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October 16, 2017
Project No. SCS557.4
GeoTracker ID T10000009404

Alameda County Environmental Health
Attn: Ms. Barbara J. Jakub, PG
1131 Harbor Bay Parkway
Alameda, CA 94502

RECEIVED

By Alameda County Environmental Health 12:32 pm, Oct 18, 2017

Alameda County Environmental Health
Attn: Mr. Keith Nowell, PG, CHG
1131 Harbor Bay Parkway
Alameda, CA 94502

Ms. Irene Trimble
6360 Beach Drive SW
Seattle, WA 98136

Mr. Alan Dimen
2907 Pine Avenue
Berkeley, CA 94705

Reference: Warehouse Property
1647 International Boulevard
Oakland, Alameda County, California

Subject: Data Gap Investigation Work Plan

Dear Ms. Jakub, Mr. Nowell, Ms. Trimble and Mr. Dimen:

SCHUTZE & Associates, Inc. is pleased to present this Data Gap Investigation Work Plan (revised October 16, 2017) for the above-mentioned property (subject site) in response to a directive letter received from the Alameda County Department of Environmental Health (ACDEH) dated August 14, 2017¹. The subject site, a one-story warehouse building occupied by a metal fabricating company is located at 1647 International Boulevard, Oakland, Alameda County, California.

This Work Plan discusses the directives set forth by ACDEH and the Water Board for

¹ Alameda County Department of Environmental Health, *Request for a Data Gap Investigation Work Plan; Fuel Leak Case No. RO0003223 and GeoTracker Global ID T10000009404, 1647 International Blvd, Oakland, CA 94606*, August 14, 2017.

the subject site in regards to (1) further delineation of the vertical and lateral extent of the subsurface hydrocarbon contamination on- and off-site; and (2) providing details of additional activities required to eventually achieve case closure in accordance with low-threat closure criteria. Anticipated subsurface investigations and corrective actions are discussed herein.

The work proposed in this document will be supervised by a California Professional Geologist (P.G.) and will be conducted under ACDEH and Water Board oversight and in accordance with the requirements of the California Underground Storage Tank Cleanup Fund (USTCF).

A. SUBSURFACE CONDITIONS AND GEOLOGY

The City of Oakland is located in California's Central Coast Ranges Geomorphic Province. This region is characterized by a series of parallel, northwesterly trending mountain chains and valleys consisting primarily of Mesozoic and Cenozoic sedimentary rocks.

A depression containing the San Francisco Bay separates the Peninsular Ranges from the East Bay Ranges. Most of Oakland lies in this depression and Oakland is underlain by Holocene alluvial fan deposits, dune sands deposited during the Holocene and artificial fill that has been laid down over estuarine mud (Bay Mud).

The subject site is located approximately 1,200 feet (ft) northeast of the Alameda Estuary in the East Bay Plain (Figure 1), a relatively flat area at approximately 25 ft above mean sea level (msl). Prior to urban development, the site consisted of tidal flats, estuaries and alluvial plains.

Groundwater at the site appeared to be at the bottom of the UST pits at approximately 12 ft bgs. Groundwater flow direction has been estimated to the southwest.

B. BACKGROUND

B.1 UST Removal

Five underground storage tanks (USTs) were installed at the 1647 International Boulevard, Oakland site. The locations of the tanks (1,000-gal, 1,400-gal, 300-gal, 350-gal, and 1,100-gal USTs) are shown on Figure 2.

The removal of the USTs were performed by Western Abatement, Inc. of Ignacio, California. SCHUTZE & Associates, Inc. observed the removal activities and performed confirmation sampling. Tanks #1 and #2 were removed on March 2 to 4, 2016 and April 6 to 7, 2016. Tanks #3 and #4 were later discovered and removed on August 1 to 2, 2016, while Tank #5 was removed on August 30 to 31, 2016. In addition, on August 31 and September 1, 2016, three exploratory test pits were excavated to determine if other potential on-site USTs or product lines existed, leading to no new findings.

Based on the laboratory results for the soil samples collected in the tank pits, it was determined that soil at the site has been impacted by petroleum hydrocarbons (Table 1).

Table 1
Selected Analytical Results for TPH in Soil
1647 International Boulevard, Oakland, CA

Parameter	Maximum Concentration (mg/kg)	Sampling Location	Depth (ft bgs)	Sample ID
TPH-g	4,800	5 th UST Pit	14	B3-M-14
TPH-ss	5,900	4 th UST Pit	10.5	B2-M-10.5
TPH-d	3,900	1 st UST Pit	11.5	B-11.5-M

Tier 1 ESLs in soil: TPH-g (100 µg/L), TPH-ss (100 µg/L), TPH-d (230 µg/L). ESLs = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for Soil (February 2016).

Tank pits #1 and #2 were backfilled with clean imported fill. Tank pits #3 through #5 were lined with 6-MIL polyethylene liners and backfilled with stockpiled soil from the excavations, upon approval by the ACDEH inspector. Clean imported fill was also used as backfill to make up for the volume of the USTs. The soil was then compacted using a compacter wheel and plate before being temporarily paved with asphalt.

