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By Alameda County Environmental Health 10:41 am, Feb 18, 2016

February 16, 2016

Subject: Site Investigation Report
585 22nd Street
Oakland, California
Alameda County Department of Environmental Health
Case RO0003187

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

Charles A. Long
Principal

Matt Ticknor
Principal

Site Investigation Report

585 22nd Street
Oakland, California
Alameda County Department of Environmental Health
Case RO0003187

AEC Project No. 16-046SD
February 17, 2016

Presented To:

Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6540

On Behalf Of:

585 22nd Street, LLC
2030 Manzanita Drive
Oakland, CA 94611

Prepared By:

Advantage Environmental Consultants, LLC
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ADVANTAGE
ENVIRONMENTAL
CONSULTANTS, LLC.

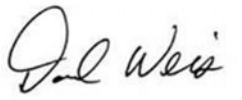
Site Investigation Report

585 22nd Street
Oakland, California
Alameda County Department of Environmental Health
Case RO0003187

On behalf of 585 22nd Street, LLC, Advantage Environmental Consultants, LLC (AEC) has prepared this *Site Investigation Report* for the above referenced property which is being submitted to the Alameda County Department of Environmental Health for review and comment. This report was completed in accordance with the standards of care exercised by environmental professionals in the industry.

PROJECT MANAGER CERTIFICATION

I certify that the information contained in or included with this submittal is accurate and complete. This submittal and all attachments were prepared at my direction and in accordance with protocols designed to assure that qualified personnel gathered and evaluated the information submitted in accordance with the standards of care exercised by environmental professionals in the industry.



_____
Daniel Weis, R.E.H.S.
Branch Manager

WORK PROGRAM CERTIFICATION

This report presents the technical approach of AEC to further investigate soil and soil gas conditions at 585 22nd Street in Oakland, California. This report has been completed in accordance with the standards of care exercised by environmental professionals in the industry.

_____
Eric Cathcart, MS, PG
Senior Geologist
California PG# 7548

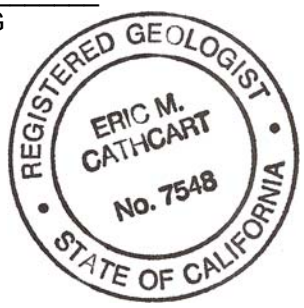


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TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION

On behalf of 585 22nd Street, LLC, AEC has prepared this *Site Investigation Report* for the property located at 585 22nd Street in Oakland, California (i.e. the Site). The Site is currently an asphalt paved lot used for the parking of United States Postal Service vehicles that is slated for development for future residential development. This assessment has been conducted in accordance with our Alameda County Department of Environmental Health (ACDEH) approved *Work Plan for Supplemental Investigation* dated October 13, 2015. The Work Plan approval letter is included as Appendix A of this report.

1.1 Site Location and Description

The Site is comprised of an approximately 16,000 square foot lot located at the physical address of 585 22nd Street, Oakland, California. The Site is further identified as Alameda County Assessor's Parcel Number 005-8-0647-028-04. The Site is an asphalt paved lot used for the parking of United States Postal Service vehicles. The majority of the Site is comprised of an asphalt paved parking lot. There is some minor landscaping at the Site. A Vicinity Map depicting the general location of the Site is included as Figure 1. A Site Plan is included as Figure 2.

1.2 Regulatory Status and Previous Site Assessment Work

AEC completed Phase I and II Environmental Site Assessments (ESAs) of the Site in August 2015. Such documents were provided to the Alameda County Department of Environmental Health (ACDEH) as part of the execution of a Voluntary Remedial Action Agreement between ACDEH and 585 22nd Street, LLC. During the course of the completion of the Phase I ESA of the Site, it was revealed that portions of the Site were occupied by an engraving/plating facility/business. In addition, AEC corresponded with ACDEH regarding a former leaking underground storage tank (LUST) case that was associated with the Site and previously closed under commercial land use. AEC was informed by ACDEH that if a change in land use of the property from commercial to residential is proposed, that ACDEH would expect the Site owner, development proponent or other party to voluntarily work with the Department to have them review and approve the proposed change in land use relative to subsurface environmental conditions, and in particular related to potential vapor intrusion/human health risk based concerns that were not commonly evaluated during the closure of older LUST cases.

AEC subsequently conducted a Phase II ESA at the Site to evaluate for the presence of contaminants of potential concern in soil, soil gas and groundwater and to evaluate such data relative to a proposed change in land use from commercial to residential. On July 17, 2015, a total of six soil borings (identified as B1 through B6) were drilled at the Site using direct-push drilling technology. One soil boring, B5, was drilled to a total depth of 10 feet below ground surface (bgs). This boring was situated in the northeastern corner of the Site. The remaining soil borings, B1 though B4 and B6, were drilled to a total depth of 15 feet bgs. Soil samples were collected at depths of one foot, three feet, five-feet, 10 feet and 15 feet bgs in soil borings B1 through B4 and B6. Soil samples were collected at depths of one foot, three feet, five feet and 10 feet bgs in soil boring B5. A total of 28 soil samples were collected during drilling activities. Soil gas samples were collected at depths of five feet and 10 feet bgs in soil borings B1, B3 and B4. Groundwater samples were collected from three of the soil borings (B1 through B3) at a depth of 15 feet bgs.

Six of the 28 soil samples were analyzed for volatile organic compounds (VOCs). VOCs were not detected in any of the samples analyzed for this constituent. In addition, 12 soil samples were analyzed for asbestos. Asbestos was not detected in any of the samples analyzed for this constituent. Six of the 28 soil samples collected during the drilling of the soil borings were analyzed for Title 22 Metals. Detected metals in the soil samples included total barium, chromium, copper, lead, nickel, vanadium and zinc. None of the metals concentrations exceeded the San Francisco Bay Area Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for residential soil and California Total Threshold Limit Concentrations. The three groundwater samples collected during the drilling of the soil borings were analyzed for VOCs. VOCs were not detected at or above the laboratory reporting limits in any of the groundwater samples. Other potential organic

and inorganic contaminants in soil and groundwater were not evaluated as AEC had no reason to believe that other potential contaminants are present at the Site based on the current and historical land uses.

Six soil gas samples were analyzed during the assessment for VOCs in soil gas. A summary of the maximum VOC concentrations is presented in the table below.

VOC Detection Summary

VOC Compound	Maximum Concentration (µg/m^3)
Chloromethane	4.3
Acetone	470
Carbon disulfide	98
2-Butanone (MEK)	150
Chloroform	400
Benzene	40
4-Methyl-2-pentanone (MIBK)	17
Toluene	46
Ethylbenzene	7.8
m,p-Xylene	14
Styrene	6.5
o-Xylene	6.4
1,2,4-Trimethylbenzene	7.8
Tetrachloroethene	36

µg/m3 = micrograms per cubic meter

With the exception of the maximum detected concentration of chloroform (400 µg/m^3), none of the detected VOC concentrations exceeded their respective ESLs. The ESL for chloroform is 230 µg/m^3.

Conclusions of the Phase II ESA were follows:

- VOCs, asbestos and metals were not considered to be contaminants of concern at the Site.
- With the exception of the maximum detected concentration of chloroform (400 µg/m3), none of the detected VOC concentrations exceeded their respective ESLs.
- AEC recommended that as part of obligations under the prior no further action letter from ACDEH pertaining to the former LUST case associated with the Site, the Phase I and II ESA reports should be submitted to ACDEH for review as part of the entitlement and project approval process for the proposed residential development at the Site. After engaging ACDEH under a Voluntary Remedial Action Agreement, ACDEH would review the reports and provide written directives regarding any additional assessment and/or mitigation they feel may be warranted at the Site relative to the proposed change in land use from commercial to residential.
- All data obtained during the subsurface investigation was considered to be valid and useful for decision making purposes. In addition, no upset conditions occurred during the sampling events or completion of the laboratory analysis that may have adversely influenced the results of the investigation.
- Based on the current land use of the Site (parking lot), the findings of this assessment did not represent conditions that are considered to be an imminent threat to human health or the environment, or ones that require immediate notification to an environmental regulatory agency.

A Voluntary Remedial Action Agreement was fully executed between 585 22nd Street, LLC and the ACDEH on September 25, 2015 and a Work Plan for Supplemental Investigation dated October 13, 2015 was submitted to the ACDEH for review. The primary objective of the Work Plan was to develop a program to further investigate the presence and spatial distribution of VOCs in vadose zone soil gas at the Site, and utilizing the data obtained, conduct an evaluation of the human health risks associated with potential soil gas exposures and vapor intrusion for the planned development. Soil sampling and analysis was also proposed to rule out hexavalent chromium as a contaminant of potential concern at the Site. The Work Plan was approved with one minor condition (modification of one of the soil boring locations). This condition was complied with during implementation of the Work Plan. Our current report describes the implementation of the ACDEH approved Work Plan and the findings of the investigation.

1.3 Proposed Redevelopment

The Site is currently a paved parking lot that is slated for development for residential purposes. Site development will require conventional grading (removal and recompaction of soil) to depths that are yet to be determined, but are expected to be less than five feet from existing grades. No significant export of soil from the Site is proposed at this time. However, it is likely that some minor export of soil will be required as part of construction of lifts associated with an automated automobile parking system. Site development plans will include a residential development constructed on a concrete slab-on-grade foundation system. There will be 78 residential units constructed at the Site. None of the residential units will be located on the ground floor of the future structure. The ground floor of the future structure will include parking areas, utility/mechanical rooms and enclosures, storage rooms, trash enclosures, bicycle lockers a lobby and a leasing area/lounge.

1.4 Organization of Report

This *Site Investigation Report* is organized as follows:

Section 1 – Introduction
Section 2 – Physical Setting
Section 3 – Field Investigation
Section 4 – Investigation Results and Discussion
Section 5 – Human Health Risk Assessment
Section 6 – Data Assessment
Section 7 – Conclusions and Recommendations
Section 8 – Request for ACDEH Concurrence
Section 10 – References

Supporting tables, figures and appendices in this report are listed in the Table of Contents of this document.

2.0 PHYSICAL SETTING

2.1 Topography

According to the United States Geologic Survey topographic map for the Oakland West, California 7.5 minute quadrangle (1997), the Site is shown as being relatively level and located at an elevation of approximately 25 feet above mean sea level. Regional topography is shown as sloping to the south and southeast. No structures are depicted on-Site on the map. However, the Site and its adjacent properties are situated in an area that is shaded grey, indicating dense development. Streets/roadways bordering the Site are shown in their current configuration. Figure 1 (Vicinity Map) is a reproduction of the USGS topographic map.

2.2 Geology

The Site is situated in the Coast Ranges Geomorphic Province; one of 11 physiographic provinces in California recognized by defining features based on geology, faults, topography, and climate. The Coast Ranges are comprised of a series of long, northwest-trending mountain ranges separated by valleys, generally subparallel to faults of the San Andreas Fault system, which were created by extensive folding and faulting during a mountain-building episode beginning in the late Pliocene and culminating in the mid-Pleistocene. Summit elevations average between 2,000 to 4,000 feet above mean sea level (msl), with the highest elevation located in the northern part of the province (Solomon Peak) at approximately 8,000 feet above msl. The Coast Ranges province is also composed of thick Mesozoic and Cenozoic sedimentary strata. The Coast Ranges province is bound on the north by the Oregon state line, on the east by the South Fork Mountain and Coast Range thrusts bordering the Klamath Mountains and Great Valley provinces, on the south by the Santa Ynez fault and Transverse Ranges province, and on the west by the continental borderland. The area is seismically active, including the San Andreas fault which extends 600 miles from the north at Point Arena beyond the Coast Ranges to the south to the Gulf of California. More specifically, the Site is located in the central portion of the Coast Ranges province east of the San Francisco Bay. According to geologic map sources, the Site appears to be underlain by Quaternary older alluvium deposits. These deposits are characterized by partially consolidated sand, gravel, and clay. Artificial fill material is also present beneath the Site in the area of the former underground storage tank (UST).

2.3 Hydrology / Hydrogeology

According to the California Water Quality Control Plan for the San Francisco Bay Region (SF-RWQCB, 1995), the Site is situated within the East Bay Plain groundwater sub-basin of the Santa Clara Valley groundwater basin. Groundwater within the East Bay Plain sub-basin is listed with existing beneficial use designations for municipal, industrial, process supply, and agricultural purposes. Static groundwater beneath the Site is anticipated to be present at approximately 15 feet bgs with an anticipated flow direct in a south to southeasterly direction.

3.0 FIELD INVESTIGATION

3.1 Technical Approach

3.1.1 Soil and Soil Gas Sampling Depths

A total of 10 soil borings (identified as B1 through B10) were drilled at the Site utilizing a truck mounted direct-push drill rig. The locations of the soil borings are depicted on Figure 2. The soil borings were drilled by TEG Northern California of Rancho Cordova, California under the oversight of AEC. The soil borings were drilled to target depths of five feet below existing grades. Soil samples were generally collected from the soil borings at depths of one-half (0.5) foot, one (1) foot, three (3) feet and five (5) feet below the ground surface. Soil gas probes were installed at the five foot depths at each boring location. The five foot soil gas sampling depths represent locations situated approximately five vertical feet below the future concrete slab of the proposed ground-level of the structure to be constructed at the Site. Soil and soil gas sampling activities are discussed in greater detail in the following sections.

3.1.2 Geotechnical Sampling

As part of the vapor intrusion evaluation for the Site, three soil samples were obtained for geotechnical analysis. Such samples were obtained from the five foot depths from borings B3, B6 and B7 at the Site. Geotechnical testing was performed in accordance with the following American Society of Testing and Materials (ASTM) and other geotechnical testing methods:

- Grain-size distribution (ASTM D422)
- Moisture content (ASTM D2216)
- Bulk density (ASTM D2937)
- Total, air filled and water filled porosity (API RP40)
- Total/Fractional organic carbon (Walkley-Black)
- USDA Soil Texture Scheme

3.2 Preliminary Field Activities

The following tasks were performed prior to the commencement of field sampling activities:

- AEC representatives completed Site visits to mark-out the locations of the proposed sampling locations to confirm the feasibility of drill rig access.
- A permit for the drilling of the proposed soil borings was procured with the Alameda County Public Works Agency.
- All equipment used during the sampling events was inspected, pre-cleaned, and decontaminated.
- Field meters used during sampling were checked to ensure proper calibration.
- All forms to be used in the field (i.e., logbook, chain-of-custody forms, etc.) were assembled.
- Sampling personnel reviewed the sampling protocols to be employed during the fieldwork activities. In addition, the Site Specific Health and Safety Plan (HSP) for the proposed work

which outlined the chemical and physical hazards at the property was reviewed by AEC personnel and AEC's subcontractors prior to the commencement of field activities.

- The locations of underground utilities in the vicinity of the sampling locations were evaluated for potential conflicts. At least 48 hours prior to the commencement of field sampling, AEC notified Underground Service Alert utility marking service. The utility marking service identifies known utility locations in the public right-of-way.

- Notifications to the ACDEH and Alameda County Public Works Agency of the commencement of fieldwork activities were made in advance of the work.

3.3 Soil Gas Sampling Methodology

Soil gas probe installation, sampling and analysis were conducted by TEG Northern California of Rancho Cordova, California, under the oversight of AEC on December 21, 2015. As stated previously, soil gas probes were installed at depths of five feet bgs. Boreholes were drilled using a truck-mounted direct-push drill rig. Soil gas sampling and analysis were not conducted during or immediately following a significant rain event (greater than ½-inch during a 24-hour period). A summary of the sample collection procedures is provided in this section. The approximate locations of the borings and soil gas probes are presented on Figure 2.

Sampling procedures were in general compliance with the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) Soil Gas Advisory (2015). Analytical protocols were in general compliance with method United States Environmental Protection Agency (EPA) test Method 8260B which has been improved to include surrogate and second source analysis. Sample injection for 8260B analysis used glass syringes as per the DTSC Soil Gas Advisory (2015).

Probe Installation

The manually driven probe rods were used to set soil gas implants. With a hardened one-inch steel tip on the end of the rod, the probe is driven to the desired depth. The rod is then removed and 1/8-inch (or 1/4-inch if requested) nylon tubing with a small plastic airstone filter attached to the end is inserted into the open borehole. The probe is gently lifted up approximately six inches and sand is poured down the borehole to encase the filter with one foot of sandpack. Approximately one foot of granular bentonite is then poured down the borehole and hydrated to seal the probe. The soil gas well can then be completed to the surface with hydrated bentonite. The probe is allowed to set for two hours prior to sampling to allow the bentonite time to properly seal.

