012).

Attached Figure 2 is a site plan showing the location of the former UST and excavation soil confirmation samples and sampling locations proposed in this Workplan.

REGULATORY CONSIDERATIONS

The Water Board has established ESLs for evaluating the likelihood of environmental impact. The ESLs were developed as the lowest screening values for contaminants of concern that might be indicative of site source origin and/or pose a significant risk to human health or the environment, assuming all possible exposure pathways. ESLs are conservative screening-level

criteria for soil and groundwater, designed to be generally protective of both drinking water resources and aquatic environments; they incorporate both environmental and human health risk considerations. ESLs are not cleanup criteria (i.e., health-based numerical values or disposal-based values). Rather, they are used as a preliminary guide in determining whether remediation and/or investigation may be warranted. Exceedance of ESLs suggests that additional investigation and/or remediation is warranted. However, because some environmental and human health concerns considered in determining ESLs may not be applicable where exposure routes are not complete, soil that exceeds ESLs does not necessarily pose a significant risk to human health or the environment. There are also ESLs published for commercial/industrial vs. residential land use for indoor air. This is based on a potential exposure of 24 hours a day, seven days a week over 30 years for residential versus 40 hour a week over 15 years for commercial.

Different ESLs are published for commercial/industrial vs. residential land use, for sites where groundwater is a potential drinking water resource vs. is not a likely drinking water resource, and for the type of receiving water body. The appropriate ESLs for the subject site are based on the following:

- In our professional opinion, the appropriate ESLs for the subject site are *residential land use* and *groundwater is considered a drinking water resource.*
- This is based on both the property zoning status (residential) and the designation of this area of Oakland as "Zone A – Significant Drinking Water Resource (Water Board, 1999).
- The receiving body for groundwater discharge is an estuary (San Francisco Bay).

The State of California has also promulgated drinking water standards (Maximum Contaminant Levels [MCLs]) for some of the site contaminants. Drinking water standards may also be utilized by regulatory agencies to evaluate the potential risk associated with groundwater contamination. For the site contaminants, MCLs are generally the same as the ESLs (except that there is no MCL for gasoline). Once ESLs or drinking water standards are exceeded, the need for additional investigative and corrective actions are generally driven by the potential risk associated with the contamination. Minimum regulatory criteria generally applied to fuel leak cases in groundwater include:

- The contaminant source has been removed, including reasonably accessible contaminated soils that pose a long-term impact to groundwater.
- The extent of residual contamination has been fully characterized to obtain sufficient lithologic and hydrogeologic understanding (generally referred to as a Site Conceptual Model).

- Groundwater wells have been installed and are monitored periodically to evaluate groundwater contaminant concentrations and hydrochemical trends.
- The stability of the contaminant plume has been evaluated to determine whether it is moving or increasing in concentration.
- A determination has been made as to whether the residual contamination poses an unacceptable risk to sensitive receptors.

As stated above, ESLs are used as a preliminary guide in determining whether additional remediation or other action is warranted. Exceeding ESLs may warrant additional actions, such as monitoring plume stability to demonstrate no risk to sensitive receptors in the case of sites where drinking water is not threatened.

Significant exceedance of the ESLs suggests that additional investigation and/or remediation is warranted. Factors that are evaluated include what pathways of exposure there may be (to surface water, groundwater, or indoor air) and the likelihood of the identified exposure pathways continuing without remediation of the source area. Identification or monitoring of indoor air fluctuations, groundwater plume stability, or residual soil contamination to demonstrate no risk to sensitive receptors is typically completed as part of site closure evaluations.

A risk assessment can also be completed using actual site data (versus the conservative assumptions built into the ESLs) that would include air-exchange rates, soil permeability, etc., or, alternatively, the collection of indoor air samples. If the risk assessment shows that the potential cumulative exposure is less than the 10^{-6} excess cancer risk then, assuming they are satisfied with the extent of characterization work, no breathing zone data need be collected.