B.2 Regulatory Oversight

The ACDEH is the initial lead agency for the subject site case (Fuel Leak Case No. RO0003223).

The subject site is listed on GeoTracker, the Water Board's on-line data storage website (GeoTracker Global ID T10000009404).

The subject site has been accepted into the California Underground Storage Tank Cleanup Fund (USTCF) under Claim Number 20351.

B.3 Comparison with the Low-Threat Closure Policy

The ACDEH staff have compared the subject site with the criteria outlined in the State Water Board's Low-Threat Underground Storage Tank Case Closure Policy (LTCP) and have concluded that the site does not meet General Criteria b, d, e, and f, and the Media-Specific Criteria for Groundwater, Vapor Intrusion to Indoor Air, and Direct Contact. SCHUTZE & Associates, Inc. has expanded that comparison to develop the following Data Gap Investigation Work Plan.

C. DATA GAP INVESTIGATION WORK PLAN

C.1 Resolution to Address Criterion b

General Criteria b addresses unauthorized releases of petroleum for UST sites.

Visual observations of the tanks during removal suggest an unauthorized release of petroleum. Tanks #2 and #3 were both considered to be in poor condition with visible holes. Through laboratory analysis of the tank contents, it is believed that Tank #2 previously contained TPH-heating oil and Tank #3 stored TPH-stoddard solvents and

later on, TPH-diesel. Polycyclic aromatic hydrocarbons (PAHs), lead and zinc have also been detected at concentrations that may be elevated above background levels.

Resolution

The five USTs that have been identified as the primary source of contamination have been removed from the site and are therefore no longer releasing petroleum products.

C.2 Scope of Work to Address Criterion d

General Criteria d requires that free product be removed to the maximum extent practicable.

Data Gaps: The vertical and lateral extent of free product in soil and groundwater associated with the tanks and piping is unknown.

Scope of Work:

- Advance approximately eight soil borings in and around the former gasoline UST excavation to outline the area of soil impact. Advance at least one soil boring directly down-gradient from the former UST area to a depth of 40 to 60 ft bgs or drill refusal to investigate deeper lithologies and the vertical extent of contamination. Proposed boring locations are depicted in Figure 3.
- Re-excavate and over-excavate the impacted soil and backfill with clean imported fill.
- Determine if free product removal is needed.

C.3 Scope of Work to Address Criteria e

General Criteria e requires that a conceptual site model (CSM) assessing the nature, extent and mobility of the release be developed.

Data Gaps: The nature of the release at the site should be further defined by including MTBE and other fuel oxygenates in the new sample analyses. The extent and mobility of the release can be defined by measuring the groundwater depth/flow direction and investigating the soil and hydro-geological conditions, other potential migration pathways (utility channels, paleo-channels, etc.) and concentrations of the contaminants of concern (COCs) both vertically and horizontally.

Scope of Work:

- Conduct geophysical/utility survey(s) and obtain maps from utility providers.
- Conduct a Membrane Interface Probe (MIP) survey to identify the subsurface conditions, including potential A and B groundwater horizons.
- Advance approximately eight soil borings to groundwater depth to determine vertical extent. Boring locations are depicted in Figure 3.
- After determining the vertical and lateral extent of the contamination, install up to four 2-inch-diameter wells (MW-1 through MW-4) to allow for flow direction measurements. Begin quarterly groundwater monitoring at the site. Well

locations are depicted in Figure 3.

- Develop a CSM for the site using the data from the investigations described in this Work Plan. (A CSM has been prepared and will be updated as new data will be generated).

C.4 Scope of Work to Address Criteria f

General Criteria f requires that secondary source(s) be removed to the maximum extent practicable.

Data Gaps: Secondary sources that have been identified is the soil beneath the tanks and product piping as well as the soil used to backfill the tank pits. Other possible sources may be soil from beneath the fueling system and area beneath the dispenser.

Scope of Work:

- Re- and over-excavate the backfilled tank pits, as mentioned in section C.2.
- Excavate two test pits in the location of the fueling system and the dispenser (if required).
- If soil is stained or exhibits hydrocarbon odors, excavation will continue to the extent practicable. If the process exceeds what is practicable, soil and grab groundwater samples will be collected to determine the vertical and lateral extent of the secondary source of contamination.

C.5 Scope of Work to Address Media Specific Criterion – Groundwater Criteria

Data Gaps: The vertical and lateral extent of groundwater contamination has not been determined. A regional well survey has not been completed. The concentrations of TPH-g, TPH-ss, TPH-d, benzene, ethylbenzene, xylenes, naphthalene, chromium, lead and nickel detected in groundwater exceeds Tier 1 ESLs (Table 2).