Sampling

After a minimum of a two hour equilibration time and the purging of three volumes from the sampling system, soil gas was withdrawn from the end of the inert Teflon tubing that runs from the sampling tip to the surface using a 50 cubic centimeter (cc) gas tight, glass syringe connected via an on-off valve. The probe tip and sampling tubing is purged based upon the pre-determined purge volume (three purge volumes) established by the purge volume test described above. A sample of in-situ soil gas is then withdrawn and immediately transferred to the mobile lab for analysis within minutes of collection. The use of small calibrated syringes allows for careful monitoring of purge and sample volumes. This procedure ensures adequate sample flow is obtained without excessive pumping of air or introduction of surface air into the sample.

Leak Control and Testing

Tests for leakage were conducted at each sampling location utilizing a shroud of sufficient size required to cover the newly installed soil gas probes. The leak tests were conducted to evaluate if ambient air has penetrated and diluted the soil gas samples. The tracer compound (1,1-

Difluoroethane) was introduced under the shroud and then quantified and reported as a target analyte by the analytical laboratory. 1,1-difluoroethane was not detected in the soil gas samples and as such, no upset conditions relative to leak control and testing were noted.

Probe Removal

Upon completion of soil and soil gas sampling, the probes were removed from the ground and the probe holes were backfilled with hydrated bentonite to match existing grades. The used tubing along with other non-hazardous wastes generated during the field activities were bagged and handled as miscellaneous solid waste.

3.4 Soil Sampling Methodology

Direct-Push Sampling Technology

As stated previously, soil borings were drilled using a truck-mounted direct-push sampling rig. The direct-push sampling system uses a hydraulic hammer to advance a two-inch diameter rod equipped with a soil sampling tool. Soil samples at targeted sampling depths are collected into acetate sleeves by unlocking the drive tip and pushing through the soil. The acetate sleeves containing soil are then retrieved, cut (in approximate six-inch sections), sealed with Parafilm™, capped, and labeled. The respective soil samples retained for laboratory analysis were then recorded onto chain-of-custody documentation and immediately placed into a chilled cooler and stored until transport to a California Department of Public Health-certified laboratory. Soil from the soil borings was described and logged by a qualified field representative working under the direct supervision of a registered California Professional Geologist. Descriptions of the soils encountered during drilling are provided on the boring logs included in Appendix B.

During drilling activities, an organic vapor monitor was used to monitor the presence and level of undifferentiated organic vapors in the borings and to screen soil samples collected. The instrument was also used to screen for organic vapor in ambient air and the breathing zone of field personnel. A MiniRAE 2000 photoionization detector (PID) was used at the Site during the investigation activities. Precautions were taken to limit the contamination of samples from outside sources. Hands were washed with distilled water and soap, and rubber surgical gloves were used when handling soil samples and sampling equipment. Soil sampling equipment was decontaminated between uses by washing with a non-phosphate detergent solution followed by a triple distilled water rinse.

3.5 Analytical Laboratories and Methods

Analytical laboratories utilized during the completion of this subsurface investigation are listed below:

Analytical Laboratory	United States Environmental Protection Agency (EPA) or Other Analytical Methods
TEG Northern California Rancho Cordova, CA Soil Gas Mobile Analytical Laboratory (soil gas)	VOCs – EPA Method 8260B
American Environmental Testing Laboratory Burbank, California Stationary Analytical Laboratory (Soil)	Hexavalent Chromium – EPA Method 7196A

Analytical Laboratory	United States Environmental Protection Agency (EPA) or Other Analytical Methods
Core Laboratories Bakersfield, California Stationary Analytical Laboratory (Soil)	Grain-size distribution (ASTM D422) Moisture content (ASTM D2216) Bulk density (ASTM D2937) Total, air filled and water filled porosity (API RP40) Total/Fractional organic carbon (Walkley-Black) USDA Soil Texture Scheme

3.6 Additional Sample Collection Procedures

3.6.1 Equipment Calibration and Maintenance

As stated previously, an organic vapor monitor (MiniRAE 2000 PID) was used for health and safety monitoring and field screening of soil samples during the fieldwork activities. The instrument was calibrated in accordance with manufacturer's guidelines which includes the use of an Isobutylene standard.

3.6.2 Sample Containers, Labels and Preservation

As stated previously, soil samples obtained during the field sampling were collected in acetate sleeves and soil gas samples were collected in glass syringes. All sample containers were provided by the analytical laboratories. Sample labels were firmly attached to the containers for soil samples, and the following information was printed on the labels:

- Project name and number
- Sample/boring location and analytical parameters
- Sample identification number
- Sample collector's initials
- Date and time of collection

Glass syringes required no special labeling protocols. All soil samples were properly prepared for transportation to the analytical laboratory by placing the samples in coolers containing ice to maintain a shipping temperature of 4°C +/- 2°C.

3.6.3 Chain-of-Custody Protocol

After the samples were collected, chain-of-custody procedures were followed to establish a written record of sample handling and movement between the Site and the analytical laboratories. For soil, each shipping container had a chain-of-custody form completed in triplicate by the sampling personnel. One copy of this form was kept by the sampling team and the other two copies were sent to the applicable analytical laboratory. One of the laboratory copies became a part of the permanent record for the sample and was returned with the sample analytical results. For the soil gas samples (analyzed on-Site), a chain-of-custody was maintained in the mobile analytical laboratory, completed by the chemist and then approved/signed by AEC staff. The chain-of-custody documentation is attached to each analytical laboratory report which are included as appendices to this report.
The chain-of-custodies contained the following information:

- Sample identification numbers
- Sample collectors' printed names and signatures
- Dates and times of collection
- Place and address of collection
- Sample matrix

- Analyses requested
- Signatures of individuals involved in the chain of possession
- Inclusive dates of possession (if applicable)

3.6.4 Sample Packaging and Shipment

3.6.4.1 Soil Samples

Once sample containers for soil were filled, they were placed immediately in a cooler, on ice, to maintain the samples at 4°C +/- 2°C. The field sampler indicated the sample designation/location number and date and time of collection in the space provided on the chain-of-custody for each sample. After the samples were sealed and labeled, they were packaged for transport to the analytical laboratory with chain-of-custody forms placed on the inside of the lids of the coolers. The samples were packaged so that they would not leak or spill from the containers. Samples were then shipped to American Environmental Testing Laboratory (AETL) of Burbank, California via a courier service.

3.6.4.2 Soil Gas Samples

As stated previously, soil gas samples were analyzed on-Site using a mobile analytical laboratory. Therefore, there was no specific soil gas sample packaging or shipping protocol required for such samples. However, soil gas samples, once retrieved, were immediately transferred to the mobile on-Site laboratory for analysis within minutes of collection.

3.6.5 Sampling Documentation

3.6.5.1 Field Reports

In order to provide complete documentation of the sampling activities, detailed records were maintained by AEC field personnel. The records included the following information:

- Site name and address
- Name of field log recorders
- Team members present on-Site and associated duties
- Other persons on-Site
- Summaries of meetings held at the Site
- Levels of safety protection utilized
- Weather conditions
- Calibration readings for field monitoring equipment
- Time of soil gas probe/boring/well placement and sample collection time
- Any other relevant information.

3.6.5.2 Boring Logs

As stated previously, the 10 soil borings were described and logged by a qualified field representative working under the supervision of a licensed California Professional Geologist. A log of each boring was prepared in accordance with the Unified Soil Classification System and include descriptions of soils and formational material encountered, geologic contacts and total borehole depths, boring/soil vapor probe identifications, sample identification numbers, drilling/probe installation/ sampling dates, soil sample and vapor probe depths, and additional observations noted during drilling and soil vapor probe installation activities. The boring logs are included in Appendix B.

3.6.6 Equipment Decontamination

All non-dedicated drilling and field equipment that came into contact with soil at the Site was decontaminated between uses. Disposable field equipment was not decontaminated but was placed into plastic trash bags for proper disposal. Non-dedicated equipment was decontaminated by washing with a non-phosphate detergent/tap water solution followed by a triple rinse of distilled/deionized water. The decontamination areas were designated by AEC field representatives and modified accordingly during field activities.

In addition to the procedures for decontamination outlined above, all persons collecting samples wore clean nitrile gloves and limited contact with the samples. Gloves were also changed between samples. Sample bottles and containers utilized during the sampling work were prepared by the analytical laboratories or drilling companies (acetate sleeves) and sealed to ensure cleanliness.

3.6.7 Investigative Waste Management

A significant quantity of investigative derived waste was not be generated during the course of the project. Excess soils and decontamination water (non-hazardous waste) generated during the field investigation activities were placed into an appropriate labeled container and appropriately disposed of by TEG on behalf of AEC.

3.6.8 HSP Implementation

The Site Specific HSP was implemented during the fieldwork activities, and no adverse incidents or emergency situations occurred during the fieldwork. The HSP included information pertaining to the identification and description of possible hazardous substances that could be encountered during the fieldwork activities, procedures to minimize or eliminate potential exposures to such substances, personal protective equipment (PPE) requirements and measures to be implemented in case of an emergency. AEC and its subcontractors reviewed and signed the HSP prior to each day that fieldwork commenced. A Site safety meeting was also conducted with all parties prior to the commencement of fieldwork. Only Level D PPE was utilized during the fieldwork activities, and an upgrade to Level C or more stringent PPE was not required based on health and safety related monitoring activities.

4.0 INVESTIGATION RESULTS AND DISCUSSION

The results of the subsurface investigation completed at the Site are presented in the following sections.

4.1 Subsurface Conditions

Soils encountered in the first foot of the soil column were generally clean gravels with fine, medium and coarse grained sand as well as clayey sands and clay mixtures. Soil encountered at greater depths in the borings consisted primarily of clay and fine grained silty clays with medium to low plasticity with some areas of clayey sands with fine to medium sand and clay mixtures. Groundwater was not encountered in any of the borings advanced at the Site during this investigation. In addition, neither chemical staining, odors nor other suspect conditions were noted by AEC during the sampling activities. Further, PID screening of soil samples did not reveal any detectable concentrations of undifferentiated VOCs on the field instrument.

4.2 Soil Analytical Results

A total of 39 soil samples were collected during the drilling of the soil borings. The following includes a summary of the analytical laboratory results obtained during this investigation:

Hexavalent Chromium

In accordance with the approved Work Plan for the project, the ten soil samples obtained from the 0.5 foot depths of each soil boring were analyzed for hexavalent chromium by EPA test Method 7196. In addition, ten additional soil samples from greater depths (four from 1 foot, three from 3 feet and three from 5 feet) were also analyzed for this constituent. Hexavalent chromium was not detected at or above the analytical laboratory reporting limit in any of the samples analyzed for this constituent. Table 1 is a summary of hexavalent chromium analytical results. Figure 3 depicts the soil boring locations and associated hexavalent chromium analytical results. The analytical laboratory report is included in Appendix C.

Geotechnical Analysis

As stated in Section 3.1.2 of this report, three soil samples were obtained for geotechnical analysis (5 foot depths of borings B3, B6 and B7). A summary of the results relevant to vapor intrusion modeling input parameters is presented in the table below.

Sample Location-Depth (feet)	Grain Size Description	USDA Soil Texture Scheme	Moisture Content (% weight)	Dry Bulk Density (g/cm^3)	Total Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Water Filled Porosity (cm^3/cm^3)	Total Organic Carbon (mg/kg)
B3-5	Silt	Sandy Clay	16.1	1.87	0.303	0.003	0.300	14300
B6-5	Silt	Clay	23.2	1.63	0.383	0.004	0.379	6400
B7-5	Silt	Clay	18.2	1.78	0.330	0.005	0.325	5200

A copy of the geotechnical laboratory report is included in Appendix D.

4.3 VOC Analytical Results in Soil Gas

Twelve soil gas samples (including a probe blank and a field duplicate) were collected during this subsurface investigation. VOCs were not detected at or above the laboratory reporting limits in soil borings B3, B4 and B9. Benzene was detected above the laboratory reporting limit in seven of the 10 soil gas sampling locations at the Site (B1, B2, B5, B6, B7, B8 and B10).

VOC Compound	Minimum Detected Concentration ($\mu g/m^3$)	Location of Minimum Detected Concentration	Maximum Detected Concentration ($\mu g/m^3$)	Location of Detected Maximum Concentration
Benzene	44	B1	160	B7

The maximum concentration of benzene in soil gas was detected in soil boring B7, situated in the western portion of the Site and in the general location of the former engraving and plating facility/business. Table 2 presents the analytical results for all soil gas samples analyzed during this subsurface investigation. Figure 4 depicts the soil boring locations and associated soil gas analytical results. The analytical laboratory report is included in Appendix E.

5.0 HUMAN HEALTH RISK ASSESSMENT

A human health risk assessment focusing on the vapor intrusion pathway was conducted by AEC as part of this investigation to evaluate the potential for chemical volatilization and vapor intrusion of VOCs and the potential risk of exposure to indoor vapors for future users of the proposed Site building. Site conditions do not provide reason to assume there are human health related concerns relative to dermal contact, ingestion or inhalation of soil and/or groundwater at the Site due to the documented lack of significant contaminants in such media at the Site (refer to Sections 1.2 and 4.2 above) that would result in an increased chemical exposure risk to future workers or residents. As such, these potential exposure pathways are considered incomplete and are not discussed further herein.

The vapor intrusion focused human health risk assessment was conducted utilizing the California EPA Office of Environmental Health Hazard Assessment (OEHHA) modified J&E screening-level model for soil gas contamination (last modified March 2014). The vapor risk evaluation has been completed in general accordance with DTSC's *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance)* (2011), and also utilizes other conservative input parameters and assumptions. The risk assessment consisted of four primary steps as follows:

- Data collection and evaluation
- Exposure assessment
- Toxicity assessment
- Risk characterization

The Incremental Lifetime Cancer Risk (ILCR) and Hazard Quotient (HQ) for the inhalation pathway of benzene was evaluated for potential exposure to future users of the Site structure. The cancer risk and HQ calculations were conducted using Site-specific and model default parameters via the J&E model.

5.1 Data Collection and Evaluation

Soil gas data collection methods and summaries of results are discussed previously in this report. Benzene detected in the soil gas samples were evaluated using the J&E model to derive the ILCR and HQ calculations. Benzene was the only detected VOC during the subsurface investigation, and therefore was the only VOC utilized for the J&E modeling effort. As stated previously in this report (Section 1.2), there were 13 VOC compounds detected during AEC's July 2015 assessment completed at the Site. Such compounds included benzene (single VOC compound detected during the current assessment) and 12 others as listed in Section 1.2 above. Seven of the VOC compounds detected previously at the Site were not evaluated during the current assessment as they are non-carcinogens and/or were found at insignificant concentrations during the prior assessment work. Such compounds included chloromethane, acetone, carbon disulfide, 2-butanone (MEK), 4-Methyl-2-pentanone (MIBK), styrene and 1,2,4-trimethylbenzene. In addition, five of the VOC compounds previously detected during the July 2015 assessment were not detected during the current assessment for reasons likely due to higher laboratory reporting limits of United States EPA test Method 8260B used during the current assessment compared to lower reporting limits of United States EPA test Method TO-15 used during the prior July 2015 assessment. Such compounds included toluene, ethylbenzene, m-xylene, p-xylene, o-xylene and PCE. Reporting limits for such compounds using United States EPA test Method 8260B are higher than the highest detected concentrations of such compounds using United States EPA test Method TO-15. However, both the previous maximum detected concentrations of such compounds and the reporting limits of such compounds using United States EPA test Method 8260B are below residential ESLs and are considered to be insignificant relative to potential vapor intrusion risk. Relative to the previous detection of chloroform at 400 µg/m^3 in soil gas sample SV2-5 (boring B3) during the July 2015 assessment, data obtained during our current assessment indicates that this single prior detection is anomalous and was not able to be duplicated during our current assessment. Chloroform was not detected at or above the laboratory reporting limit of 100 µg/m^3 in any of the soil gas samples obtained and analyzed during this assessment. This includes current sample location B3 which was drilled immediately adjoining (within one to two feet) of the former boring location with the elevated

chloroform detection, in addition to current boring locations located immediately adjacent to the north (B5), south (B1), east (B2) and west (B4) of the prior elevated detection.

5.2 Exposure Assessment

This step of the risk assessment incorporates information regarding the chemical concentrations with assumptions on how an individual could come in to contact with such chemicals. The resultant estimate is an individual's dose of a chemical or chemicals. This assessment evaluates potential exposure to benzene in soil gas based on the proposed use of the Site for residential purposes. However, it should be noted and as stated previously, none of the residential units will be located on the ground floor of the future structure at the Site. The ground floor of the future structure will include parking areas, utility/mechanical rooms and enclosures, storage rooms, trash enclosures, bicycle lockers, a lobby and a leasing area/lounge. Regardless, parameters applicable to long-term residential exposure to benzene have been utilized during this risk assessment as a conservative measure and approach.