TECHNICAL OBJECTIVES AND PROPOSED SCOPE OF WORK

The objective of the proposed scope of work is specifically designed to evaluate whether residual site soil or groundwater contamination exists that warrants additional corrective action (i.e. excavation). Specifically, this Workplan is designed to provide additional data on the extent and magnitude of residual contaminated soil and/or groundwater and evaluate the potential exposure risks to site users or the environment via direct contact with hydrocarbon impacted soil or groundwater or by vapor intrusion to indoor air, outside air. The general groundwater gradient in this area of Oakland is toward the west and slightly southwest and is the basis for location of the proposed Workplan investigation borings and samples.

This Workplan is designed to fill data gaps identified by the ACHCS in their letter December 15, 2014. The specific ACHCS comments, pertaining to the LTCP criteria, which are addressed in this Workplan, are identified in parentheses following the work Task subheading

Figure 2 is a site plan showing the locations of the former UST and samples historical and locations of borings and samples proposed in this Workplan.

TECHNICAL OBJECTIVES AND SCOPE OF WORK

The anticipated tasks to be conducted, following Water Board approval, are: 1) Regulatory Liaison, and Work Plan Response; 2) Field Investigation Preparation; 3) Drilling Soil and Grab-Groundwater Sampling; 4) Soil-Gas Sampling; 5) Indoor Air Sampling; 6) Well and Sensitive Receptor Survey; 7) Technical Documentation Report of Findings; and 8) Electronic Data Reporting.

Task 1: Regulatory Liaison and Work Plan Response

Modification of this Workplan may occur based on input from ACHCS before the field work elements begin.

Task 2: Field Investigation Preparation

To prepare for the field work, the following preparatory tasks will be completed: update the health and safety plan, site mobilization, and permitting. Stellar Environmental will coordinate fieldwork with the regulator, client, and subcontractors.

Drilling Permit: Stellar Environmental will obtain the requisite drilling permit for installation of the monitoring well from Alameda County Public Works (ACPW). The soil-gas points will be advanced no deeper than 5 feet below grade and do not require permitting. Stellar Environmental will inform the ACPW and ACHCS of the investigation schedule, and arrange the required boring grout abandonment inspections.

Underground Utility Clearance: Stellar Environmental will mark the well locations and notify Underground Service Alert (USA) to locate underground utilities and obtain drilling clearance prior to drilling.

Task 3: Drilling and Soil and Groundwater Sampling (ACHCS Comments 1, 3 4, 5 and 7)

Figure 2 shows the proposed bores for the various media described in the Tasks 3 and 4 below. The drilling will be conducted by a California C-57 licensed driller utilizing either a direct-push GeoProbe drill rig, under the direct supervision of a Stellar Environmental, CA-registered Geologist. A hand-augur will also be employed as needed as an extra precautionary measure to ensure utility clearance.

The drilling and sampling will be completed using a licensed drilling subcontractor under the Stellar Environmental's direction. The boreholes will be advanced with a Geoprobe™ (direct-push) rig that advances approximately 2-inch diameter sampling rods. The boreholes will be continuously cored and soil samples will be geologically logged and samples will be screened with a field photoionization detector (PID) for evidence of contamination.

Soil Sampling: We propose to advance and sample 3 exploratory boreholes to supplement the data from the UST removal. Soil will be screened with a PID and one sample having the highest measurable PID response will be retained for laboratory analysis from between 0 - 5 feet below ground surface (bgs) and one sample from between 5 – 10 feet bgs from each boring. In addition a sample will be collected just above the groundwater interface the bores will be deepened for the collection of groundwater, discussed in Task 4. Soil will not be collected below groundwater level.

Attached Figure 1 shows the locations of the proposed soil borings. Attachment A contains detailed technical specifications for the proposed drilling and sampling.

Soil Samples: will be analyzed as follows:

- TEHmo and TEHd – by EPA Method 8015M
- Naphthalene, benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary-butyl ether (MTBE) – by EPA Method 8260B
- Moisture − by ASTM 2216-92, required to evaluate COCs in soil on a dry weight basis.