**Table 2
 Selected Analytical Results in Groundwater
 1647 International Boulevard, Oakland, CA**

Parameters	Result (µg/L)	Tier 1 ESL (µg/L)
TPH-g	8,000	100
TPH-ss	15,000	100
TPH-d	52,000	100
Benzene	11	1.0
Ethylbenzene	100	13
Xylenes (total)	360	20
Naphthalene	210	0.17
Chromium (total)	66	50
Lead	140	2.5
Nickel	120	8.2

Tier 1 ESLs = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for Groundwater (February 2016).

Scope of Work:

- Advance soil borings and install monitoring wells as described previously.
- Conduct a regional well and sensitive receptor survey.

C.6 Scope of Work to Address Media Specific Criterion – Petroleum Vapor Intrusion to Indoor Air

Data Gap: Depth to groundwater has not been established, the thickness of the bioattenuation zone has not been determined, and the potential migration of petroleum vapors to indoor air has not been investigated.

Scope of Work:

- Conduct soil vapor, sub-slab and indoor air surveys consistent with the field sampling protocols described in the July 2015 *Advisory – Active Soil Gas Investigations*.
- Calculate human health risks based on the results.
- Install permanent vapor wells to assess temporal and seasonal variations in soil gas concentrations.

C.7 Scope of Work to Address Media Specific Criterion – Direct Contact (Soil) and Outdoor Air Exposure

Data Gap: The human health risk caused by direct contact with soil and outdoor air exposure has not been evaluated.

Scope of Work:

- Sample and analyze soil at five and ten foot intervals, at the groundwater interface, lithologic changes and at areas of obvious impact.
- Collect a groundwater sample from each boring and analyze for TPH, VOC, PAH and LUFT 5 Metals.
- Calculate the human health risk using results from the investigations described previously.

D. DECISION MAKING PROCESS

The purpose of this Data Gap Investigation Work Plan is to present a sequence of tasks which will produce currently missing data needed to evaluate the subject site by the criteria used to achieve LTCP case closure.

This Data Gap Investigation Work Plan has been prepared as a dynamic document to streamline communication between the parties involved. After completing each phase of the project, SCHUTZE & Associates, Inc. will prepare a written summary report with site maps and tables presenting the results of the completed tasks. Summarized specifics and adjustments to the recommended follow-up tasks will be outlined in abbreviated work plans within the summary reports, without the need for submission of

another formal, comprehensive Work Plan.

Based on the currently available data, the proposed activities and the decision-making processes are as follows:

1. MIP Investigation: Select MIP boring locations based on the results of an ACDEH file review. Use the MIP data to identify lithologies, bioattenuation zone and depths of potential aquifers. Prepare a summary report with an abbreviated work plan for a follow-up soil boring investigation.
2. Soil Boring Investigation / Determination of Vertical and Lateral Contamination Extent: Utilizing the results from the MIP investigation, adjust the proposed locations and depths of the soil borings. Ensure that the chosen methodologies and sampling intervals address the LTCP data gap issues (outlined in Section C of this Work Plan).

Prepare a summary report with an abbreviated work plan for a pathway study. Based on the results of the MIP and soil boring investigations, prepare maps and cross-sections depicting the vertical and lateral extent of contamination and the thickness and characteristics of the bioattenuation zone, if present. Use the results of the MIP and soil boring investigations to recommend methodologies for additional soil borings, monitoring wells, collection of vapor and air samples and/or soil excavation.

3. Preferential Pathway Study: Complete a comprehensive report outlining potential pathways for migration of contamination. To determine if manmade migration paths such as utility channels or backfilled areas exist, the following methodologies should be considered, if warranted based on the results of the MIP and soil boring investigations:
 - Utility Survey;
 - Geophysical Survey; and
 - Geological Study.

A regional well and sensitive receptor survey will also be completed.

This work will create data which can later be added to the existing CSM. The report will include an abbreviated work plan for monitoring well installation.

4. Monitoring Well Installation: Based on the results of the previous work (MIP, soil borings, pathway study), the number, depths and locations for the proposed monitoring wells will be determined and the wells will be installed. Prepare a summary report with an abbreviated work plan describing proposed groundwater monitoring methodologies, analytes and monitoring event scheduling.
5. Groundwater Monitoring: Implement scheduled groundwater monitoring to further address the LTCP data gaps outlined in Section C. Based on the results of the groundwater monitoring, installation of additional monitoring wells and/or groundwater remediation activities may be recommended.

6. Potential Migration of Petroleum Vapors: If the soil/groundwater contaminant concentrations detected at the site exceed the screening levels for the LTCP vapor exposure scenarios, prepare and implement an abbreviated work plan for soil vapor, sub-slab and/or indoor air testing. Prepare a summary report addressing the human health risk for future occupants of the subject site, taking into account the effects of the bioattenuation zone, if present. Based on the vapor testing results, mitigation measures may be recommended.
7. Excavation of Contaminated Soil: Based on the results of the MIP/soil boring investigations and the pathway study, over-excavation may also be recommended for portions of the site. Potential areas of concern are the former UST pits and pump islands. An abbreviated work plan outlining the location and extent of the proposed over-excavation area(s) will be completed. Based on the results of confirmation sampling following completion of the over-excavation activities, additional remedial actions may be recommended.
8. CSM: Performance of the tasks included in this Data Gap Investigation Work Plan will generate the data required for the continuous updating of a CSM for the subject site. A comprehensive CSM has been prepared. The CSM is a dynamic document intended to be altered as new information is generated.