Exposure parameters used during the J&E modeling included the following:

- Depth below grade to bottom of enclosed floor space: 15 centimeters (cm)
- Soil gas sampling depth below grade: 152.4 cm
- Average soil temperature: 24 degrees Celsius (model default)
- Vadose zone soil type: Per geotechnical data
- Vadose zone dry bulk density: Per geotechnical data in grams per cubic centimeter (g/cm^3)
- Vadose zone soil total porosity - Per geotechnical data in cubic centimeter per cubic centimeter (cm^3/cm^3)
- Vadose zone soil water-filled porosity - Per geotechnical data in cubic centimeter per cubic centimeter (cm^3/cm^3)
- Air exchange rate: 0.5 exchange per hour for residential structure
- Average vapor flow rate into building (Qsoil) – 5 liters per minute (model default)
- Averaging time for carcinogens: 70 years
- Averaging time of noncarcinogens: 26 years (residential scenario)
- Exposure duration: 26 years (residential scenario)
- Exposure frequency: 350 days per year (residential scenario)
- Exposure time: 24 per day
- Various unadjustable default parameters within the J&E model

5.3 Toxicity Assessment

The toxicity assessment refers to the identification of a chemical as one that may cause an adverse health effect under certain exposure conditions and the dose of that chemical necessary to cause that effect. Both the California EPA OEHHA and United States EPA publish toxicity criteria for numerous chemical substances. The Reference Concentration in air (RfC) for a chemical is a daily exposure level for a human that is not expected to result in an adverse noncancer health effect. A Unit Risk Factor (URF) for a chemical is an expression of the potency of that chemical to cause cancer, and represents the probability (or risk) of the chemical to cause cancer after a lifetime of exposure. The default RfC and URF toxicity criteria for benzene used in the J&E modeling is presented in the following table:

Toxicity Criteria		
VOC Compound	**Unit Risk Factor $(\mu g/m3)^{-1}$**	**Reference Concentration (mg/m3)**
Benzene	2.9E-05	3.0E-03

µg/m3 = micrograms per cubic meter
mg/m3 = milligrams per cubic meter

5.4 Risk Characterization

The risk characterization includes assessment of the overall potential for cancer and noncancer effects posed by exposure to contaminants at a given property. Therefore, a human health risk assessment for a Site must include the risks and hazards posed by all contaminants of concern and all complete exposure pathways.

In evaluating theoretical carcinogenic risk, such risk is estimated as the incremental probability of an individual developing cancer over a lifetime as a result of chemical exposure. The cancer risk is estimated by multiplying the estimated average exposure rate (i.e. lifetime average daily doses) by the chemical unit risk factors. The unit risk factors convert estimated daily intakes averaged over a lifetime to incremental risk of an individual developing cancer. Since the modeled cancer risks are averaged over an individual's lifetime, long term exposure to a carcinogen will result in higher estimated risks than shorter-term exposure to the same carcinogen, if all other risk modeling assumptions are constant.

When evaluating estimated cancer risks for decision making purposes, a typical acceptable excess cancer risk regardless of land use is equal to or less than one in one million (≤1E-06). This threshold is recognized as acceptable by the United States EPA, State of California regulatory agencies and numerous local jurisdictions as one that is suitable for an unrestricted land use (including at-grade residential use and other sensitive land uses) and represents a probability of one in one million that an individual could develop cancer from exposure to a carcinogen (or group of carcinogens) under various exposure assumptions. A one in one hundred thousand (≤1E-05) excess cancer risk is typically recognized by Federal and State agencies as acceptable in commercial/industrial scenarios. A calculated excess cancer risk falling between 1E-06 and one in ten thousand (1E-04) is considered by both Federal and State agencies to be in a risk management range and where risk management decisions are made on a site-specific basis. If risk exceeds one in ten thousand (>1E-04), the VOCs are assumed to pose a potential long-term risk to human health, and both source remediation and vapor intrusion mitigation may be deemed warranted.

The hazard potential posed by a chemical for noncarcinogenic effects is evaluated by comparing the exposure level over time with a reference dose or concentration for a similar exposure period to produce a HQ. If the HQ is less than 1.0, the chemical is considered unlikely to pose significant non-carcinogenic adverse health effects to individuals under the exposure conditions. When the HQ exceeds 1.0, further evaluation of the source and/or response action to mitigate the source and vapor intrusion may be needed.

5.5 Risk Evaluation Results

As previously discussed, AEC evaluated the potential human health risks from exposure to potential upward vapor intrusion in to the future residential structure to be constructed at the Site. Site-specific and default J&E model parameters were used as part of the risk assessment calculations. The ILCR and HQ for benzene have been calculated using the maximum concentration of benzene detected in soil gas at the Site during our most recent investigation to designate the exposure point concentration for use during the risk modeling effort. It should be noted that this maximum concentration of benzene also exceeds benzene concentrations detected previously at the Site during our July 2015 assessment.

The exposure point concentration is the value that represents a conservative estimate of a specific chemical concentration available from a particular medium or route of exposure and in the case of the proposed project, vapor intrusion in to the future structure at the Site. This approach is considered to be conservative as four of the ten soil gas sampling locations did not exhibit benzene at or above the laboratory reporting limit. In addition, the other detected concentrations of benzene were an order of magnitude lower that the maximum benzene concentration of 160 µg/m^3 which has been used as the exposure point concentration. This would indicate that chemical vapor flux is not occurring throughout the entire Site and that the maximum benzene concentration is not indicative of subsurface conditions throughout the overall subject Site. Further, all geotechnical data obtained

during this assessment (borings B3, B6 and B7) has been utilized during the risk modeling effort in order to evaluate risk using the most conservative Site-specific data available.

The potential risk and hazard of vapor intrusion and exposure to future occupants of the proposed development at the Site is presented in the following tables.

Risk Evaluation Using
Maximum VOC Exposure Point Benzene Concentration
and Geotechnical Data From Soil Boring B3

VOC Compound	Maximum Concentration ($\mu g/m^3$)	Estimated Cancer Risk	Hazard Quotient
Benzene	160	3E-09	1E-04

Risk Evaluation Using
Maximum VOC Exposure Point Benzene Concentration
and Geotechnical Data From Soil Boring B6

VOC Compound	Maximum Concentration ($\mu g/m^3$)	Estimated Cancer Risk	Hazard Quotient
Benzene	160	5E-09	1E-04

Risk Evaluation Using
Maximum VOC Exposure Point Benzene Concentration
and Geotechnical Data From Soil Boring B7

VOC Compound	Maximum Concentration ($\mu g/m^3$)	Estimated Cancer Risk	Hazard Quotient
Benzene	160	4E-09	1E-04

As shown in the tables above, the estimated carcinogenic risk resulting from potential benzene exposure at the Site ranges from 3E-09 to 4E-09 (three to four in one billion) which is below the one in one million (1E-06) target unrestricted risk threshold. The HQ for potential benzene exposure was calculated at 0.0001 which is well below the target HQ of 1.0. J&E modeling spreadsheets are included in Appendix F of this report.

5.6 Uncertainties and Possible Risk Mitigating Factors

The methodology used in this risk assessment is consistent with Federal and State risk assessment guidance. However, it should be noted that the procedures used in any quantitative risk assessment are conditional estimates given the many assumptions that must be made about exposure and toxicity. The primary factors that contribute to uncertainty in this assessment are limited information about patterns of exposure and uncertainty in toxicity estimates.

Numerous conservative assumptions were made during the completion of this assessment. For example, it is assumed that the maximum VOC chemical concentrations remain constant over the duration of exposure. No abiotic or biotic degradation mechanisms which would reduce the concentrations of VOCs over time are assumed to occur. This general assumption of steady-state conditions also applies to sources and chemical release mechanisms and may result in a conservative estimation of long-term exposure concentrations.

There are also possible risk mitigating factors pertaining to structural components that are not considered during the risk modeling effort. Such factors include the strength and thickness of future

new concrete slabs, strength of heating, ventilation and/or air conditioning systems and associated air exchange rates within the future buildings, intake rates and actual frequency of time spent within the future structures. Such factors could reduce potential chemical exposures due to possible upward vapor migration. Further, the overall design of the proposed development is a risk mitigating factor in that there will be no habitable residential units on the ground floor of the future Site building. Regardless, the vapor risk assessment results are acceptable for long-term residential exposure scenarios.

In summary, because a risk evaluation contains multiple sources of uncertainty, simplifying assumptions are often made so that health risks can be estimated quantitatively. Since the exact amount of uncertainty cannot be quantified, the risk assessment is intended to overestimate rather than underestimate probable health risk and hazards. Therefore, the results of this assessment are meant to be protective of health despite the inherent uncertainties in the process.

6.0 DATA ASSESSMENT

Data management and quality assurance/quality control procedures were implemented during the investigation without significant upset conditions. Such procedures were implemented as part of the field sampling and analytical procedures to ensure that data of known quality was produced and that the quality of the results was improved to the maximum extent during investigation. QC Summary Forms for the analytical laboratory reports obtained from TEG and AETL were completed by AEC and include provisions for the review of various items including but not limited to chain-of-custody procedures, sample holding times, field duplicates (soil gas), laboratory method blanks, surrogate recoveries and other laboratory QC samples, reporting limits and the need for corrective action relative to the analytical data. The quality of the data was assessed and any necessary qualifiers were applied in accordance with United States EPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008) and Inorganic Data Review (EPA 540/R-04/004) and United States EPA Office of Environmental Information Guidance for Data Quality Assessment: Practical Methods for Data Analysis (QA/G-9), EPA/600/R-96/084. The completed QC Summary Forms are included in Appendix G and contain specific information regarding any data that had been qualified by the analytical laboratories. A summary of the data assessment effort is presented below.

6.1 Holding Time and Sample Preservation Compliance

Maximum allowable holding times for each analytical method were measured from the time samples were collected to the time that sample preparation or analysis was completed for each sample by the analytical laboratories. All samples submitted to the analytical laboratories were properly preserved within method prescribed temperature preservation requirements. All soil gas samples analyzed by TEG and soil samples analyzed by AETL were analyzed within analytical method recommended maximum holding times.

6.2 Blank Sample Analyses

All laboratory method blanks for soil gas and soil matrix samples did not contain applicable analytes above laboratory reporting limits.

6.3 Surrogate Compound Recoveries

Where applicbale, system monitoring/surrogate compounds were added to each sample prior to analysis of organic parameters by various United States EPA Methods. The calculated recovery for each surrogate compound was evaluated to confirm the accuracy of the reported results. The surrogate recoveries were all within acceptable limits.

6.4 Laboratory Control Samples/Laboratory Control Sample Duplicate (LCS/LCSD) and Matrix Spikes/Matrix Spike Duplicate (MS/MSD) Recoveries

Analytical precision and accuracy of soil gas samples were evaluated based on LCS/LCSD sample analyses performed concurrently with the project samples. Soil matrix samples were evaluated in a similar manner based on both LCS/LCSD and MS/MSD analyses. LCS/LCSD and MS/MSD recoveries were within acceptable limits.

6.5 Field Duplicate Evaluation

One soil gas sample was analyzed as a duplicate (SV4). VOCs were not detected at or above the laboratory reporting limits in the duplicate soil gas sample analyzed during this investigation.

6.6 Data Assessment Summary

No data obtained during the work described herein required rejection. The data that has been relied upon is considered to be useable for decision making purposes and a technically defensible deliverable. Such data has also met precision, accuracy, representativeness, comparability and

completeness requirements for laboratory analysis and in meeting data quality objectives for the investigation. Neither corrective action relative to the analytical testing nor a laboratory technical systems audit was deemed warranted. As stated previously, completed QC Summary Forms are included in Appendix G.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions of this subsurface investigation are as follows:

- Hexavalent chromium has been ruled out as a contaminant of concern in soil at the Site. Further, based on the results of prior soil matrix analyses completed at the Site during our July 2015 assessment, there are no known contaminants of concern present in soil at the Site.

- The human health risk assessment has indicated calculated carcinogenic and non-carcinogenic risks for the planned residential development that are considered acceptable for its intended use and do not warrant active or passive corrective measures.

- There are several risk mitigating factors that should be considered in evaluating data and conclusions of the human health risk assessment. Such factors include uncertainty in toxicity estimates, limited information about patterns of exposure, an assumption that maximum chemical concentrations remain constant over the duration of exposure at the Site, no abiotic or biotic degradation mechanisms being assumed to occur, the overall design of the future project (no ground level residential spaces) and the lack of consideration of new structural components that will be constructed at the Site. Since the exact amount of uncertainty cannot be quantified, the risk assessment is intended to overestimate rather than underestimate probable health risk and hazards.

- The data obtained during the subsurface investigation is considered to be valid and useful for decision making purposes. In addition, no upset conditions occurred during the sampling events that may have adversely influenced the results of the investigation.

- No further action at the Site is considered to be warranted.

8.0 REQUEST FOR ACDEH CONCURRENCE

AEC requests ACDEH concurrence of our opinion that no further action at the Site is considered to be warranted.

9.0 REFERENCES

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), 2011, Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance), dated October 2011.

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC)/ California Regional Water Quality Control Board, Los Angeles and San Francisco Regions (LA-RWQCB and SF-RWQCB), July 2015, Advisory—*Active Soil Gas Investigations,* jointly issued by the DTSC, LA-RWQCB and SF-RWQCB.

California Environmental Protection Agency Office of Environmental Health Hazard Assessment, 2012, Toxicity Criteria Database.

San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (2013).

United States Environmental Protection Agency (USEPA), 1989, Risk Assessment Guidance for Superfund Volume I, Human Health Evaluation Manual (Part A), USEPA 540/1-89-002, Office of Emergency and Remedial Response. Washington, DC.

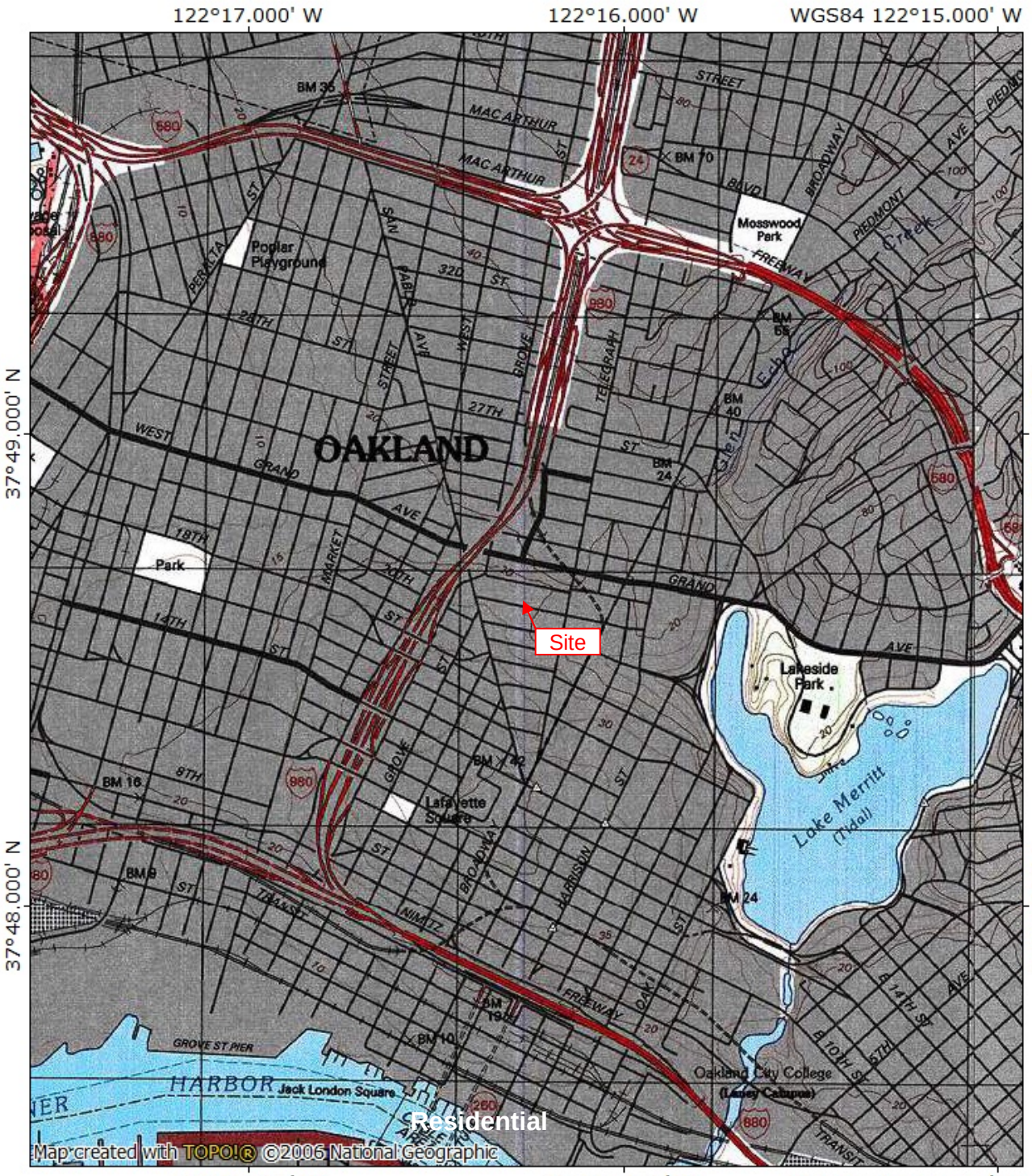
_____, 1991, Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, Supplemental Guidance Standard Exposure Factors, Draft Final, OSWER Directive 9285.6-03, Office of Solid Waste and Emergency Response. USEPA, 1997. Exposure Factors Handbook. Office of Research and Development. EPA/600/P-95/002Ba.