Grab Groundwater Sampling: Each of the two bores advanced in Task 2 will be deepened for the collection of underlying shallow groundwater to evaluate the site contaminant trend and LTCP bioattennuation zone. A temporary 1-inch diameter PVC casing will be inserted in the boring from which a groundwater sample will be collected using either tubing equipped with a check valve, a peristaltic pump or a new disposable bailer. Boreholes will be advanced to a maximum

depth of approximately 25 feet below grade or to the first occurrence of shallow groundwater. If groundwater is not encountered within 25 feet bgs, one sample of soil retained from the boring below 12 feet bgs will be selected for laboratory analysis based having either the highest measurable PID reading or total depth of the boring. If groundwater is slow to infiltrate into the open bore, we will return the next day (after waiting 24 hours) to attempt to collect a sample, after which the bore will be abandoned.

Groundwater Samples: will be analyzed for site contaminants of concern as follows:

- TEHmo and TEHd – by EPA Method 8015M
- Naphthalene, benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary-butyl ether (MTBE) – by EPA Method 8260B

Upon collection, soil and groundwater samples will be securely sealed in appropriate containers, placed in an ice chest with ice at approximately 4 degrees C, and transported to the analytical laboratory the same day under chain-of-custody record. Laboratory analyses will be performed on standard turnaround. The analytical laboratory will adhere to the 2012 LUFT and LTCP guidance criteria and reporting limits for commercial sites.

Task 4: Soil-Gas Sampling (ACHCS Comment No. 7)

Soil-gas is recommended to evaluate the potential for outdoor air exposure and presence of a bioattenuation zone, specifically the presence of oxygen in soil sufficient to support biodegradation of residual hydrocarbons. This would occur after the boring and sampling Tasks 1 and 2 and be initiated if data from those tasks warrant the collection.

*Soil-Gas Sampling***:** Soil-gas will be collected at two locations at a depth of 4.5 5.0 feet bgs in native soil on the west and east side and within five feet of the former UST and excavation. Soil-gas will be collected in accordance with DTSC/Cal EPA Soil-Gas Advisory (April 2012) procedures and methodology. The direct push Geoprobe™ drill rig or a hand-held drive rod will be utilized to install the soil-gas probe o in the desired location. The soil-gas samples will be collected using either a direct-push Geoprobe™ drill rig to install a gas diffuser probe, centered at a depth of 4.5 feet bgs, in an approximately 1 foot column (from 4 - 5 feet bgs) of silica sand or a hand-driven post-run tubing (PRT) apparatus will be utilized. We will be consistent with the sampling method unless restricted by site constraints. Installing a diffuser implant has the advantage of being able to return and resample the soil, however the diffuser can get saturated and be unusable for later soil-gas collection. New diffuser implants and Tygon® tubing will be

used at each sampling location. The filter sand will be covered with approximately 0.5 to 1 foot of dry granular bentonite placed in the boreholes above the sand pack. Following the dry bentonite the bentonite will be slowly hydrated with water after which additional bentonite will be added and hydrated to seal the probe, which will be allowed to hydrate a minimum of 30 to 40 minutes prior to sample collection. The dry bentonite placed between the sand pack and hydrated bentonite prevents the hydrated bentonite grout moisture from infiltrating the sand pack. The method will utilize 1/8 inch diameter Tygon® tubing to bring the sample to the surface. If a PRT apparatus is used, hydrated bentonite will be used to seal the ground boring rod interface and the annular space between the boring rod and the tygon™ tubing where the tubing emerges from the rod.