E. DETAILED SCOPE OF WORK

SCHUTZE & Associates, Inc. proposes the following scope of work based on the currently available data for the site.

E.1 File Review

The ACDEH and Water Board have requested that adequate background information for the site be collected and uploaded to the Alameda County FTP site and GeoTracker.

SCHUTZE & Associates, Inc. will conduct an on-line file review for the site at the ACDEH's website and will inquire whether Alameda County may have additional paper copies of other files related to the site. SCHUTZE & Associates, Inc. has also requested that the property owner search his files for additional records that may exist.

E.2 MIP Borings

In order to further define the vertical extent of soil and groundwater contamination and to investigate the existence of potential A and B groundwater horizons, SCHUTZE & Associates, Inc. recommends the advancement of MIP borings at up to three locations on the site. The MIP boring locations will be determined based on the results of the previous investigations at the site and the results of the ACDEH file review.

MIP, EC² and HPT³ are quick and cost-effective technologies to model the subsurface and develop remediation strategies. These technologies have been incorporated into rugged probes that can be advanced into the subsurface via a Geoprobe or other direct-

² Electric Conductivity

³ Hydraulic Profiling Tool

push rig. The probe is driven into the ground at a rate of approximately one foot per minute and is effective to approximately 60 ft bgs.

MIP technology was designed to detect VOCs⁴ from fuel hydrocarbons and chlorinated solvents potentially existing in both soil and groundwater. Potentially existing VOC molecules are diffused across a heated polymer membrane on the probe and transported to an above-ground Electron Capture Detector (ECD) via a carrier gas.

The EC device is incorporated into the MIP probe. A dipole sensor on the probe measures the change in voltage of a current as it passes through the subsurface. Since grain size is relative to soil conductivity, a model of the subsurface can be developed in terms of grain size (gravel, sand, silt and/or clay). The EC probe is calibrated to function equally well in groundwater.

The smaller HPT probe continuously injects small amounts of water into the adjacent subsurface as the probe is advanced. A transducer in the probe measures the subsurface pressure response to the water stream, which is relative to hydraulic conductivity.

The proposed tasks are as follows:

- a. Subcontract with a licensed C-57 driller with Geoprobe and MIP/EC/HPT equipment, as available.
- b. Pre-field activities:
 - Submit a site plan, work plan, drilling contractor's credentials and permit application to Alameda County. Obtain other required permits.
 - Provide notification to the ACDEH and the Water Board at least 48 hours prior to commencing work. Notify other agencies of the scheduled work, as required.
 - Prepare and implement a site-specific Health and Safety Plan.
 - Mark the proposed soil boring locations. Subsequently, USA and a private utilities locator shall be contacted to clear the proposed soil boring locations for underground utilities.
 - Mobilize all necessary equipment and materials to perform the required services. These will include soil boring equipment, concrete coring tools and asphalt cold patch or concrete.
- c. Advance up to three borings to depths between 30 and 40 ft bgs, or until drill refusal occurs, and record potential VOC concentrations (if significant), soil conductivity, and soil hydraulic conductivity.
- d. Evaluate the presence, thickness and characteristics of a bioattenuation zone potentially existing beneath the subject site.
- e. Backfill/waste disposal activities:
 - Backfill the borings with cement slurry or concrete and patch the drilled

⁴ Volatile organic compound(s)

areas with an asphalt or concrete finish, as required.

- Store any investigation-derived waste in 55-gallon Department of Transportation (DOT) approved drums to be properly disposed of based on the analytical results for waste characterization.
- f. Submit a summary report with copies of the MIP results to ACDEH and the Water Board.

E.3 Soil Boring Investigation

SCHUTZE & Associates, Inc. expects that the results of the MIP survey will provide information on lithologies and potential aquifers. The MIP survey will also help to delineate the depth, distribution and concentrations of contamination. The methodologies and scope of the soil boring investigation will be adjusted based on the findings of the MIP survey to maximize the potential results of the work.

SCHUTZE & Associates, Inc. recommends advancing five soil borings near the former UST pits and three borings up-, down- and cross-gradient from the source areas. The soil boring investigation will assist in (1) further determining the vertical and lateral extent of soil and groundwater contamination and (2) assessing the potential extent of soil over-excavation activities in some areas.

The proposed tasks are as follows:

- a. Pre-field activities: As outlined in the preceding section.
- b. Advance six soil borings to groundwater, 30 ft bgs or drill refusal. Groundwater is expected at 15 ft bgs, but may be confined to greater depths (20 to 30 ft bgs) at portions of the site. If groundwater is not encountered, the borings may be advanced to greater depths, based on field conditions and available time. If the MIP survey has indicated that A and B groundwater horizons exist, at least two borings will be advanced to the deeper B groundwater horizon.
- Proposed borings B1 through B5 will be directly adjacent to the former UST pits and product piping areas.
 - Proposed borings B6 through B8 will be up-, cross- and down-gradient from the primary and secondary source areas.