_____, 2000, Guidance for Data Quality Assessment: Practical Methods for Data Analysis (QA/G-9), EPA/600/R-96/084, Office of Environmental Information.

_____, 2009, Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, Part F Supplemental Guidance for Inhalation Risk Assessment, Office of Solid Waste and Emergency Response, EPA-540-R-070-002, OSWER 9285.7-82

United States Geologic Survey (USGS), 1997, Oakland West, CA, Quadrangle 7.5 Minute Topographic Map.

FIGURES



USGS Topographic Quadrangle Map
Oakland West, CA (1997)

Advantage Environmental Consultants, LLC

145 Vallecitos De Oro, Suite 201
San Marcos, CA 92069
Phone: 760-744-3363 Fax: 760-744-3383

Figure 1
Vicinity Map
585 22nd Street
Oakland, California

Work Order No.:	Report Date:	Drawn By:
16-046SD		SS

Advantage Environmental Consultants, LLC

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Figure 2
Boring Location Plan
585 22nd Street
Oakland, California

Work Order No.:	Report Date:	Drawn By:
16-046SD		SS

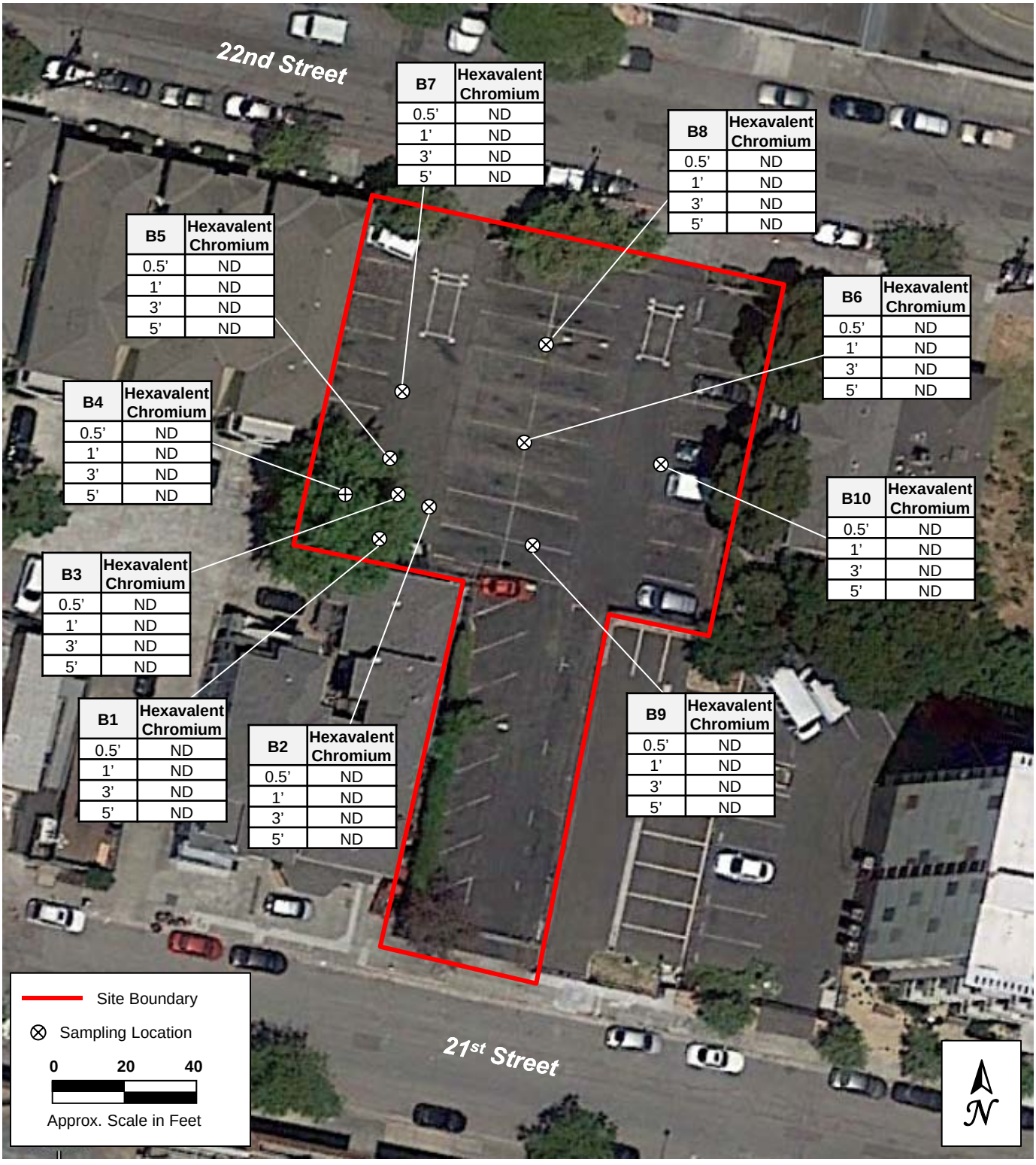

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Figure 3
Hexavalent Chromium in Soil
585 22nd Street
Oakland, California

Work Order No.:	Report Date:	Drawn By:
16-046SD		SS

Advantage Environmental Consultants, LLC
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Figure 4
VOCs in Soil Gas
585 22nd Street
Oakland, California

Work Order No.:	Report Date:	Drawn By:
16-046SD		SS

TABLES

Table 1
Soil Analytical Results for Hexavalent Chromium
585 22nd Street, Oakland, California

Sample ID	Depth (feet)	Date Sampled	Hexavalent Chromium (mg/kg)
B1-0.5'	0.5	12/21/2015	ND(<0.250)
B1-1'	1	12/21/2015	ND(<0.250)
B10-0.5'	0.5	12/21/2015	ND(<0.250)
B10-5'	5	12/21/2015	ND(<0.250)
B2-0.5'	0.5	12/21/2015	ND(<0.250)
B2-5'	5	12/21/2015	ND(<0.250)
B3-0.5'	0.5	12/21/2015	ND(<0.250)
B3-1'	1	12/21/2015	ND(<0.250)
B4-0.5'	0.5	12/21/2015	ND(<0.250)
B4-5'	5	12/21/2015	ND(<0.250)
B5-0.5'	0.5	12/21/2015	ND(<0.250)
B5-3'	3	12/21/2015	ND(<0.250)
B6-0.5'	0.5	12/21/2015	ND(<0.250)
B6-3'	3	12/21/2015	ND(<0.250)
B7-0.5'	0.5	12/21/2015	ND(<0.250)
B7-1'	1	12/21/2015	ND(<0.250)
B8-0.5'	0.5	12/21/2015	ND(<0.250)
B8-3'	3	12/21/2015	ND(<0.250)
B9-0.5'	0.5	12/21/2015	ND(<0.250)
B9-1'	1	12/21/2015	ND(<0.250)

NOTES:
mg/kg = milligrams per kilogram
ND = Not detected at or above the laboratory reporting limit
Hexavalent Chromium (EPA 7196A)

TABLE 2
Soil Gas Analytical Results for Volatile Organic Compounds
585 22nd Street, Oakland, California

Soil Vapor Probe Location	Sample ID	Sample Depth (feet)	Sample Date	Sampling Container	Volatile Organic Compounds by EPA 8260B	
					Benzene	Other VOCs
B1	SV1	5	12/21/2015	Glass Syringe	44	ND
B2	SV2	5	12/21/2015	Glass Syringe	51	ND
B3	SV3	5	12/21/2015	Glass Syringe	ND(<35)	ND
B4	SV4	5	12/21/2015	Glass Syringe	ND(<35)	ND
B4	SV4 (dup)	5	12/21/2015	Glass Syringe	ND(<35)	ND
B5	SV5	5	12/21/2015	Glass Syringe	45	ND
B6	SV6	5	12/21/2015	Glass Syringe	90	ND
B7	SV7	5	12/21/2015	Glass Syringe	160	ND
B8	SV8	5	12/21/2015	Glass Syringe	59	ND
B9	SV9	5	12/21/2015	Glass Syringe	ND(<35)	ND
B10	SV10	5	12/21/2015	Glass Syringe	70	ND

NOTES:
ND = Not detected at or above the referenced laboratory reporting limit
dup = Duplicate
$\mu g/m^3$ = micrograms per cubic meter

APPENDIX A

WORK PLAN APPROVAL LETTER

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

November 3, 2015

Charles A. Long
585 22nd Street LLC
2030 Manzanita Drive
Oakland, CA 94611
(Sent via E-mail to: charlesalong@gmail.com)

Subject: Conditional Work Plan Approval for Voluntary Remedial Action Case No. RO0003187 and GeoTracker Global ID T10000007665, Postal Parking Lot Redevelopment, 585 22nd Street, Oakland, CA 94612

Dear Responsible Parties:

Alameda County Environmental Health (ACEH) staff has reviewed the fuel leak case file for the above-referenced site including the recently submitted document entitled, "*Work Plan for Supplemental Investigation"* dated October 13, 2015 (Work Plan). The Work Plan, which was prepared on your behalf by Advantage Environmental Consultants, LLC, presents plans to advance and sample ten soil borings.

The Work Plan is conditionally approved and may be implemented provided that the technical comment below is incorporated during the site investigation. Submittal of a revised Work Plan or Plan Addendum is not required unless an alternate scope of work outside that described in the Work Plan and technical comments below is proposed. We request that you address the following technical comment, perform the proposed work, and send us the reports described below.

TECHNICAL COMMENTS

1. **Locations of Proposed Soil Borings.** The locations of 9 of the 10 proposed boring locations are generally acceptable. We request that the soil boring which is currently proposed in the central portion of the site at a location approximately midway between prior sampling locations B2 and B6, be moved approximately 20 feet to the west. The reason for this request is to move the proposed soil vapor sampling location closer to the location of the former UST and dispenser. Please present results from the site investigation in the Site Investigation Report requested below.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACEH ftp site (Attention: Jerry Wickham), and to the State Water Resources Control Board's GeoTracker website according to the following schedule and file-naming convention:

- **February 10, 2016** – Site Investigation Report
  File to be named: SWI_R_yyyy-mm-dd RO3187

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org. Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm.

Sincerely,

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297
Senior Hazardous Materials Specialist

Attachments: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Matt Ticknor, 585 22nd Street LLC (*Sent via E-mail to: matt@sqftventures.com*

Daniel Weis, Advantage Environmental Consultants, LLC, 145 Vallecitos De Oro, Suite 201, San Marcos, CA 92069 (*Sent via E-mail to: dweis@aec-env.com)*

Jerry Wickham, ACEH (*Sent via E-mail to: jerry.wickham@acgov.org*)
GeoTracker, eFile

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I 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 my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**REVISION DATE:** May 15, 2014
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**.
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to deh.loptoxic@acgov.org
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

APPENDIX B

SOIL BORING LOGS

BORING LOG

PROJECT: 585 22nd Street, Oakland, CA	**PROJECT NO.:** 15-120SD	**LOG OF BORING NO.:** **B1**
BORING LOCATION: See Site Exploration Plan	**ELEVATION AND DATUM:** Site elevation = ~25 feet above MSL	
DRILLING CONTRACTOR: TEG	**DATE STARTED:** 12/21/2015	**DATE FINISHED:** 12/21/2015
DRILLING METHOD: Direct Push Technologies	**TOTAL DEPTH:** 5 feet	
DRILLING EQUIPMENT: Truck Mounted Geoprobe Rig	**DEPTH TO WATER:** Not encountered	
SAMPLING METHOD: DPT sampler lined with acetate sleeves	**LOGGED BY:** Scott Schiffer	
HAMMER WT.: NA **DROP:** NA	**RESPONSIBLE PROFESSIONAL:** EC	

Depth (ft)	Sample Interval	Sample ID	SOIL DESCRIPTION	PID (ppm)	REMARKS
			Asphalt - ~6 inches thick		
	X	B1-0.5'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
	X	B1-1'	Clean Gravels (GP), med and coarse grained sand and gravel, brick	0.0	
1					
2					
	X	B1-3'	Clayey Sand (SC), fine to medium grained sand and clay mixtures, dark brown, moist, medium plasticity	0.0	
3					
4					**NOTES:** *Temporary vapor probe installed at 5' bgs
	X	B1-5'	Clay (CL), fine grained silty clay, light brown, medium plasticity	0.0	*Soil boring backfilled with hydrated bentonite granules and capped to match existing surface grade.
5					

BORING LOG

PROJECT: 585 22nd Street, Oakland, CA	**PROJECT NO.:** 15-120SD	**LOG OF BORING NO.:** **B2**
BORING LOCATION: See Site Exploration Plan	**ELEVATION AND DATUM:** Site elevation = ~25 feet above MSL	
DRILLING CONTRACTOR: TEG	**DATE STARTED:** 12/21/2015	**DATE FINISHED:** 12/21/2015
DRILLING METHOD: Direct Push Technologies	**TOTAL DEPTH:** 5 feet	
DRILLING EQUIPMENT: Truck Mounted Geoprobe Rig	**DEPTH TO WATER:** Not encountered	
SAMPLING METHOD: DPT sampler lined with acetate sleeves	**LOGGED BY:** Scott Schiffer	
HAMMER WT.: NA **DROP:** NA	**RESPONSIBLE PROFESSIONAL:** EC	

Depth (ft)	Sample Interval	Sample ID	SOIL DESCRIPTION	PID (ppm)	REMARKS
			Asphalt - ~6 inches thick		
		B2-0.5'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
		B2-1'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
1					
2					
		B2-3'	Clayey Sand (SC), fine to medium grained sand and clay mixtures, dark brown, moist, medium plasticity	0.0	
3					
4					**NOTES:** *Temporary vapor probe installed at 5' bgs
		B2-5'	Clay (CL), fine grained silty clay, light brown, medium plasticity	0.0	*Soil boring backfilled with hydrated bentonite granules and capped to match existing surface grade.
5					

BORING LOG

PROJECT: 585 22nd Street, Oakland, CA	**PROJECT NO.:** 15-120SD	**LOG OF BORING NO.:** **B3**
BORING LOCATION: See Site Exploration Plan	**ELEVATION AND DATUM:** Site elevation = ~25 feet above MSL	
DRILLING CONTRACTOR: TEG	**DATE STARTED:** 12/21/2015	**DATE FINISHED:** 12/21/2015
DRILLING METHOD: Direct Push Technologies	**TOTAL DEPTH:** 5 feet	
DRILLING EQUIPMENT: Truck Mounted Geoprobe Rig	**DEPTH TO WATER:** Not encountered	
SAMPLING METHOD: DPT sampler lined with acetate sleeves	**LOGGED BY:** Scott Schiffer	
HAMMER WT.: NA **DROP:** NA	**RESPONSIBLE PROFESSIONAL:** EC	

Depth (ft)	Sample Interval	Sample ID	SOIL DESCRIPTION	PID (ppm)	REMARKS
			Asphalt - ~6 inches thick		
		B3-0.5'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
		B3-1'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
1					
2					
		B3-3'	Clayey Sand (SC), fine to medium grained sand and clay mixtures, dark brown, moist, medium plasticity	0.0	
3					
4					**NOTES:** *Temporary vapor probe installed at 5' bgs
		B3-5'	Clay (CL), fine grained silty clay, light brown, medium plasticity	0.0	*Soil boring backfilled with hydrated bentonite granules and capped to match existing surface grade.
5					

BORING LOG

PROJECT: 585 22nd Street, Oakland, CA	**PROJECT NO.:** 15-120SD	**LOG OF BORING NO.:** **B4**
BORING LOCATION: See Site Exploration Plan	**ELEVATION AND DATUM:** Site elevation = ~25 feet above MSL	
DRILLING CONTRACTOR: TEG	**DATE STARTED:** 12/21/2015	**DATE FINISHED:** 12/21/2015
DRILLING METHOD: Direct Push Technologies	**TOTAL DEPTH:** 5 feet	
DRILLING EQUIPMENT: Truck Mounted Geoprobe Rig	**DEPTH TO WATER:** Not encountered	
SAMPLING METHOD: DPT sampler lined with acetate sleeves	**LOGGED BY:** Scott Schiffer	
HAMMER WT.: NA **DROP:** NA	**RESPONSIBLE PROFESSIONAL:** EC	