The purge volumes will be calculated from the boring filter pack diameter and length of the tubing and a purge volume test will be conducted to evaluate the optimum purge volume. A PID will be used to determine the purge volume amount with the highest concentration. Only one purge volume test will be conducted at the site and the optimum purge volume will be used in the other sampling points. Purging will be conducted using a dedicated purging Summa™ vacuum canister. If a purge volume test is not conducted, the sampling procedure will default to purging 3 calculated purge volumes prior to collecting the sample. A shut-in test will be conducted on the sampling train to check for leaks in the above-ground fittings at each sampling point. A shut-in test will be conducted using an in-line vacuum gauge and evacuating the sampling train to a measured vacuum of about 100 inches of water, then shutting the vacuum in with a closed valve. The vacuum gauge is observed for 1 minute, and all aboveground connections are considered "air-tight" if the pressure on the gauge does not noticeably dissipate.

A minimum of least 2 hours will be allowed to elapse after installation of the probes or after conducting a purge volume or a permeability test to ensure equilibration of subsurface vapors, prior to collecting a sample for submittal to the laboratory. A supplied leak detection compound diflouroethane (DFA) will be applied to a cloth and draped over all sampling apparatus fittings and at the tubing-ground interface, to detect the intrusion of atmospheric air and evaluate the integrity of the closed sampling collection system.

Soil-Gas Samples will be analyzed using the following methods:

- Naphthalene, benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary-butyl ether (MTBE), the leak check compound 1,1-difluoroethane - by EPA Method TO-15/Gas Range Organics (GRO); and
- Oxygen by ASTM 1946.

Soil-gas samples will be collected in 6-liter Summa™ canisters (minimum size necessary for oxygen analysis) and maintained at ambient temperature and out of direct sunlight prior to delivery to the analytical laboratory. Samples will be transported by courier under chain of custody and are anticipated to go to Torrent Laboratory of Milpitas, CA, a National Environmental Laboratory Accreditation Program (NELAP)-certified laboratory for analysis. The analytical laboratory will adhere to the 2012 LUFT and LTCP guidance criteria and the analyses performed on a standard turnaround.

Decontamination Procedures: Decontamination of all down-hole sampling tools will consist of scrub brush washing with phosphate-free soap and water followed by a tap water rinse followed by a deionized/distilled water rinse (two times) between sampling locations.

Borehole Abandonment: Following sampling, each borehole will be tremie-grouted to surface with cement slurry.

Disposal of Investigation Waste: Soil cuttings, decontamination water and disposable sampling equipment generated will be containerized onsite in a labeled 5-gallon pail(s) and stored onsite in the secured on site area for subsequent disposal. Decontamination fluids will be containerized in a labeled drum or bucket for subsequent disposal.

Task 5: Indoor Air Sampling (ACHCS Comment No. 6)

In order to meet the criteria for regulatory closure under various scenarios presented in Appendix C of the LUFT 2012 Guidance concerning vapor intrusion, we recommend collection of an indoor air sample. This recommendation is made because the data and site conditions that are currently unknown and the applicable site scenario cannot yet be determined, however, assuming a significant residual site contamination exists above the applicable ESL as documented in the Golden Gate UST removal report, the ultimate site risk to human health will occur via intrusion of toxic vapors into the site residence or via outdoor air. Our experience indicates that with naphthalene in soil documented above applicable ESLs, soil-gas will most likely be detected above the ESL which due to the close proximity (approximately 5 feet away) to the property residence will trigger the necessity to complete an indoor air survey to evaluate the vapor intrusion pathway. In addition, indoor-air data showing no vapor intrusion into the indoor-air can be used to lessen or eliminate the potential risk pathway posed by the presence of residual soil, soil-gas or groundwater that potentially exists above the ESL.

The indoor air study would involve a 24-hour air sampling test per procedures and protocols of the Department of Toxic Substances Control, October 2011 guidance. Stellar Environmental personnel would set up the 24-hour test apparatus in two (2) locations within the residential building on the Property, with modification based on our professional judgment and the any obvious constraints occurring within the space. The locations for the indoor air samples are not shown on Figure 2 but we anticipate that one sample be collected in the ground floor front (north room) directly opposite the location of the former UST and the other sample be place in the sub-grade room (basement) as near to the north side as accessible. One additional ambient "control" sample location will be placed outside the interior space, nominally on the roof if that is accessible. The 24-hour test apparatus would be set up at the beginning of the day, to begin at 8 AM. After testing and confirming that all the equipment is operating properly, Stellar Environmental personnel will return the next day to dissemble the sampling apparatus after the 24-hour of run time. The flow control regulator controls the test time and air inflow rate. The 24-hour test will utilize Summa canisters equipped with an air intake rate set for a 24-hour test.