The proposed boring locations are depicted on Figure 3.

- c. Recover the soil cores in 1.5-inch-diameter acetate liners to be observed by a SCHUTZE & Associates, Inc. staff geologist. Field-screen the recovered soil cores for VOCs using a portable photo ionization detector (PID). The field geologist will record data, observations and conditions during the field work. Boring logs will be prepared and included in the investigation reports. These logs will include lithologies encountered during drilling, samples collected, groundwater level and well completion materials. Visual signs of contamination or unusual odors will be noted in the boring logs.
- d. Collect soil samples from each boring. The samples will be collected by cutting the interval of the soil core to be sampled and sealing each end with Teflon strips

and plastic caps. Samples will be collected, at a minimum, within the following intervals, for the purpose of addressing the LTCP criteria:

- Surface (0-1 ft, collected directly below the pavement);
- Shallow soil (0-5 ft);
- Deeper soil (5-10 ft bgs); and
- Subsequent 5 ft intervals (as needed until the saturated zone has been encountered).

Samples will also be collected as needed for the purpose of evaluating the presence, thickness and characteristics of a potential bioattenuation zone beneath the subject site. Additional soil samples may be collected based on PID readings, unusual odors and/or visible contamination.

- e. Collect one groundwater sample from each boring, assuming that sufficient groundwater is encountered. Sample containers will be supplied by McCampbell Analytical, Inc. (CDPH ELAP⁵ #1644) and will include 1-liter amber bottles containing hydrochloric acid as a preservative, 40-milliliter (ml) VOAs⁶ containing hydrochloric acid as a preservative and 250 ml plastic bottles containing nitric acid as a preservative. Groundwater to be analyzed for metals will be filtered in the field via 0.45-micron inline filters. Quality Control groundwater samples will be collected as follows:
 - One duplicate sample will be collected and analyzed for every ten samples or at a minimum of one per day. One equipment blank will be collected to be analyzed only if analytical irregularities are observed. Trip blanks will be provided by the laboratory to be analyzed only if analytical irregularities are observed.
- f. Store soil and groundwater samples in an ice-filled cooler to be transported following chain-of-custody procedures. Submit soil and groundwater samples to McCampbell Analytical, Inc. to be analyzed for the following:
 - TPH-g, -d, -ss and -mo⁷ (EPA⁸ Method 8015B/m);
 - VOCs, incl. MBTEX⁹, naphthalene and fuel oxygenates (EPA Method 8260B);
 - LUFT 5 Metals¹⁰ (EPA Method 6010/200.8); and
 - PAHs¹¹ (EPA Method 8100 mod.).

Samples not analyzed will be placed on hold for later analysis, if required. Soil sample results will be reported as dry-weight.

⁵ California Department of Public Health Environmental Laboratory Accreditation Program

⁶ Volatile organics analysis containers

⁷ Total petroleum hydrocarbons as gasoline, diesel and motor oil

⁸ Environmental Protection Agency

⁹ Methyl tert-butyl ether, benzene, toluene, ethylbenzene and xylenes

¹⁰ Leaking Underground Fuel Tank 5 Metals (Cd, Cr, Ni, Pb, Zn)

¹¹ Petroleum aromatic hydrocarbons

- g. Backfill/waste disposal activities: As outlined in the preceding section.
- h. Prepare a summary report for ACDEH and the Water Board including maps and cross-sections depicting the vertical and lateral extent of contamination and the thickness and characteristics of the bioattenuation zone, if present. Use the results of the MIP and soil boring investigations to recommend methodologies for additional soil borings, monitoring wells, collection of vapor and air samples, and/or soil excavation.

E.4 Preferential Pathway Study

SCHUTZE & Associates, Inc. recommends conducting a preferential pathway study for the subject site. The preferential pathway study will aid in determining the potential presence of hydrocarbon migration in the subsurface. The preferential pathway study may include the following, if warranted based on the results of the MIP and soil boring investigations:

1. Utility Survey: Mark the property as needed (including former features such as the pump island, boring locations and/or excavation areas) and contact Underground Services Alert (USA) to mark out underground utilities. Contact the City of Oakland, PG&E, and other utility providers to receive as-built drawings for surrounding utilities.
2. Geophysical Survey : Contract with a private utility locator and geophysical surveyor to perform surveys for underground anomalies that may be acting as preferential pathways or may be additional sources of petroleum hydrocarbons.
3. Geological Study: Use the data from the MIP investigation to assess soil types, potential paleo-channels and undiscovered additional groundwater horizons. The MIP survey will also produce data which could assist in the characterization of a bioattenuation zone.

A survey of wells and sensitive receptor sites in the vicinity of the subject property will also be conducted.