Depth (ft)	Sample Interval	Sample ID	SOIL DESCRIPTION	PID (ppm)	REMARKS
			Asphalt - ~6 inches thick		
		B4-0.5'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
		B4-1'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
1					
2					
		B4-3'	Clayey Sand (SC), fine to medium grained sand and clay mixtures, dark brown, moist, medium plasticity	0.0	
3					
4					**NOTES:** *Temporary vapor probe installed at 5' bgs
		B4-5'	Clay (CL), fine grained silty clay, light brown, medium plasticity	0.0	*Soil boring backfilled with hydrated bentonite granules and capped to match existing surface grade.
5					

BORING LOG

PROJECT: 585 22nd Street, Oakland, CA	**PROJECT NO.:** 15-120SD	**LOG OF BORING NO.:** **B5**
BORING LOCATION: See Site Exploration Plan	**ELEVATION AND DATUM:** Site elevation = ~25 feet above MSL	
DRILLING CONTRACTOR: TEG	**DATE STARTED:** 12/21/2015	**DATE FINISHED:** 12/21/2015
DRILLING METHOD: Direct Push Technologies	**TOTAL DEPTH:** 5 feet	
DRILLING EQUIPMENT: Truck Mounted Geoprobe Rig	**DEPTH TO WATER:** Not encountered	
SAMPLING METHOD: DPT sampler lined with acetate sleeves	**LOGGED BY:** Scott Schiffer	
HAMMER WT.: NA **DROP:** NA	**RESPONSIBLE PROFESSIONAL:** EC	

Depth (ft)	Sample Interval	Sample ID	SOIL DESCRIPTION	PID (ppm)	REMARKS
			Asphalt - ~6 inches thick		
		B5-0.5'	Clean Gravels (GP), med and coarse grain sand and gravel, concrete	0.0	
		B5-1'	Clean Gravels (GP), med and coarse grain sand and gravel, concrete	0.0	
1					
2					
		B5-3'	Clay (C), fine grained silty clay, dark gray/brown, moist, low plasticity	0.0	
3					
4					**NOTES:** *Temporary vapor probe installed at 5' bgs
		B5-5'	Clay (CL), fine grained silty clay, dark gray, low plasticity	0.0	*Soil boring backfilled with hydrated bentonite granules and capped to match existing surface grade.
5					

BORING LOG

PROJECT: 585 22nd Street, Oakland, CA	**PROJECT NO.:** 15-120SD	**LOG OF BORING NO.:** **B6**
BORING LOCATION: See Site Exploration Plan	**ELEVATION AND DATUM:** Site elevation = ~25 feet above MSL	
DRILLING CONTRACTOR: TEG	**DATE STARTED:** 12/21/2015	**DATE FINISHED:** 12/21/2015
DRILLING METHOD: Direct Push Technologies	**TOTAL DEPTH:** 5 feet	
DRILLING EQUIPMENT: Truck Mounted Geoprobe Rig	**DEPTH TO WATER:** Not encountered	
SAMPLING METHOD: DPT sampler lined with acetate sleeves	**LOGGED BY:** Scott Schiffer	
HAMMER WT.: NA **DROP:** NA	**RESPONSIBLE PROFESSIONAL:** EC	

Depth (ft)	Sample Interval	Sample ID	SOIL DESCRIPTION	PID (ppm)	REMARKS
			Asphalt - ~6 inches thick		
		B6-0.5'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
		B6-1'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
1					
2					
		B6-3'	Clayey Sand (SC), fine to medium grained sand and clay mixtures, dark brown, moist, medium plasticity	0.0	
3					
4					**NOTES:** *Temporary vapor probe installed at 5' bgs
		B6-5'	Clay (CL), fine grained silty clay, light brown, medium plasticity	0.0	*Soil boring backfilled with hydrated bentonite granules and capped to match existing surface grade.
5					

BORING LOG

PROJECT: 585 22nd Street, Oakland, CA	**PROJECT NO.:** 15-120SD	**LOG OF BORING NO.:** **B7**
BORING LOCATION: See Site Exploration Plan	**ELEVATION AND DATUM:** Site elevation = ~25 feet above MSL	
DRILLING CONTRACTOR: TEG	**DATE STARTED:** 12/21/2015	**DATE FINISHED:** 12/21/2015
DRILLING METHOD: Direct Push Technologies	**TOTAL DEPTH:** 5 feet	
DRILLING EQUIPMENT: Truck Mounted Geoprobe Rig	**DEPTH TO WATER:** Not encountered	
SAMPLING METHOD: DPT sampler lined with acetate sleeves	**LOGGED BY:** Scott Schiffer	
HAMMER WT.: NA **DROP:** NA	**RESPONSIBLE PROFESSIONAL:** EC	

Depth (ft)	Sample Interval	Sample ID	SOIL DESCRIPTION	PID (ppm)	REMARKS
			Asphalt - ~6 inches thick		
		B7-0.5'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
		B7-1'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
1					
2					
		B7-3'	Clay (CL), silty clay, dark gray/brown, moist, low plasticity	0.0	
3					
4					**NOTES:** *Temporary vapor probe installed at 5' bgs
		B7-5'	Clay (CL), silty clay, dark gray, low plasticity	0.0	*Soil boring backfilled with hydrated bentonite granules and capped to match existing surface grade.
5					

BORING LOG

PROJECT: 585 22nd Street, Oakland, CA	**PROJECT NO.:** 15-120SD	**LOG OF BORING NO.:** **B8**
BORING LOCATION: See Site Exploration Plan	**ELEVATION AND DATUM:** Site elevation = ~25 feet above MSL	
DRILLING CONTRACTOR: TEG	**DATE STARTED:** 12/21/2015	**DATE FINISHED:** 12/21/2015
DRILLING METHOD: Direct Push Technologies	**TOTAL DEPTH:** 5 feet	
DRILLING EQUIPMENT: Truck Mounted Geoprobe Rig	**DEPTH TO WATER:** Not encountered	
SAMPLING METHOD: DPT sampler lined with acetate sleeves	**LOGGED BY:** Scott Schiffer	
HAMMER WT.: NA **DROP:** NA	**RESPONSIBLE PROFESSIONAL:** EC	

Depth (ft)	Sample Interval	Sample ID	SOIL DESCRIPTION	PID (ppm)	REMARKS
			Asphalt - ~6 inches thick		
		B8-0.5'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
		B8-1'	Clean Gravels (GP), med and coarse grained sand and gravel, light brown/reddish orange	0.0	
1					
2					
		B8-3'	Clean Sand (SW) - medium and coarse grained sand, well graded sand, gravelly sand, light brown/reddish orange	0.0	
3					
4					**NOTES:** *Temporary vapor probe installed at 5' bgs
		B8-5'	Clay (OL) - silts and silty clay, light gray/brown, low plasticity	0.0	*Soil boring backfilled with hydrated bentonite granules and capped to match existing surface grade.
5					

BORING LOG

PROJECT: 585 22nd Street, Oakland, CA	**PROJECT NO.:** 15-120SD	**LOG OF BORING NO.:** **B9**
BORING LOCATION: See Site Exploration Plan	**ELEVATION AND DATUM:** Site elevation = ~25 feet above MSL	
DRILLING CONTRACTOR: TEG	**DATE STARTED:** 12/21/2015	**DATE FINISHED:** 12/21/2015
DRILLING METHOD: Direct Push Technologies	**TOTAL DEPTH:** 5 feet	
DRILLING EQUIPMENT: Truck Mounted Geoprobe Rig	**DEPTH TO WATER:** Not encountered	
SAMPLING METHOD: DPT sampler lined with acetate sleeves	**LOGGED BY:** Scott Schiffer	
HAMMER WT.: NA **DROP:** NA	**RESPONSIBLE PROFESSIONAL:** EC	

Depth (ft)	Sample Interval	Sample ID	SOIL DESCRIPTION	PID (ppm)	REMARKS
			Asphalt - ~6 inches thick		
		B9-0.5'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
		B9-1'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
1					
2					
		B9-3'	Clay (CL), fine to medium grained silty and sandy clay, yellowish orange/light brown	0.0	
3					
4					**NOTES:** *Temporary vapor probe installed at 5' bgs
		B9-5'	No recovery - fill material - former UST location	0.0	*Soil boring backfilled with hydrated bentonite granules and capped to match existing surface grade.
5					

BORING LOG

PROJECT: 585 22nd Street, Oakland, CA	**PROJECT NO.:** 15-120SD	**LOG OF BORING NO.:** **B10**
BORING LOCATION: See Site Exploration Plan	**ELEVATION AND DATUM:** Site elevation = ~25 feet above MSL	
DRILLING CONTRACTOR: TEG	**DATE STARTED:** 12/21/2015	**DATE FINISHED:** 12/21/2015
DRILLING METHOD: Direct Push Technologies	**TOTAL DEPTH:** 5	
DRILLING EQUIPMENT: Truck Mounted Geoprobe Rig	**DEPTH TO WATER:** Not encountered	
SAMPLING METHOD: DPT sampler lined with acetate sleeves	**LOGGED BY:** Scott Schiffer	
HAMMER WT.: NA **DROP:** NA	**RESPONSIBLE PROFESSIONAL:** EC	

Depth (ft)	Sample Interval	Sample ID	SOIL DESCRIPTION	PID (ppm)	REMARKS
			Asphalt - ~6 inches thick		
		B10-0.5'	Clean Gravels (GP), med and coarse grained sand and gravel	0.0	
		B10-1'	Clean Gravels (GP), fine to coarse grained sand, dark gray	0.0	
1					
2					
		B10-3'	Clayey Sand (SC) - fine to medium grained sand and clay mixtures, yellowish orange/light brown, medium plasticity	0.0	
3					
4					**NOTES:** *Temporary vapor probe installed at 5' bgs
		B10-5'	Silty Clay (OL), fine grained silty clay, black, low plasticity	0.0	*Soil boring backfilled with hydrated bentonite granules and capped to match existing surface grade.
5					

APPENDIX C

SOIL ANALYTICAL LABORATORY REPORT

American Environmental Testing Laboratory Inc.
2834 & 2908 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

Ordered By

Advantage Environmental Consultants
145 Vallecitos De Oro Suite 201
San Marcos, CA 92069-

Telephone: (760)744-3363
Attention: Dan Weis

Number of Pages	**9**
Date Received	**12/28/2015**
Date Reported	**01/06/2016**

Job Number	Order Date	Client
79567	12/28/2015	AEC

Project ID: 15-120A-SD
Project Name: 585 22nd Street
Site: 585 22nd Street
Oakland, CA 94612

Enclosed please find results of analyses of 20 soil samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

2834 & 2908 North Naomi Street, Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

CHAIN OF CUSTODY RECORD

№ 92255

AETL JOB No. 79567

Page 1 of 3

COMPANY: Advantage Env. Comps. (AEC)
PROJECT MANAGER: Dan Weis
COMPANY ADDRESS: 145 Vallecitos De Oro
PHONE: (760) 744-3363
FAX:
PROJECT NAME:
PROJECT #: 15-120A-SD
SITE NAME AND ADDRESS: 585 22nd Street, Oakland, CA
PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	EPA 7196 Hex. Chromium	TEST INSTRUCTIONS & COMMENTS
1	B1-0.5'	~~79567.16~~ AK	12/21/15	13:12	SOIL		ICE	X	79567.01
2	B1-1'	~~79567.17~~		13:14				X	79567.02
3	B1-3'	~~79567.18~~		13:15					79567.03
4	B1-5'	~~79567.19~~		13:18					79567.04
5	B2-0.5'	~~79567.20~~		13:30				X	79567.05
6	B2-1'	~~79567.21~~		13:33					79567.06
7	B2-3'	~~79567.22~~		13:35					79567.07
8	B2-5'	~~79567.23~~		13:40				X	79567.08
9	B3-0.5'	~~79567.24~~		14:00				X	79567.09
10	B3-1'	~~79567.25~~		14:02				X	79567.10
11	B3-3'	~~79567.26~~		14:04					79567.11
12	B3-5'	~~79567.27~~		14:07					79567.12
13	B4-0.5'	~~79567.28~~		14:12				X	79567.13
14	B4-1'	~~79567.29~~		14:14					79567.14
15	B4-3'	~~79567.30~~ AK		14:17					79567.15

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	15	PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y / N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

☐ HARD COPY ☐ PDF ☐ GEOTRACKER (GLOBAL ID) _____ ☐ OTHER (PLEASE SPECIFY) _____

	1.	2.	3.
RELINQUISHED BY SAMPLER:	Signature:	RELINQUISHED BY: Signature:	RELINQUISHED BY: Signature:
	Printed Name: Scott Schiffer	Printed Name:	Printed Name: Thomas Robbins
	Date: 12/28/15 Time: 1225	Date: Time:	Date: 12-28-15 Time: 1545
RECEIVED BY:	Signature:	RECEIVED BY: Signature:	RECEIVED BY LABORATORY: AETL Signature:
	Printed Name: Thomas Robbins	Printed Name:	Printed Name: Antin
	Date: 12-28-15 Time: 1225	Date: Time:	Date: 12/28/15 Time: 1545

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

American Environmental Testing Laboratory Inc.

2834 & 2908 North Naomi Street, Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

CHAIN OF CUSTODY RECORD

№ 92256

AETL JOB No. 79567

COMPANY: See Page #1 | PROJECT MANAGER:
COMPANY ADDRESS: | PHONE: | FAX:
PROJECT NAME: | PROJECT #:
SITE NAME AND ADDRESS: | PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	EPA 7196	ANALYSIS REQUESTED	TEST INSTRUCTIONS & COMMENTS
1	B4-5'	~~79567.01~~	12/21/15 AK	14:20	SOIL		ICE	X		79567.16
2	B5-0.5'	~~79567.02~~		14:35				X		79567.17
3	B5-1'	~~79567.03~~		14:37						79567.18
4	B5-3'	~~79567.04~~		14:39				X		79567.19
5	B5-5'	~~79567.05~~		14:42						79567.20
6	B6-0.5'	~~79567.06~~		14:50				X		79567.21
7	B6-1'	~~79567.07~~		14:52						79567.22
8	B6-3'	~~79567.08~~		14:55				X		79567.23
9	B6-5'	~~79567.09~~		14:57						79567.24
10	B7-0.5'	~~79567.10~~		15:10				X		79567.25
11	B7-1'	~~79567.11~~		15:13				X		79567.26
12	B7-3'	~~79567.12~~		15:15						79567.27
13	B7-5'	~~79567.13~~		15:18						79567.28
14	B8-0.5'	~~79567.14~~		15:30				X		79567.29
15	B8-1'	~~79567.15~~ AK		15:31						79567.30

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	15	PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y / N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

☐ HARD COPY ☐ PDF ☐ GEOTRACKER (GLOBAL ID) _____ ☐ OTHER (PLEASE SPECIFY) _____

	RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:			
Printed Name:	Scott Schiffer		
Date: / Time:	12/28/15 1225	/	12-28-15 1545
	RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY LABORATORY: 3.**
Signature:			
Printed Name:			
Date: / Time:	12-28-15 1225	/	12/28/15 1545

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

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CHAIN OF CUSTODY RECORD

№ 92257

AETL JOB No. 79567

COMPANY: See page #1 | PROJECT MANAGER:
COMPANY ADDRESS: | PHONE / FAX:
PROJECT NAME: | PROJECT #:
SITE NAME AND ADDRESS: | PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	ANALYSIS REQUESTED: EPA 7196	TEST INSTRUCTIONS & COMMENTS
1	B8-3'	79567.31	12/21/15	15:33	SOIL		ICE	X	
2	B8-5'	79567.32		15:38					
3	B9-0.5'	79567.33		15:45				X	
4	B9-1'	79567.34		15:47				X	
5	B9-3'	79567.35		15:50					
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	B10-0.5'	79567.36		16:15				X	
8	B10-1'	79567.37		16:18					
9	B10-3'	79567.38		16:20					
10	B10-5'	79567.39		16:23				X	
11									
12									
13									
14									
15									

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	9	PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA	0	SAMPLES INTACT Y / N / NA	0
RECEIVED IN GOOD COND. Y / N	0	SAMPLES ACCEPTED Y / N	0

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

☐ HARD COPY ☐ PDF ☐ GEOTRACKER (GLOBAL ID) _____ ☐ OTHER (PLEASE SPECIFY) _____

	RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature			
Printed Name	Scott Schiffer		Thomas Hogan
Date / Time	12/28/15		12-28-15 1545
	RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY LABORATORY: 3.**
Signature			
Printed Name	Thomas Hogan		Anti
Date / Time	12-28-15 1225		12/28/15 1545

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

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Ordered By

Advantage Environmental Consultants
145 Vallecitos De Oro Suite 201
San Marcos, CA 92069-

Project ID: 15-120A-SD
Date Received 12/28/2015
Date Reported 01/06/2016

Telephone: (760)744-3363
Attention: Dan Weis

Job Number	Order Date	Client
79567	12/28/2015	AEC

CERTIFICATE OF ANALYSIS
CASE NARRATIVE

AETL received 39 samples with the following specification on 12/28/2015.