Following the collection of indoor-air samples the four Summa canisters will be transported to the analytical laboratory under chain-of-custody record. The analyses would be performed by the ELAP-certified laboratory for analysis of volatile organic compounds via EPA Method TO-15, with the target contaminants to be limited to the suite of chemical of concern associated with dry cleaners.

Task 6: Well and Sensitive Receptor Survey (ACHCS Comments No. 5c and d)

To satisfy ACHCS concern of potential impacts to downgradient drinking water wells and other sensitive receptors, we will conduct the following survey and research:

- We will obtain well records from the California Department of Water Resources of existing wells located within a 2000 foot radius of the property
- We will obtain well records from the California Department of Water Resources of existing wells located within a 2000 foot radius of the property
- We will obtain records from the ACPW of existing wells located within a 2000 foot radius of the property
- We will contract a well radius search from Environmental Data Research, Inc. (EDR).

Task 7: Technical Documentation and Reporting (ACHCS Comments 2, 5 and 8)

Stellar Environmental will prepare the following documentation report summarizing the implementation and results of the indoor-air, soil-gas, soil and groundwater sampling, conclusions and recommendations in the context of regulatory case closure.

The Sampling and Investigation report will contain the following elements:

- Project Introduction and Background;
- Investigation Scope and Objectives and Procedures;
- Site description including site geology and hydrogeologic setting needed to evaluate contaminant trends needed to develop the site conceptual model;
- Description of the Fieldwork, Sampling Protocols, Analytical Methods;
- Tabulation of Data Compared to Relevant Regulatory Environmental Screening Criteria;
- Relevant figures, tables showing site location, location of investigation borings, occurrence of groundwater, contaminant distribution;
- Development of a site conceptual model (SCM) using previous and newly gathered data;
- Summary, conclusions and recommendation, as needed to bring site to regulatory closure in the context of the Low Threat Closure Policy; and
- Technical Appendices (i.e. permits, photographs, boring logs, geologic logs, summary analytical data tables, certified analytical reports and chain-of-custody records).

An electronic 'pdf' copy of the report will be submitted to the client and one hard copy will be submitted if requested

Task 8 – Electronic Data Reporting (ACHCS Comment 9)

As required and discussed in Technical Comment No. 9 of the ACHCS's letter, the site is subject to the California Water Board's GeoTracker requirements, for electronic uploads of investigation data and reports. The following GeoTracker electronic uploads will be made:

- Authorization to upload the technical report will be obtained from property owner.
- "GeoMap" – site plan showing all sampling locations.
- "Geo Report" – electronic format of previous and proposed borehole drilling.

The site is also subject to the separate ACHCS's electronic upload system ("ftp") that requires upload of reports to their system. We will make those uploads and provide notification to ACHCS when they have been uploaded.

ESTIMATED SCHEDULE

We anticipate this project can be completed in 4-5 weeks upon notice to proceed. This is predicated on receiving ACHCS's concurrence with this Workplan with minimal comments or modifications to the scope that need to be addressed. If ACHCS's concurrence is not received within the 60 day lead agency review period stipulated by California Code of Regulations, Title 23, Division 3, Chapter 16, Underground Tank Regulations, we will proceed with the fieldwork at the soonest possible time thereafter, and will notify ACHCS's of the drilling and sampling dates as soon as it is determined.