E.5 Monitoring Well Installation

SCHUTZE & Associates, Inc. proposes the installation of four monitoring wells. The purpose of the proposed 2-inch-diameter groundwater monitoring wells is to further investigate the lateral extent of groundwater contamination beneath the subject site and the groundwater flow direction. Groundwater samples from the wells will also be used to monitor changes in contaminant levels over time.

The well construction will be in general compliance with the standards contained in the Department of Water Bulletins 74-81 and 74-90 and the reporting provisions of Section 13750 and 13755 of the California Water Code. The four proposed monitoring well locations are shown on the attached Figure 3 (the well locations will be adjusted based on the soil boring and MIP investigation results).

The proposed scope of work is as follows:

- a. Pre-field activities: As outlined in Section E.2.
- b. Advance four borings into the groundwater zone and convert into groundwater monitoring wells. The borings will be drilled with an 8- to 12-inch-diameter hollow-stem auger rig. The 2-inch-diameter monitoring wells will be screened from approximately 5 to 15 ft bgs, the depth at which groundwater is anticipated. The screening intervals for the wells will be further defined by the results of the MIP investigation.
- c. Perform continuous soil logging as the auger ejects the drill cuttings and take undisturbed soil samples at 5 ft intervals using a hollow-stem soil sampling tool. Field-screen soil cuttings with a photo ionization detector (PID) at changes in lithology or at a minimum of 5-foot intervals. Boring logs will be prepared and included in the investigation reports. These logs will include lithologies encountered during drilling, samples collected, groundwater level, and well completion materials.
- d. As part of the soil logging, continue to evaluate the presence, thickness and characteristics of a potential bioattenuation zone beneath the subject site.
- i. Soil Sampling: Soil samples will be collected by driving a sampling tool into undisturbed soil via the hollow stem of the steel auger. Samples will be collected, at a minimum, within the following intervals, for the purpose of addressing the LTCP criteria:
 - Surface (0-1 ft, collected directly below the pavement);
 - Shallow soil (0-5 ft);
 - Deeper soil (5-10 ft bgs); and
 - Subsequent 5 ft intervals (as needed until the vadose zone has been encountered).

Samples will also be collected below groundwater level for waste characterization of the drill cuttings. Additional soil samples may be collected based on PID readings, unusual odors and/or visible contamination.

- e. Submit soil samples from each well boring to McCampbell Analytical, Inc. to be analyzed for:
 - TPH-g, TPH-d, TPH-ss and TPH-mo (EPA Method SW8015B/m);
 - VOCs, incl. MBTEX, naphthalene and fuel oxygenates (EPA Method SW8260B);
 - LUFT 5 Metals (EPA Method 6020/E200.8); and
 - PAHs (EPA Method 8100 mod.).

Samples not analyzed will be placed on hold for later analysis, if required. Soil

sample results will be reported as dry-weight.

- f. **Well Construction:** The wells will consist of 2-inch-diameter Schedule 40 PVC casing. SCHUTZE & Associates, Inc. recommends using 0.010 slot well screens and No. 2-12 Monterey Sand. The well screens will be 10 ft in length, extending from the top of the water level down 10 ft. The length and placement of the screened interval will be adjusted based on the field lithologies. Blank well casing will be installed from ground surface to the top of the screen. A sand pack filter will be installed in the annulus from the bottom of the boring to approximately 2 ft above the screen. A bentonite seal 2 ft thick will be installed above the sand. The remainder of the annulus will be sealed with neat cement. A locking, water-tight Christie box will be installed for well protection. The top of the casing will be sealed with a water-tight well cap.
- g. Develop the wells at least one day following installation. The wells will be developed by surging and bailing methods. Field parameters will be recorded on field logs. Development will continue until the field parameters show stabilization and sediment has been removed. SCHUTZE & Associates, Inc. recommends that the wells not be sampled for at least 48 hours after development.
- h. Store any investigation-derived waste in 55-gallon Department of Transportation (DOT) approved drums to be properly disposed of based on the analytical results for waste characterization.
- i. Contract with a licensed surveyor to survey the newly installed wells. Complete a Department of Water Resources "Well Completion Report" for each well in order to comply with state regulations.
- j. Prepare a summary report including the laboratory results for the well installation and the initial groundwater sampling event. Follow-up work will be discussed with ACDEH and the Water Board prior to implementation. If significant free product is encountered, a Correction Action Plan (CAP) will be prepared to outline remediation strategies.

E.6 Groundwater Sampling (Initial Event; Scheduled Monitoring)

The monitoring wells will be sampled using low flow purging and sampling techniques. A flow through cell will be used to observe turbidity/water-color and measure temperature, pH, conductivity, dissolved oxygen and oxygen reduction potential. These parameters will be recorded on field forms.