Lab ID	Sample ID	Sample Date	Matrix	Quantity Of Containers
79567.01	B1-0.5'	12/21/2015	Soil	1
79567.02	B1-1'	12/21/2015	Soil	1
79567.05	B2-0.5'	12/21/2015	Soil	1
79567.08	B2-5'	12/21/2015	Soil	1
79567.09	B3-0.5'	12/21/2015	Soil	1
79567.10	B3-1'	12/21/2015	Soil	1
79567.13	B4-0.5'	12/21/2015	Soil	1
79567.16	B4-5'	12/21/2015	Soil	1
79567.17	B5-0.5'	12/21/2015	Soil	1
79567.19	B5-3'	12/21/2015	Soil	1
79567.21	B6-0.5'	12/21/2015	Soil	1
79567.23	B6-3'	12/21/2015	Soil	1
79567.25	B7-0.5'	12/21/2015	Soil	1
79567.26	B7-1'	12/21/2015	Soil	1
79567.29	B8-0.5'	12/21/2015	Soil	1
79567.31	B8-3'	12/21/2015	Soil	1
79567.33	B9-0.5'	12/21/2015	Soil	1
79567.34	B9-1'	12/21/2015	Soil	1
79567.36	B10-0.5'	12/21/2015	Soil	1
79567.39	B10-5'	12/21/2015	Soil	1

Method ^ Submethod	Req Date	Priority	TAT	Units
(7196A)	01/04/2016	2	Normal	mg/Kg

79567.03	B1-3'	12/21/2015	Soil	1
79567.04	B1-5'	12/21/2015	Soil	1
79567.06	B2-1'	12/21/2015	Soil	1

Continued

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Ordered By

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Project ID: 15-120A-SD
Date Received 12/28/2015
Date Reported 01/06/2016

Telephone: (760)744-3363
Attention: Dan Weis

Job Number	Order Date	Client
79567	12/28/2015	AEC

CERTIFICATE OF ANALYSIS

CASE NARRATIVE

79567.07	B2-3'	12/21/2015	Soil		1
79567.11	B3-3'	12/21/2015	Soil		1
79567.12	B3-5'	12/21/2015	Soil		1
79567.14	B4-1'	12/21/2015	Soil		1

Method ^ Submethod	*Req Date*	*Priority*	*TAT*	*Units*
ARCHIVE	01/04/2016	2	Normal	--

79567.15	B4-3'	12/21/2015	Soil		1
79567.18	B5-1'	12/21/2015	Soil		1
79567.20	B5-5'	12/21/2015	Soil		1
79567.22	B6-1'	12/21/2015	Soil		1
79567.24	B6-5'	12/21/2015	Soil		1
79567.27	B7-3'	12/21/2015	Soil		1
79567.28	B7-5'	12/21/2015	Soil		1
79567.30	B8-1'	12/21/2015	Soil		1
79567.32	B8-5'	12/21/2015	Soil		1
79567.35	B9-3'	12/21/2015	Soil		1
79567.37	B10-1'	12/21/2015	Soil		1
79567.38	B10-3'	12/21/2015	Soil		1

The samples were analyzed as specified on the enclosed chain of custody.
No analytical non-conformances were encountered.

Unless otherwise noted, all results of soil and solid samples are based on wet weight.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

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ANALYTICAL RESULTS

Ordered By

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Suite 201
San Marcos, CA 92069-

Telephone: (760)744-3363
Attn: Dan Weis
Page: **2**

Site

585 22nd Street
Oakland, CA 94612

Project ID: 15-120A-SD
Project Name: 585 22nd Street

AETL Job Number	Submitted	Client
79567	12/28/2015	AEC

Method: (7196A), Chromium, Hexavalent (Colorimetric)

QC Batch No: 123015-1

Our Lab I.D.			Method Blank	79567.01	79567.02	79567.05	79567.08
Client Sample I.D.				B1-0.5'	B1-1'	B2-0.5'	B2-5'
Date Sampled				12/21/2015	12/21/2015	12/21/2015	12/21/2015
Date Prepared			12/30/2015	12/30/2015	12/30/2015	12/30/2015	12/30/2015
Preparation Method			3060A	3060A	3060A	3060A	3060A
Date Analyzed			12/30/2015	12/30/2015	12/30/2015	12/30/2015	12/30/2015
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Dilution Factor			1	1	1	1	1
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	**Results**
Chromium (VI)	0.25	0.50	ND	ND	ND	ND	ND

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Attn: Dan Weis
Page: **3**

Site

585 22nd Street
Oakland, CA 94612

Project ID: 15-120A-SD
Project Name: 585 22nd Street

AETL Job Number	Submitted	Client
79567	12/28/2015	AEC

Method: (7196A), Chromium, Hexavalent (Colorimetric)

QC Batch No: 123015-1

Our Lab I.D.			79567.09	79567.10	79567.13	79567.16	79567.17
Client Sample I.D.			B3-0.5'	B3-1'	B4-0.5'	B4-5'	B5-0.5'
Date Sampled			12/21/2015	12/21/2015	12/21/2015	12/21/2015	12/21/2015
Date Prepared			12/30/2015	12/30/2015	12/30/2015	12/30/2015	12/30/2015
Preparation Method			3060A	3060A	3060A	3060A	3060A
Date Analyzed			12/30/2015	12/30/2015	12/30/2015	12/30/2015	12/30/2015
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Dilution Factor			1	1	1	1	1
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	**Results**
Chromium (VI)	0.25	0.50	ND	ND	ND	ND	ND

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ANALYTICAL RESULTS

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Page: **4**

Site

585 22nd Street
Oakland, CA 94612

Project ID: 15-120A-SD
Project Name: 585 22nd Street

AETL Job Number	Submitted	Client
79567	12/28/2015	AEC

Method: (7196A), Chromium, Hexavalent (Colorimetric)

QC Batch No: 123015-1

Our Lab I.D.			79567.19				
Client Sample I.D.			B5-3'				
Date Sampled			12/21/2015				
Date Prepared			12/30/2015				
Preparation Method			3060A				
Date Analyzed			12/30/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Chromium (VI)	0.25	0.50	ND				

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ANALYTICAL RESULTS

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Site

585 22nd Street
Oakland, CA 94612

Page: **5**

Project ID: 15-120A-SD
Project Name: 585 22nd Street

AETL Job Number	Submitted	Client
79567	12/28/2015	AEC

Method: (7196A), Chromium, Hexavalent (Colorimetric)

QC Batch No: 123015-2

Our Lab I.D.			Method Blank	79567.21	79567.23	79567.25	79567.26
Client Sample I.D.				B6-0.5'	B6-3'	B7-0.5'	B7-1'
Date Sampled				12/21/2015	12/21/2015	12/21/2015	12/21/2015
Date Prepared			12/30/2015	12/30/2015	12/30/2015	12/30/2015	12/30/2015
Preparation Method			3060A	3060A	3060A	3060A	3060A
Date Analyzed			12/30/2015	12/30/2015	12/30/2015	12/30/2015	12/30/2015
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Dilution Factor			1	1	1	1	1
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	**Results**
Chromium (VI)	0.25	0.50	ND	ND	ND	ND	ND

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ANALYTICAL RESULTS

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Page: 6

Site

585 22nd Street
Oakland, CA 94612

Project ID: 15-120A-SD
Project Name: 585 22nd Street

AETL Job Number	Submitted	Client
79567	12/28/2015	AEC

Method: (7196A), Chromium, Hexavalent (Colorimetric)

QC Batch No: 123015-2

Our Lab I.D.			79567.29	79567.31	79567.33	79567.34	79567.36
Client Sample I.D.			B8-0.5'	B8-3'	B9-0.5'	B9-1'	B10-0.5'
Date Sampled			12/21/2015	12/21/2015	12/21/2015	12/21/2015	12/21/2015
Date Prepared			12/30/2015	12/30/2015	12/30/2015	12/30/2015	12/30/2015
Preparation Method			3060A	3060A	3060A	3060A	3060A
Date Analyzed			12/30/2015	12/30/2015	12/30/2015	12/30/2015	12/30/2015
Matrix			Soil	Soil	Soil	Soil	Soil
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Dilution Factor			1	1	1	1	1
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	**Results**
Chromium (VI)	0.25	0.50	ND	ND	ND	ND	ND

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Attn: Dan Weis

Site

585 22nd Street
Oakland, CA 94612

Page: **7**

Project ID: 15-120A-SD
Project Name: 585 22nd Street

AETL Job Number	Submitted	Client
79567	12/28/2015	AEC

Method: (7196A), Chromium, Hexavalent (Colorimetric)

QC Batch No: 123015-2

Our Lab I.D.			79567.39				
Client Sample I.D.			B10-5'				
Date Sampled			12/21/2015				
Date Prepared			12/30/2015				
Preparation Method			3060A				
Date Analyzed			12/30/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Chromium (VI)	0.25	0.50	ND				

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QUALITY CONTROL RESULTS

Ordered By

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Attn: Dan Weis

Site

585 22nd Street
Oakland, CA 94612

Page: **8**

Project ID: 15-120A-SD
Project Name: 585 22nd Street

AETL Job Number	Submitted	Client
79567	12/28/2015	AEC

Method: (7196A), Chromium, Hexavalent (Colorimetric)

QC Batch No: 123015-1; Dup or Spiked Sample: 79567.01; LCS: Clean Sand; QC Prepared: 12/30/2015; QC Analyzed: 12/30/2015; Units: mg/Kg

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Chromium (VI)	0.00	10.0	9.85	98.5	10.0	9.60	96.0	2.6	80-120	<20

QC Batch No: 123015-1; Dup or Spiked Sample: 79567.01; LCS: Clean Sand; QC Prepared: 12/30/2015; QC Analyzed: 12/30/2015; Units: mg/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Chromium (VI)	10.0	9.95	99.5	10.0	9.90	99.0	<1	80-120	<20	

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QUALITY CONTROL RESULTS

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Site

585 22nd Street
Oakland, CA 94612

Page: **9**

Project ID: 15-120A-SD
Project Name: 585 22nd Street

AETL Job Number	Submitted	Client
79567	12/28/2015	AEC

Method: (7196A), Chromium, Hexavalent (Colorimetric)

QC Batch No: 123015-2; Dup or Spiked Sample: 79567.21; LCS: Clean Sand; QC Prepared: 12/30/2015; QC Analyzed: 12/30/2015; Units: mg/Kg

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Chromium (VI)	0.00	10.0	9.80	98.0	10.0	9.96	99.6	1.6	80-120	<20

QC Batch No: 123015-2; Dup or Spiked Sample: 79567.21; LCS: Clean Sand; QC Prepared: 12/30/2015; QC Analyzed: 12/30/2015; Units: mg/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Chromium (VI)	10.0	9.60	96.0	10.0	9.95	99.5	3.6	80-120	<20	

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Data Qualifiers and Descriptors

Data Qualifier:

#:	Recovery is not within acceptable control limits.
*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
MCL:	Maximum Contaminant Level
NS:	No Standard Available
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.

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Data Qualifiers and Descriptors

MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate
ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

APPENDIX D

GEOTECHNICAL LABORATORY REPORT

Core Lab
RESERVOIR OPTIMIZATION

Petroleum Services Divis
3437 Landco Dr.
Bakersfield, California 9330
Tel: 661-325-5657
Fax: 661-325-5808
www.corelab.com

January 8, 2016

Dan Weis
Advantage Environmental Consultants, LLC
145 Vallecitos De Oro, Ste 201
San Marcos, CA 92069

Subject: CAL- EPA DTSC Vapor Intrusion
Project No.:15-120A-SD
CL File No.: 415056EN

Dear Mr. Weis:

Enclosed are the CAL- EPA DTSC Vapor Intrusion results for 3 samples submitted to our laboratory from project number 15-120A-SD .

Appropriate ASTM, EPA, or API methodologies were used for this project and SOP's are available upon request. Samples for this project are currently in storage and will be retained for thirty days past completion of testing at no charge. At the end of thirty days the samples will be disposed. You may contact me regarding continued storage, disposal, or return of the tested samples.

We appreciate the opportunity to be of service to Advantage Environmental Consultants, LLC. Please do not hesitate to contact us at (661-325-5657) if you have any questions regarding these results or if we can be of any additional service.

Sincerely,
Core Laboratories

Stephen Carter
Senior Core Analyst

CAL-EPA DTSC Vapor Intrusion Data

Petroleum Services

Advantage Environmental Consultants

Core Lab File No: 415056EN

Project Name: 585 22nd St.

Project No: 15-120A-SD

		METHODOLOGY:	API RP40 ASTM D2216		API RP40		API RP40			WALKLEY-BLACK		USDA
							Porosity (2)			Total	Fraction	USDA
Sample ID.	Depth ft.	Sample Orientation (1)	Mositure Content		Density					Organic Carbon	Organic Carbon	Soil Texture Scheme
			% weight	cm^3/cm^3	Dry Bulk g/cm^3	Grain g/cm^3	Total cm^3/cm^3	Air Filled cm^3/cm^3	Water Filled cm^3/cm^3	mg/kg	g/g	
B3-5'	5	V	16.1	0.300	1.87	2.68	0.303	0.003	0.300	14300	1.43E-02	Sandy Clay
B6-5'	5	V	23.2	0.379	1.63	2.65	0.383	0.004	0.379	6400	6.40E-03	Clay
B7-5'	5	V	18.2	0.325	1.78	2.66	0.330	0.005	0.325	5200	5.20E-03	Clay

(1) Sample Orientation: H = horizontal; V = vertical

(2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Water Filled = native, as received pore fluids

SIEVE and LASER PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

Petroleum Services

Company : Advantage Environmental Consultants
Project Name : 585 22nd St.
Project Number : 15-120A-SD

Core Lab File No : 57111-415056EN
Date : 1/6/2016

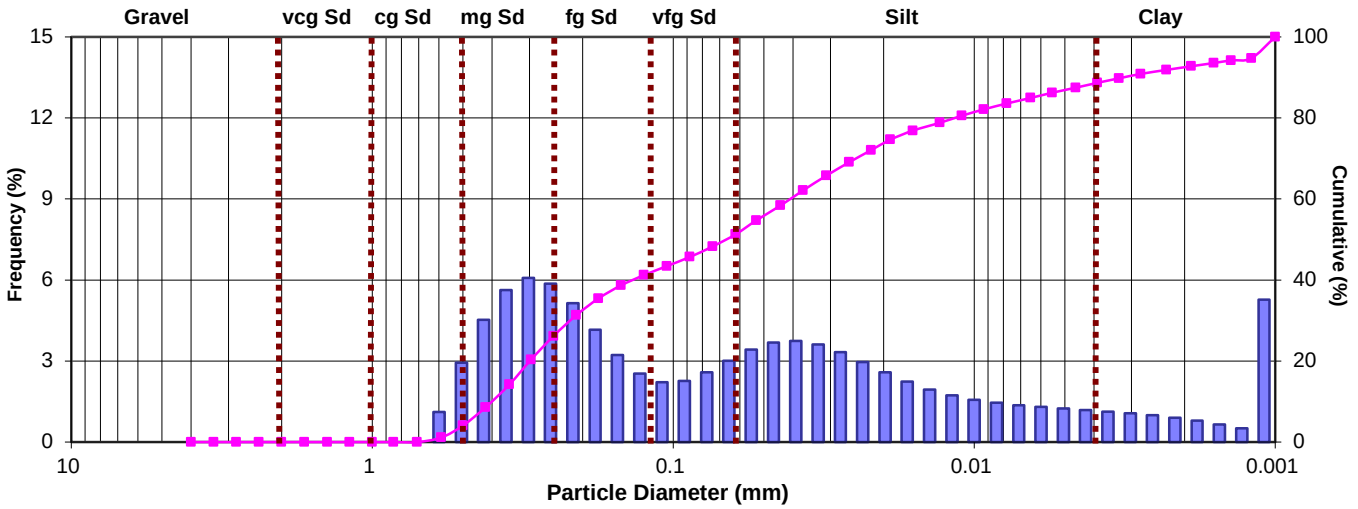
Sample ID	Grain Size Description (Mean from Folk)	Median Grain Size, mm	Component Percentages						Silt	Clay	Silt & Clay
			Gravel	Sand Size							
				VCoarse	Coarse	Medium	Fine	VFine			
B3-5'	Silt	0.067	0.0	0.0	4.1	22.1	15.1	10.1	37.4	11.3	48.7
B6-5'	Silt	0.030	0.0	0.0	0.8	9.2	8.5	11.8	46.7	23.0	69.6
B7-5'	Silt	0.048	0.0	0.0	1.1	12.9	12.9	15.5	41.7	16.0	57.7