Upon notice to proceed, we anticipate that preparatory tasks (permit, subcontractor scheduling) can be completed in 1- 2 weeks (primarily dependent upon drilling permit processing by ACPW), the fieldwork effort can be completed in 1-2 days. Analytical laboratory results will be completed on normal turnaround (10 working days) or can be accelerated if desired for a surcharged cost. The documentation report will be submitted within approximately 2 weeks following receipt of analytical results.

TEAM QUALIFICATIONS

Stellar Environmental has completed dozens of similar projects, including numerous projects under oversight of ACHCS.

Our team will consist of the following:

- Stellar Environmental Solutions, Inc. (owner's consultant responsible for overall project coordination, geologic evaluation, sampling, data evaluation, and report certification by a California Professional Geologist);
- Borehole driller with a current C-57 license; and
- Analytical laboratories with current California Environmental Laboratory Accreditation Program (ELAP) certification.

We declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of our knowledge

We trust that this submittal meets your agency's needs. If you have any questions regarding this report, please contact me if you have any questions.

Sincerely,

Mark A. Jacobson
Property Owner-Responsible Party

Ilona Frieden
Property Owner-Responsible Party

Henry Pietropaoli, P.G.
Principal Geologist and Project Manager

Richard S. Makdisi, P.G.
Principal Geochemist and President

Attachments: Figures showing site location and former UST layout, previous and proposed sampling locations
Drilling & sampling methods and protocols

cc: Mr. Amitai Schwartz – property owner counsel

REFERENCES

Alameda County Health Care Services. 2014. Request for Data Gap Work Plan; Fuel Leak Case No. RO0003143 and GeoTracker Global ID T10000006106, Paramount UST, 811 Paramount Road, Oakland, CA 94610. December.

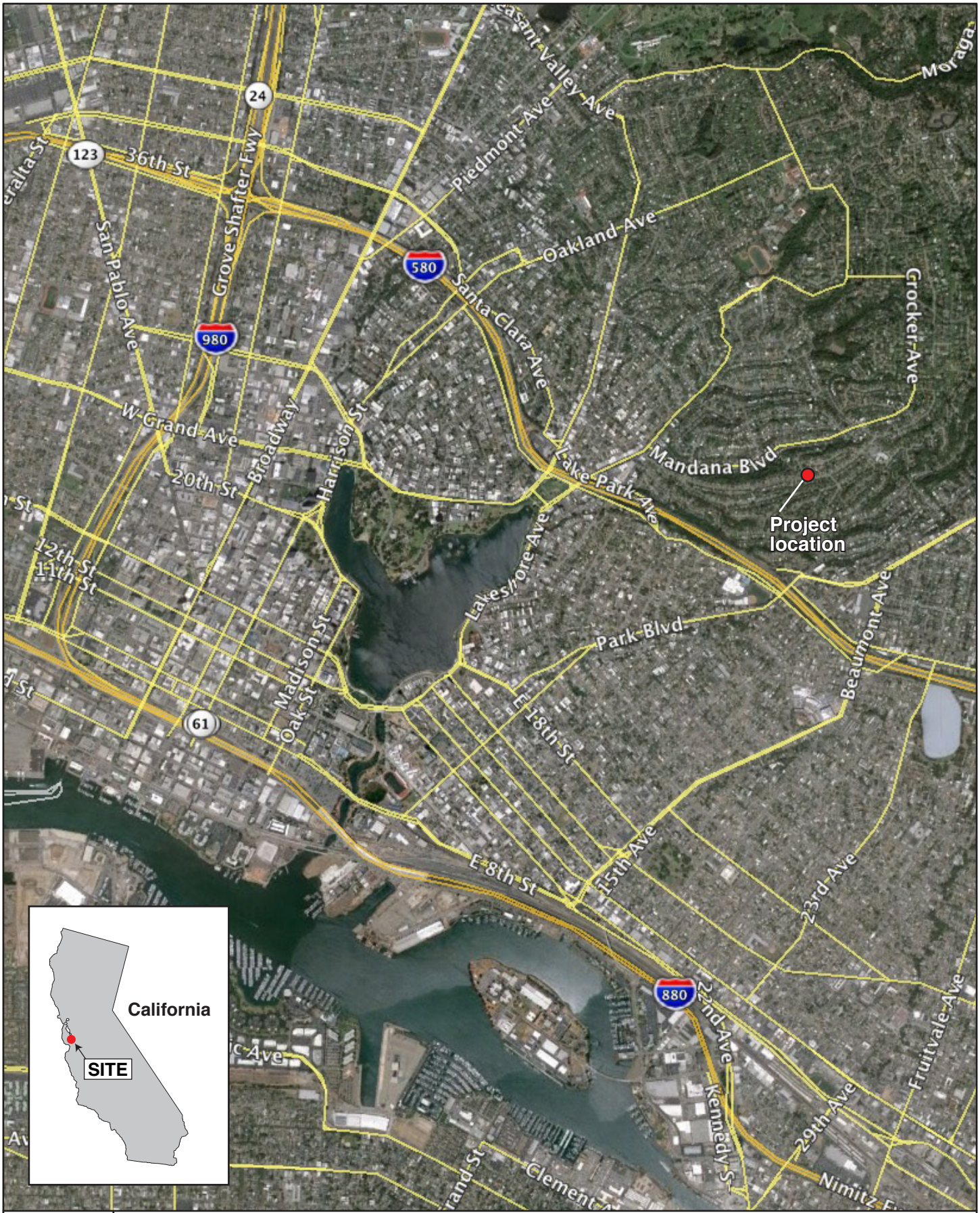
Golden Gate Tank Removal, Inc. 2014 Underground Storage Tank Removal, 811 Paramount Road Oakland, CA 94610. January 14.