To sample the groundwater, SCHUTZE & Associates, Inc. will purge a minimum of three well volumes from the groundwater monitoring well, observe the stabilization of groundwater parameters, allow the wells to recharge to within 80% of volume prior to sampling and, within 12 hours of purging, collect one groundwater sample from each well. SCHUTZE & Associates, Inc. follows EPA and Department of Toxic Substances Control (DTSC) guidance documents for monitoring well sampling.¹² The groundwater samples will be submitted to McCampbell Analytical, Inc. to be analyzed for:

¹² EPA, *Standard Operating Procedure for Low-Stress (Low Flow) / Minimal Drawdown Ground-Water Sample Collection*, 2002;

- TPH-g, -d, -ss and -mo (EPA Method SW8015B/m);
- VOCs, incl. MBTEX, naphthalene and fuel oxygenates (EPA Method SW8260B);
- PAHs (EPA Method 8100 mod.); and
- LUFT 5 Metals (EPA Method 6020/E200.8; metal analyses will only be required if free product is present).

Groundwater monitoring events subsequent to the initial sampling event will be scheduled based on ACDEH's and the Water Board's recommendations for frequency and duration.

E.7 Soil Vapor Survey

In order to further outline the vertical and lateral extent of soil and groundwater impacted by contaminants, as well as investigate the Potential for Petroleum Vapor Intrusion to Indoor Air (LTCP Media-Specific Criteria 2), and Direct Contact and Outdoor Air Exposure (LTCP Media-Specific Criteria 3), SCHUTZE & Associates, Inc. proposes advancing a total of four soil borings at two sampling locations for collection of soil vapor samples (the soil vapor sampling locations will be determined based on the results of the other investigations at the site).

The details of the soil vapor sampling scope of work are as follows:

- a. Pre-field activities: As outlined in Section E.2.
- b. Review data from the well installation and the MIP and soil boring investigations to evaluate the presence, thickness and characteristics of a bioattenuation zone beneath the subject site. Adjust the soil vapor sample depths to include collection of vapor sample(s) within the bioattenuation zone.
- c. Advance two soil borings to a depth of 5 ft bgs (or adjusted depth) for collection of soil vapor samples. Drill two additional borings directly adjacent to the first two sampling locations. These two borings will be advanced to a depth of 10 ft bgs (or adjusted depth) to collect a second sample just above the vadose zone. Drilling will be conducted via a hand auger.
- d. Collect a total of four soil vapor samples from the soil borings in one-liter SUMMA canisters provided by McCampbell Analytical, Inc.
- e. Sample Collection: The SUMMA canisters are supplied with negative pressure, meaning the pressure inside the canister is less than the atmospheric pressure outside the canister. When the regulators are opened, soil vapor is drawn into the canister as long as the pressure inside the canister is negative. SCHUTZE & Associates, Inc. follows guidance documents from the EPA, DTSC and Air Toxics Ltd. Laboratory for soil vapor sampling procedures.¹³ In order to collect the sample, a porous tip is attached to a rigid tube, which is then inserted into the

EPA, *Standard Operating Procedure for the Standard / Well-Volume Method for Collecting a Ground-Water Sample from Monitoring Wells for Site Characterization*, 2002; and DTSC, *Representative Sampling of Groundwater for Hazardous Substances*, July 1995 (revised February 2008)

¹³ EPA, *Soil Gas Sampling*, SOP#: 2042, June 1, 1996; DTSC, *Advisory – Active Soil Gas Investigation*, March 3, 2010 (draft); and Air Toxics Ltd., *Guide to Air Sampling & Analysis*, 2007

boring at the desired sampling depth. Coarse sand is then poured into the boring to surround the tip with a porous media. Subsequently, bentonite clay is placed in layers into the boring and water is poured onto each bentonite layer to seal the drill hole and prevent vapor intrusion from above. The tube is connected to a stainless steel sample train, with a purge canister at the distant connection and the sample canister on the closer connection. Approximately three volumes of air will be purged from the tubing, using the following assumptions and calculations:

Sample Depth	Length of Tubing (ft)	Radius of Tubing (in)	1 Tubing Volume	3 Tubing Volume	Flow Rate	Purge Time
5 ft bgs (or adjusted depth)	10	0.125	0.0965	0.2894	200 ml/min	87 sec
10 ft bgs (or adjusted depth)	15	0.125	0.1447	0.4342	200 ml/min	130 sec

Five-micron in-line filters are used to prevent particulate matter from entering the canisters and to increase canister fill times. Vacuum gauges are used to measure the initial vacuum of the canister before sampling and the final vacuum upon completion. A second in-line vacuum gauge is used to measure the pressure differential. A helium shroud will be used as a leak-tracer.