Company: **Advantage Environmental Consultants**
Project Name: 585 22nd St.
Project No.: 15-120A-SD

File No. : 415056EN
Date : 1/6/2016
Depth : B3-5'

EXTENDED RANGE PARTSIZ℠ ANALYSIS

Laser Partsiz℠ Distribution



GRAIN SIZE DISTRIBUTION							
	MESH	PHI	INCH	MM	SEP	SEP	CUM
	5	-2.00	0.1575	4.0000	0.0		0.0
	6	-1.75	0.1323	3.3600	0.0		0.0
	7	-1.50	0.1114	2.8300	0.0		0.0
	8	-1.25	0.0937	2.3800	0.0		0.0
GRAVEL	10	-1.00	0.0787	2.0000	0.0	0.0	0.0
	12	-0.75	0.0661	1.6800	0.0		0.0
	14	-0.50	0.0555	1.4100	0.0		0.0
	16	-0.25	0.0469	1.1900	0.0		0.0
VCRS SD	18	0.00	0.0394	1.0000	0.0	0.0	0.0
	20	0.25	0.0335	0.8500	0.0		0.0
	25	0.50	0.0280	0.7100	0.0		0.0
	30	0.75	0.0236	0.6000	1.1		1.1
CRS SD	35	1.00	0.0197	0.5000	2.9	4.1	4.1
	40	1.25	0.0165	0.4200	4.5		8.6
	45	1.50	0.0138	0.3500	5.6		14.2
MED	50	1.75	0.0117	0.2970	6.1		20.3
SAND	60	2.00	0.0098	0.2500	5.9	22.1	26.2
	70	2.25	0.0083	0.2100	5.1		31.3
	80	2.50	0.0070	0.1770	4.2		35.5
FINE	100	2.75	0.0058	0.1490	3.2		38.7
SAND	120	3.00	0.0049	0.1250	2.5	15.1	41.2
	140	3.25	0.0041	0.1050	2.2		43.4
	170	3.50	0.0035	0.0880	2.3		45.7
VFINE	200	3.75	0.0029	0.0740	2.6		48.3
SAND	230	4.00	0.0024	0.0620	3.0	10.1	51.3
	270	4.25	0.0021	0.0530	3.4		54.7
	325	4.50	0.0017	0.0440	3.7		58.4
CRS	400	4.75	0.0015	0.0370	3.7		62.1
SILT	450	5.00	0.0014	0.0310	3.6	14.5	65.7
	500	5.25	0.0010	0.0260	3.3		69.1
		5.50	0.0009	0.0220	3.0		72.0
MED		5.75	0.0007	0.0190	2.6		74.6
SILT		6.00	0.0006	0.0160	2.2	11.1	76.9
		6.25	0.0005	0.0130	1.9		78.8
		6.50	0.0004	0.0110	1.7		80.5
FINE		6.75	0.0003	0.0093	1.6		82.1
SILT		7.00	0.0003	0.0078	1.5	6.7	83.6
		7.25	0.0002	0.0065	1.4		84.9
		7.50	0.0002	0.0055	1.3		86.2
VFINE		7.75	0.0002	0.0046	1.2		87.5
SILT		8.00	0.0001	0.0039	1.2	5.1	88.7
		8.25	0.0001	0.0033	1.1		89.8
		8.50	0.0001	0.0028	1.1		90.9
		8.75	0.0001	0.0023	1.0		91.9
		9.00	0.0000	0.0019	0.9		92.8
		9.25	0.0000	0.0016	0.8		93.6
		9.50	0.0000	0.0014	0.7		94.2
		9.75	0.0000	0.0012	0.5		94.7
CLAY		10.00	0.0000	0.0010	5.3	11.3	100.0

SORTING PARAMETERS

PERCENTILES:

	mm	inches	phi
5	0.4833	0.0190	1.0492
10	0.4024	0.0158	1.3133
16	0.3344	0.0132	1.5803
25	0.2593	0.0102	1.9476
50	0.0671	0.0026	3.8974
75	0.0185	0.0007	5.7559
84	0.0074	0.0003	7.0808
90	0.0032	0.0001	8.2859
95	0.0012	0.0000	9.7153

SURFACE AREA (m^2/cc) : 0.7013

STD DEVIATION (mm) : 0.1635

STD DEVIATION (inches) : 0.0064

GRAVEL PACK : 40/60

	TRASK*	FOLK**	MOMENT**
MEAN	0.1389	4.1862	4.3416
MEDIAN	0.0671	3.8974	3.8974
SORTING	3.7429	2.6882	2.5815
SKEWNESS	1.0653	0.2501	0.6472
KURTOSIS	0.3015	0.9326	2.4371

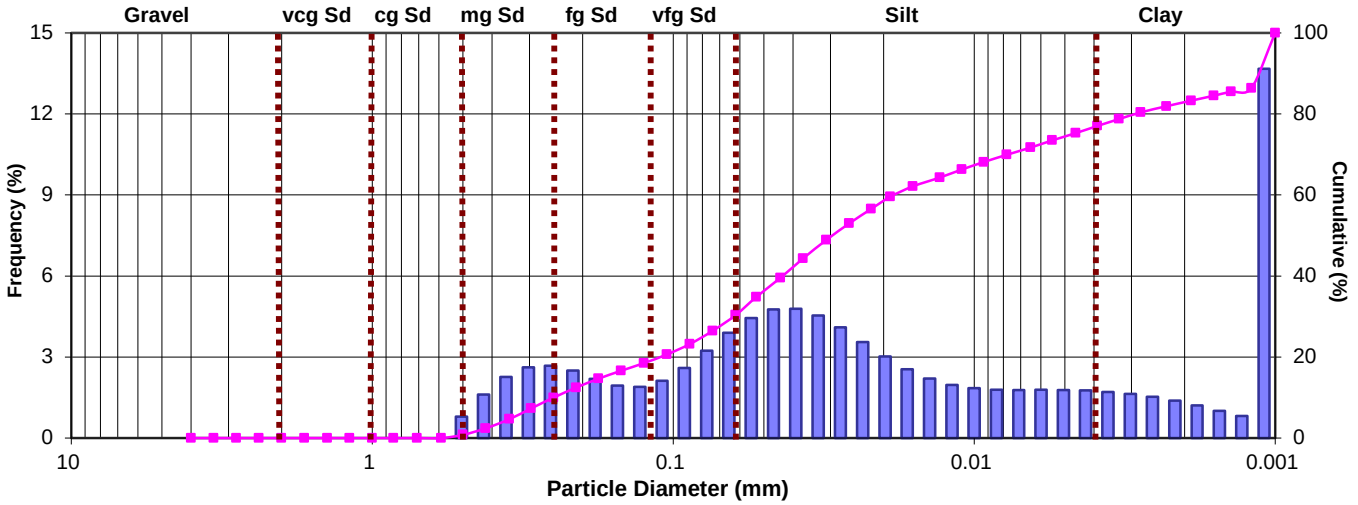
* COMPUTED USING MILLIMETER VALUES
** COMPUTED USING PHI VALUES

Company: **Advantage Environmental Consultants**
Project Name: 585 22nd St.
Project No.: 15-120A-SD

File No. : 415056EN
Date : 1/6/2016
Depth : B6-5'

EXTENDED RANGE PARTSIZ℠ ANALYSIS

Laser Partsiz℠ Distribution



GRAIN SIZE DISTRIBUTION							
	MESH	PHI	INCH	MM	SEP	SEP	CUM
	5	-2.00	0.1575	4.0000	0.0		0.0
	6	-1.75	0.1323	3.3600	0.0		0.0
	7	-1.50	0.1114	2.8300	0.0		0.0
	8	-1.25	0.0937	2.3800	0.0		0.0
GRAVEL	10	-1.00	0.0787	2.0000	0.0	0.0	0.0
	12	-0.75	0.0661	1.6800	0.0		0.0
	14	-0.50	0.0555	1.4100	0.0		0.0
	16	-0.25	0.0469	1.1900	0.0		0.0
VCRS SD	18	0.00	0.0394	1.0000	0.0	0.0	0.0
	20	0.25	0.0335	0.8500	0.0		0.0
	25	0.50	0.0280	0.7100	0.0		0.0
	30	0.75	0.0236	0.6000	0.0		0.0
CRS SD	35	1.00	0.0197	0.5000	0.8	0.8	0.8
	40	1.25	0.0165	0.4200	1.6		2.4
	45	1.50	0.0138	0.3500	2.3		4.7
MED	50	1.75	0.0117	0.2970	2.6		7.3
SAND	60	2.00	0.0098	0.2500	2.7	9.2	10.0
	70	2.25	0.0083	0.2100	2.5		12.5
	80	2.50	0.0070	0.1770	2.2		14.7
FINE	100	2.75	0.0058	0.1490	1.9		16.6
SAND	120	3.00	0.0049	0.1250	1.9	8.5	18.5
	140	3.25	0.0041	0.1050	2.1		20.6
	170	3.50	0.0035	0.0880	2.6		23.2
VFINE	200	3.75	0.0029	0.0740	3.2		26.5
SAND	230	4.00	0.0024	0.0620	3.9	11.8	30.4
	270	4.25	0.0021	0.0530	4.4		34.8
	325	4.50	0.0017	0.0440	4.8		39.6
CRS	400	4.75	0.0015	0.0370	4.8		44.3
SILT	450	5.00	0.0014	0.0310	4.5	18.5	48.9
	500	5.25	0.0010	0.0260	4.1		53.0
		5.50	0.0009	0.0220	3.6		56.5
MED		5.75	0.0007	0.0190	3.0		59.6
SILT		6.00	0.0006	0.0160	2.5	13.2	62.1
		6.25	0.0005	0.0130	2.2		64.3
		6.50	0.0004	0.0110	2.0		66.3
FINE		6.75	0.0003	0.0093	1.8		68.1
SILT		7.00	0.0003	0.0078	1.8	7.8	69.9
		7.25	0.0002	0.0065	1.8		71.7
		7.50	0.0002	0.0055	1.8		73.5
VFINE		7.75	0.0002	0.0046	1.8		75.3
SILT		8.00	0.0001	0.0039	1.8	7.1	77.0
		8.25	0.0001	0.0033	1.7		78.7
		8.50	0.0001	0.0028	1.6		80.4
		8.75	0.0001	0.0023	1.5		81.9
		9.00	0.0000	0.0019	1.4		83.3
		9.25	0.0000	0.0016	1.2		84.5
		9.50	0.0000	0.0014	1.0		85.5
		9.75	0.0000	0.0012	0.8		86.3
CLAY		10.00	0.0000	0.0010	13.7	23.0	100.0

SORTING PARAMETERS

PERCENTILES:

	mm	inches	phi
5	0.3432	0.0135	1.5429
10	0.2495	0.0098	2.0028
16	0.1578	0.0062	2.6640
25	0.0803	0.0032	3.6387
50	0.0296	0.0012	5.0761
75	0.0047	0.0002	7.7219
84	0.0017	0.0001	9.1800
90	0.0011	0.0000	9.7689
95	0.0011	0.0000	9.8640

SURFACE AREA (m^2/cc) : 1.3551

STD DEVIATION (mm) : 0.0780

STD DEVIATION (inches) : 0.0031

GRAVEL PACK : N/A

	TRASK*	FOLK**	MOMENT**
MEAN	0.0425	5.6400	5.6635
MEDIAN	0.0296	5.0761	5.0761
SORTING	4.1170	2.8898	2.6483
SKEWNESS	0.4327	0.2052	0.2391
KURTOSIS	0.1521	0.8352	1.9785

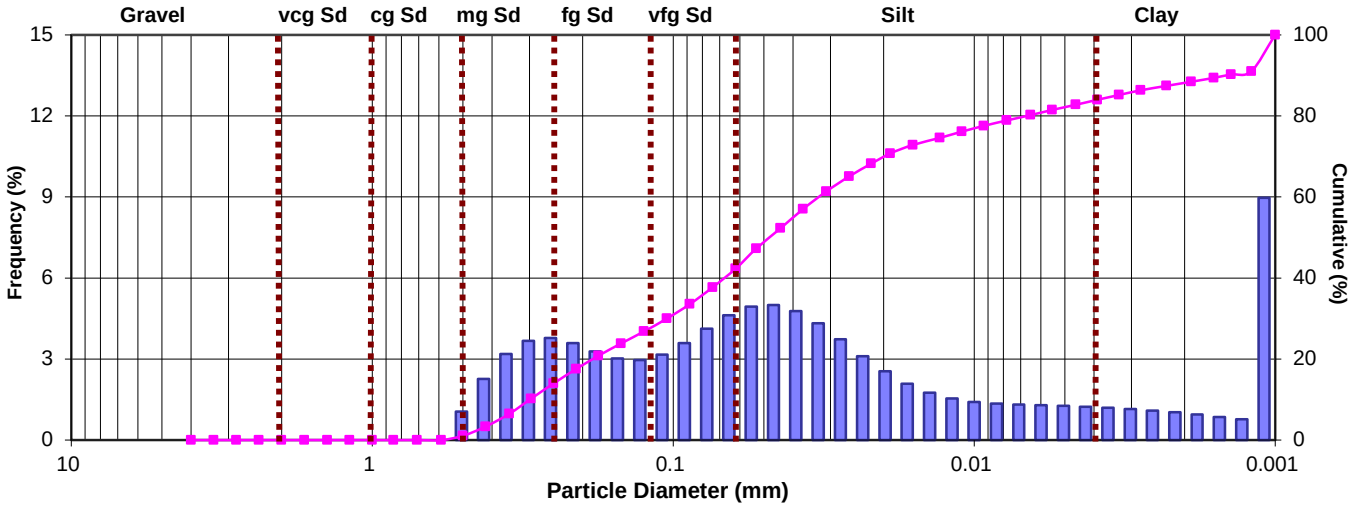
* COMPUTED USING MILLIMETER VALUES
** COMPUTED USING PHI VALUES

Company: **Advantage Environmental Consultants**
Project Name: 585 22nd St.
Project No.: 15-120A-SD

File No. : 415056EN
Date : 1/6/2016
Depth : B7-5'

EXTENDED RANGE PARTSIZ℠ ANALYSIS

Laser Partsiz℠ Distribution



GRAIN SIZE DISTRIBUTION							
	MESH	PHI	INCH	MM	SEP	SEP	CUM
	5	-2.00	0.1575	4.0000	0.0		0.0
	6	-1.75	0.1323	3.3600	0.0		0.0
	7	-1.50	0.1114	2.8300	0.0		0.0
	8	-1.25	0.0937	2.3800	0.0		0.0
GRAVEL	10	-1.00	0.0787	2.0000	0.0	0.0	0.0
	12	-0.75	0.0661	1.6800	0.0		0.0
	14	-0.50	0.0555	1.4100	0.0		0.0
	16	-0.25	0.0469	1.1900	0.0		0.0
VCRS SD	18	0.00	0.0394	1.0000	0.0	0.0	0.0
	20	0.25	0.0335	0.8500	0.0		0.0
	25	0.50	0.0280	0.7100	0.0		0.0
	30	0.75	0.0236	0.6000	0.0		0.0
CRS SD	35	1.00	0.0197	0.5000	1.1	1.1	1.1
	40	1.25	0.0165	0.4200	2.3		3.3
	45	1.50	0.0138	0.3500	3.2		6.5
MED	50	1.75	0.0117	0.2970	3.7		10.2
SAND	60	2.00	0.0098	0.2500	3.8	12.9	14.0
	70	2.25	0.0083	0.2100	3.6		17.5
	80	2.50	0.0070	0.1770	3.3		20.8
FINE	100	2.75	0.0058	0.1490	3.0		23.8
SAND	120	3.00	0.0049	0.1250	3.0	12.9	26.8
	140	3.25	0.0041	0.1050	3.2		30.0
	170	3.50	0.0035	0.0880	3.6		33.6
VFINE	200	3.75	0.0029	0.0740	4.1		37.7
SAND	230	4.00	0.0024	0.0620	4.6	15.5	42.3
	270	4.25	0.0021	0.0530	4.9		47.3
	325	4.50	0.0017	0.0440	5.0		52.3
CRS	400	4.75	0.0015	0.0370	4.8		57.0
SILT	450	5.00	0.0014	0.0310	4.3	19.1	61.4
	500	5.25	0.0010	0.0260	3.7		65.1
		5.50	0.0009	0.0220	3.1		68.2
MED		5.75	0.0007	0.0190	2.5		70.7
SILT		6.00	0.0006	0.0160	2.1	11.5	72.8
		6.25	0.0005	0.0130	1.8		74.6
		6.50	0.0004	0.0110	1.5		76.1
FINE		6.75	0.0003	0.0093	1.4		77.5
SILT		7.00	0.0003	0.0078	1.3	6.1	78.9
		7.25	0.0002	0.0065	1.3		80.2
		7.50	0.0002	0.0055	1.3		81.5
VFINE		7.75	0.0002	0.0046	1.3		82.8
SILT		8.00	0.0001	0.0039	1.2	5.1	84.0
		8.25	0.0001	0.0033	1.2		85.2
		8.50	0.0001	0.0028	1.1		86.3
		8.75	0.0001	0.0023	1.1		87.4
		9.00	0.0000	0.0019	1.0		88.4
		9.25	0.0000	0.0016	0.9		89.4
		9.50	0.0000	0.0014	0.9		90.3
		9.75	0.0000	0.0012	0.8		91.0
CLAY		10.00	0.0000	0.0010	9.0	16.0	100.0