Regional Water Quality Control Board (Water Board), 1999. East Bay Plains Beneficial Use Study, San Francisco Bay. June 15.

Regional Water Quality Control Board (Water Board), 2007. San Francisco Bay Basin (Region 2) Water Quality Control Board (Basin Plan). January 18.

Regional Water Quality Control Board (Water Board), 2013. Environmental Screening Levels. Revised December 2013.

FIGURES



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SITE LOCATION MAP

811 Paramount Avenue Oakland, CA	By: MJC	FEBRUARY 2015
	Figure 1	

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SITE PLAN SHOWING LOCATIONS OF FORMER UST, HISTORICAL AND PROPOSED INVESTIGATION SAMPLING

811 Paramount Avenue Oakland, CA	By: MJC	FEBRUARY 2015
	Figure 2	

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2015-16-02

ATTACHMENT A

Drilling & Sampling Methods and Protocols

ATTACHMENT A
DRILLING & SAMPLING METHODS AND PROTOCOLS

The boreholes will be advanced with a Geoprobe™ (direct-push) or equivalent rig that advances approximately 2-inch-diameter sampling rods into undisturbed soil. Soil samples are collected in either acetate or metal sleeves inside the sampling rods. The sleeves selected for off-site laboratory analysis are then capped (with non-reactive plastic caps) and labeled. Using a dual tube drill rod system, a depth-specific "grab" groundwater samples will be collected by inserting temporary polyvinyl chloride (PVC) with a well screen through the open rod. Upon reaching the water table, the sampling string will be raised by approximately 1 foot, dropping the sacrificial tip and exposing the screen interval. The sample will then be collected through new Tygon™ tubing connected to a peristaltic vacuum pump or using tubing equipped with a check-valve or by inserting a new disposable bailer. The water will then be transferred directly to the appropriate sampling containers.

Samples will be securely sealed in appropriate containers, placed in an ice chest with ice at approximately 4 degrees C., and transported to the analytical laboratory under chain-of-custody record.

Waste soil (unused samples) will be temporarily containerized on-site in labeled, 5-gallon plastic pails with sealing tops. This soil will be appropriately profiled and disposed of when it has been determined that no further waste soil will be generated, or will be combined with any future generated waste soil from subsequent investigation phases.