SORTING PARAMETERS

PERCENTILES:

	mm	inches	phi
5	0.3830	0.0151	1.3845
10	0.2995	0.0118	1.7393
16	0.2272	0.0089	2.1381
25	0.1397	0.0055	2.8400
50	0.0481	0.0019	4.3788
75	0.0125	0.0005	6.3256
84	0.0039	0.0002	8.0041
90	0.0015	0.0001	9.4205
95	0.0011	0.0000	9.8133

SURFACE AREA (m^2/cc) : 0.9688

STD DEVIATION (mm) : 0.1116

STD DEVIATION (inches) : 0.0044

GRAVEL PACK : 40/60

	TRASK*	FOLK**	MOMENT**
MEAN	0.0761	4.8403	4.9590
MEDIAN	0.0481	4.3788	4.3788
SORTING	3.3468	2.7436	2.5600
SKEWNESS	0.7536	0.2628	0.5810
KURTOSIS	0.2134	0.9911	2.3702

* COMPUTED USING MILLIMETER VALUES
** COMPUTED USING PHI VALUES

CHAIN OF CUSTODY RECORD

415086 EN

Company	Advantage Env. Cons
Address	145 Vallecitos De Oro San Marcos, CA 9206
Project Manager	Dan Weis
Phone	(760) 744-3363
Project Name	585 22nd St.
Fax	(760) 744-3383
Project No.	15-120A-SD
Email	dweis@aec-env.com
Site Location	585 22nd St. Oakland, CA
Sampler Signature	

ANALYSIS REQUEST

Sample ID	Date	Time	Depth, ft.	Number of Samples	SOIL: Vadose Zone Suite	SOIL: Saturated Zone Suite	SOIL: Pore Fluid Saturation Suite	SOIL: Moisture Content: ASTM D2216	SOIL: Porosity: Total, API RP40	SOIL: Porosity: Effective, ASTM D425M	SOIL: Bulk Density: API RP40 / ASTM D2937	SOIL: Hydraulic Conductivity: API RP40	SOIL: Grain Size Distribution: ASTM D422/D4464M	SOIL: Atterberg Limits: ASTM D4318	SOIL: TOC: Walkley Black	SOIL: Volumetric air and moisture (collected in plastic cylinders)	SOIL: USDA Class	FLUID: Fluid Properties Suite	FLUID: Viscosity: ASTM D445	FLUID: Density/Gravity: ASTM D1481	FLUID: Pryo-Chromatography (Fingerprinting)	FLUID: Interfacial Tension - ASTM D971	Comments
B3-5'	12/21/15	14:07	5'					X	X		X		X		X	X							
B6-5'	"	14:57	5'					X	X		X		X		X	X							
B7-5'	"	15:18	5'					X	X		X		X		X	X							

Turnaround Time: 24 HR [ ] 48 HR [ ] 72 HR [ ] 5 Day [ ] Normal [X]

PO#

CL Bid No.

CL File No.

1. Relinquished By:	Scott Schiffer	2. Received By:	Stacey Bishop
Company	Advantage Env. Cons.	Company	Core Lab
Date	12/28/15	Time	Date 12/29/15 Time 1:04 PM
2. Relinquished By:		2. Received By:	
Company		Company	
Date	Time	Date	Time

APPENDIX E

SOIL GAS ANALYTICAL LABORATORY REPORT

7 January 2016

Mr. Daniel Weis
Advantage Environmental Consultants, LLC
145 Vallecitos De Oro, Suite 201
San Marcos, CA 92069

SUBJECT: DATA REPORT - Advantage Environmental Consultants, LLC Project # 15-120A
585 22nd Street, Oakland, California

TEG Project # 51221F

Mr. Weis:

Please find enclosed a data report for the samples analyzed from the above referenced project for Advantage Environmental Consultants, LLC. The samples were analyzed on site in TEG's mobile laboratory. TEG conducted a total of 11 analyses on 11 soil vapor samples.

-- 11 analyses on soil vapors for volatile organic hydrocarbons by EPA method 8260B.

The results of the analyses are summarized in the enclosed tables. Applicable detection limits and calibration data are included in the tables.

TEG appreciates the opportunity to have provided analytical services to Advantage Environmental Consultants, LLC on this project. If you have any further questions relating to these data or report, please do not hesitate to contact us.

Sincerely,

Mark Jerpbak
Director, TEG-Northern California

Advantage Environmental Consultants, LLC
Project # 15-120A
585 22nd Street
Oakland, California

TEG Project #51221F

EPA Method 8260B VOC Analyses of SOIL VAPOR in micrograms per cubic meter of Vapor

SAMPLE NUMBER:		Probe Blank	SV-1	SV-2	SV-3	SV-4	SV-4 dup
SAMPLE DEPTH (feet):			5.0	5.0	5.0	5.0	5.0
PURGE VOLUME:			3	3	3	3	3
COLLECTION DATE:		12/21/15	12/21/15	12/21/15	12/21/15	12/21/15	12/21/15
COLLECTION TIME:		11:17	11:51	12:12	12:34	12:55	12:55
DILUTION FACTOR:	RL	1	1	1	1	1	1
Dichlorodifluoromethane	100	nd	nd	nd	nd	nd	nd
Vinyl Chloride	13	nd	nd	nd	nd	nd	nd
Chloroethane	100	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	100	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	100	nd	nd	nd	nd	nd	nd
1,1,2-Trichloro-trifluoroethane	100	nd	nd	nd	nd	nd	nd
Methylene Chloride	100	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	100	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	100	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	100	nd	nd	nd	nd	nd	nd
Chloroform	100	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	100	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	25	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	45	nd	nd	nd	nd	nd	nd
Benzene	35	nd	44	51	nd	nd	nd
Trichloroethene	100	nd	nd	nd	nd	nd	nd
Toluene	200	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	100	nd	nd	nd	nd	nd	nd
Tetrachloroethene	100	nd	nd	nd	nd	nd	nd
Ethylbenzene	100	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	100	nd	nd	nd	nd	nd	nd
m,p-Xylene	200	nd	nd	nd	nd	nd	nd
o-Xylene	100	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	100	nd	nd	nd	nd	nd	nd
1,1 Difluoroethane (leak check)	10000	nd	nd	nd	nd	nd	nd
Surrogate Recovery (DBFM)		83%	85%	78%	80%	83%	82%
Surrogate Recovery (Toluene-d8)		99%	92%	91%	90%	89%	89%
Surrogate Recovery (1,4-BFB)		81%	77%	75%	78%	82%	79%

'RL' Indicates reporting limit at a dilution factor of 1
'nd' Indicates not detected at listed reporting limits

Analyses performed in TEG-Northern California's lab
Analyses performed by: Mr. Leif Jonsson

11350 Monier Park Place, Rancho Cordova, CA 95742 • Phone (916) 853-8010 • Fax (916) 853-8020

Advantage Environmental Consultants, LLC
Project # 15-120A
585 22nd Street
Oakland, California

TEG Project #51221F

EPA Method 8260B VOC Analyses of SOIL VAPOR in micrograms per cubic meter of Vapor

SAMPLE NUMBER:		SV-5	SV-6	SV-7	SV-8	SV-9	SV-10
SAMPLE DEPTH (feet):		5.0	5.0	5.0	5.0	5.0	5.0
PURGE VOLUME:		3	3	3	3	3	3
COLLECTION DATE:		12/21/15	12/21/15	12/21/15	12/21/15	12/21/15	12/21/15
COLLECTION TIME:		13:36	13:57	14:55	14:34	15:15	16:31
DILUTION FACTOR:		1	1	1	1	1	1
	RL						
Dichlorodifluoromethane	100	nd	nd	nd	nd	nd	nd
Vinyl Chloride	13	nd	nd	nd	nd	nd	nd
Chloroethane	100	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	100	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	100	nd	nd	nd	nd	nd	nd
1,1,2-Trichloro-trifluoroethane	100	nd	nd	nd	nd	nd	nd
Methylene Chloride	100	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	100	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	100	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	100	nd	nd	nd	nd	nd	nd
Chloroform	100	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	100	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	25	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	45	nd	nd	nd	nd	nd	nd
Benzene	35	45	90	160	59	nd	70
Trichloroethene	100	nd	nd	nd	nd	nd	nd
Toluene	200	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	100	nd	nd	nd	nd	nd	nd
Tetrachloroethene	100	nd	nd	nd	nd	nd	nd
Ethylbenzene	100	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	100	nd	nd	nd	nd	nd	nd
m,p-Xylene	200	nd	nd	nd	nd	nd	nd
o-Xylene	100	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	100	nd	nd	nd	nd	nd	nd
1,1 Difluoroethane (leak check)	10000	nd	nd	nd	nd	nd	nd
Surrogate Recovery (DBFM)		76%	77%	83%	74%	78%	96%
Surrogate Recovery (Toluene-d8)		88%	89%	91%	87%	89%	95%
Surrogate Recovery (1,4-BFB)		78%	75%	78%	80%	81%	87%

'RL' Indicates reporting limit at a dilution factor of 1
'nd' Indicates not detected at listed reporting limits

Analyses performed in TEG-Northern California's lab
Analyses performed by: Mr. Leif Jonsson

11350 Monier Park Place, Rancho Cordova, CA 95742 • Phone (916) 853-8010 • Fax (916) 853-8020

TEG Project #51221F

CALIBRATION DATA - Calibration Check Compounds

	Vinyl Chloride	1,1 DCE	Chloroform	1,2 DCP	Toluene	Ethylbenzene
Midpoint	10.0	10.0	10.0	10.0	10.0	10.0
Continuing Calibration - Midpoint						
12/21/15	8.2	8.5	9.7	10.6	10.7	8.8
	82%	85%	97%	106%	107%	88%

APPENDIX F

J&E RISK MODELING SPREADSHEETS

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

Department of Toxic Substances Control
Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential
Chemical: Benzene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.60E+02	2.0E-06	3.2E-04	3.3E-09	1.0E-04

MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.60E+02			Benzene

MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	24	SC		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SC	1.87	0.303	0.3	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

Benzene

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.95E-02	1.03E-05	5.55E-03	25	7,342	353.24	562.16	2.9E-05	3.0E-03	78.11

END

Scenario: **Residential**

Chemical: **Benzene**

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
137	0.003	0.984	1.78E-09	0.055	9.89E-11	4,000	1.60E+02	3.39E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	5.00E-03	15	7,977	5.30E-03	2.18E-01	1.80E-04	9.36E-06	137

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.60E+02	1.25	8.33E+01	9.36E-06	5.00E+03	#NUM!	**2.02E-06**	3.22E-04

Warning: alpha < 6E-05 is unreasonably low.

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.9E-05	3.0E-03

END

Scenario: **Residential**
Chemical: **Benzene**

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.3E-09	**1.0E-04**

MESSAGE SUMMARY BELOW:

END

MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

Department of Toxic Substances Control
Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential
Chemical: Benzene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.60E+02	2.7E-06	4.4E-04	4.5E-09	1.4E-04

MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.60E+02			Benzene

MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	24	C		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
C	1.63	0.383	0.379	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

Benzene

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.95E-02	1.03E-05	5.55E-03	25	7,342	353.24	562.16	2.9E-05	3.0E-03	78.11

END

Scenario: **Residential**

Chemical: **Benzene**

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
137	0.004	0.986	2.32E-09	0.040	9.24E-11	4,000	1.60E+02	3.39E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	5.00E-03	15	7,977	5.30E-03	2.18E-01	1.80E-04	1.28E-05	137

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.60E+02	1.25	8.33E+01	1.28E-05	5.00E+03	#NUM!	**2.75E-06**	4.39E-04

Warning: alpha < 6E-05 is unreasonably low.

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.9E-05	3.0E-03

END

Scenario: **Residential**
Chemical: **Benzene**

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
4.5E-09	**1.4E-04**

MESSAGE SUMMARY BELOW:

END

MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

Department of Toxic Substances Control
Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: **Residential**
Chemical: **Benzene**

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.60E+02			Benzene

MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.60E+02	2.2E-06	3.6E-04	3.7E-09	1.1E-04

MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	24	C		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
C	1.78	0.33	0.325	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

Benzene

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.95E-02	1.03E-05	5.55E-03	25	7,342	353.24	562.16	2.9E-05	3.0E-03	78.11

END

Scenario: **Residential**

Chemical: **Benzene**

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
137	0.005	0.978	2.32E-09	0.058	1.35E-10	4,000	1.60E+02	3.39E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	5.00E-03	15	7,977	5.30E-03	2.18E-01	1.80E-04	1.03E-05	137

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.60E+02	1.25	8.33E+01	1.03E-05	5.00E+03	#NUM!	**2.22E-06**	3.55E-04

Warning: alpha < 6E-05 is unreasonably low.

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.9E-05	3.0E-03

END

Scenario: **Residential**
Chemical: **Benzene**

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.7E-09	**1.1E-04**

MESSAGE SUMMARY BELOW:

END

MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

APPENDIX G

LABORATORY QC SUMMARIES

QA/QC CHECKLIST FOR LABORATORY DATA REVIEW

Project:	585 22nd Street	**Method(s):**	EPA 7196A
Laboratory:	AETL		
Sampling Dates:	12/21/2015	**Samples:**	See Investigation Report Tables, Chain-of-Custody and Lab Report
Analysis Dates:	12/30/2015		
Lab Report Date:	1/6/2016		
Lab Report Number:	79567		

	Item	Y/N	Initials	Comment
1.	Chain-of-Custody Complete and Correct?	Y	DW	None
2.	Samples ID's on Lab Report Match those on COC?	Y	DW	None
3.	Required Analyses Reported?	Y	DW	None
4.	Holding Times Met?	Y	DW	None
5.	Lab Report Complete, signed Dated, on Time?	Y	DW	None
6.	Travel and Equip Blanks Okay?	NA	DW	None
7.	Field Duplicates Okay	NA	DW	None
8.	Lab Method Blanks Okay?	Y	DW	None
9.	Surrogate Recovery Okay?	NA	DW	None
10.	Matrix Spike Recovery Okay?	Y	DW	None
11.	BS Recovery Okay?	Y	DW	None
12.	BSD & or MSD Dupes Okay?	Y	DW	None
13.	Reporting Limits Met?	Y	DW	None
14.	Units match Matrix?	Y	DW	None
15.	Data Make Sense?	Y	DW	None
16.	Any Unusual Data?	N	DW	None
17.	Corrective Action Needed?	N	DW	None
18.	Correction Action Reported?	N	DW	None

Follow-up with Lab Required?	N

Signature of Reviewer		Date:	1/6/2016

QA/QC CHECKLIST FOR LABORATORY DATA REVIEW

Project:	585 22nd Street	**Method(s):**	EPA 8260B
Laboratory:	TEG Northern California		
Sampling Dates:	12/21/2015	**Samples:**	See Investigation Report Tables, Chain-of-Custody and Lab Report
Analysis Dates:	12/21/2015		
Lab Report Date:	1/7/2016		
Lab Report Number:	51221F		

	Item	Y/N	Initials	Comment
1.	Chain-of-Custody Complete and Correct?	Y	DW	None
2.	Samples ID's on Lab Report Match those on COC?	Y	DW	None
3.	Required Analyses Reported?	Y	DW	None
4.	Holding Times Met?	Y	DW	None
5.	Lab Report Complete, signed Dated, on Time?	Y	DW	None
6.	Travel and Equip Blanks Okay?	Y	DW	None
7.	Field Duplicates Okay	Y	DW	None
8.	Lab Method Blanks Okay?	Y	DW	None
9.	Surrogate Recovery Okay?	Y	DW	None
10.	Matrix Spike Recovery Okay?	NA	DW	None
11.	BS Recovery Okay?	Y	DW	None
12.	BSD & or MSD Dupes Okay?	NA	DW	None
13.	Reporting Limits Met?	Y	DW	None
14.	Units match Matrix?	Y	DW	None
15.	Data Make Sense?	Y	DW	None
16.	Any Unusual Data?	N	DW	None
17.	Corrective Action Needed?	N	DW	None
18.	Correction Action Reported?	N	DW	None
				Follow-up with Lab Required? N

Signature of Reviewer		Date:	1/7/2016