- f. Collect one outdoor ambient air sample. This sample is collected so that concentrations of compounds potentially existing in soil can be compared to concentrations of compounds potentially existing in ambient outdoor air.
- g. Collect one equipment blank. This sample is collected by connecting a 10-foot section of the tubing and one filter tip to a one-liter SUMMA canister and by collecting an ambient air sample through this equipment. A minimum of three tubing volumes will be purged prior to collecting the ambient air sample.
- h. Close the regulators on the SUMMAs subsequent to collecting each sample; replace the brass caps on the intakes of the canisters; and place the canisters into the original shipping containers to be delivered to McCampbell Analytical, Inc. using chain-of-custody procedures.
- i. Request analysis of the soil vapor samples by EPA method TO-15 (standard VOCs + TPH-g). In addition, analyze the oxygen concentrations to further characterize the bioattenuation zone, if present.
- j. Backfill/waste disposal activities: As outlined in Section E.2.
- k. Prepare a summary report for ACDEH and the Water Board presenting the sampling results and including calculations of the potential risk to workers in nearby buildings from possible indoor vapor intrusion using the soil vapor analytical results and comparisons with applicable ESLs.¹⁴ The report will include discussion of the characteristics of the bioattenuation zone.

¹⁴ Environmental Screening Levels (San Francisco Bay Regional Water Quality Control Board)

- I. Discuss follow-up work with ACDEH and the Water Board prior to implementation. Potential follow-up investigations may include performing sub-slab sampling and/or an indoor air survey at the existing service building at the subject site. Results from these investigations would provide data relevant to potential indoor vapor intrusion issues for the existing building and for future structures that may be planned for the site if the property is redeveloped.

E.8 Sub-Slab Sampling

In order to investigate whether VOCs detected in soil vapor are present beneath the building slab of the existing service building at concentrations that could potentially impact the air quality inside the building, SCHUTZE & Associates, Inc. proposes to perform the following:

- a. Install one semi-permanent, sub-slab vapor monitoring port. This method allows for repeated sampling without the need for additional drilling or significantly interfering with everyday site use. When not in use, the monitoring port will be capped and flush with the floor surface so as not to disturb building occupants. The port will be installed by SCHUTZE & Associates, Inc. using a hammer drill. Once the port is installed, sub-slab vapor samples can be collected by simply connecting a 6-liter SUMMA canister to the port.
- b. Collect a sub-slab soil vapor sample. The SUMMA canister setup and sampling procedure corresponds to the soil vapor sampling methodology described in the preceding section.
- c. Request analysis of the sub-slab vapor sample by EPA method TO-15 (standard VOCs + TPH-g); also analyze the oxygen concentration.

E.9 Indoor Air Survey

SCHUTZE & Associates, Inc. proposes conducting an indoor air survey at the existing service building. The scope of work would be as follows:

- a. Conduct a site inspection, including a walkthrough of the service building, prior to the indoor air survey to locate areas where chemicals could possibly be released into the environment. The site inspection will include a utility corridor evaluation. The steps described by the CalEPA¹⁵/DTSC (2005) Decision Tree for Utility Corridors will be followed and SCHUTZE & Associates, Inc. will complete the CalEPA/DTSC (2005) Building Survey Form.
- b. Collect two 8-hour indoor air samples using individually certified, evacuated 6-liter stainless steel SUMMA canisters and flow regulators provided by McCampbell Analytical, Inc. The samples will be collected in open areas at face level (3-5 feet above the floor). One of the two samples may be placed near an existing potential vapor intrusion pathway, such as a crack in the building slab or

¹⁵ California Environmental Protection Agency

a drain (if present). During sampling, HVAC¹⁶ equipment (if present) should be in operation under normal conditions.

- c. Collect one 8-hour outdoor ambient air sample from an on-site location to provide background data at the time of the indoor air sampling. This sample will be placed outside of and upwind from the service building, as determined by the prevailing wind direction on the sampling day. This sample will also serve as the outdoor ambient air sample for the soil vapor survey (if possible).
- d. Request analysis of the indoor air samples by EPA method TO-15 (standard VOCs + TPH-g).

E.10 Remedial Over-Excavation

At the completion of the initial subsurface soil boring investigation, SCHUTZE & Associates, Inc. anticipates that over-excavation of soil in the vicinity of the former UST pit and/or the former pump island area will be required. Impacted soil in these areas may be acting as secondary sources of contamination. The final excavation extents will be determined after the results of the subsurface investigation are evaluated. Additional soil samples will be collected and analyzed to further assess the excavation extents, if necessary.

In the anticipated event of encountering groundwater during the excavation work, the groundwater will be sampled, then pumped out and a chemical oxidation enhancer will be added to catalyze the degradation of hydrocarbons in groundwater below the subject site and down-gradient.

Based on the currently available data, the proposed excavation activities and the anticipated sampling protocol are as follows:

- a. Pre-field activities:
 - Submit a site plan, work plan, contractor's credentials and excavation permit application to the City of Oakland. Obtain any other required permits.
 - Provide notification to ACDEH and the Water Board at least 48 hours prior to commencing work. Notify other agencies of the scheduled work, as required.
 - Prepare and implement a site-specific Health and Safety Plan.
 - Mark the proposed excavation locations. Subsequently, USA and a private utilities locator shall be contacted to clear the proposed excavation locations for underground utilities.
 - Mobilize all necessary equipment and materials to perform the required services.
- b. Saw cut the concrete/asphalt areas surrounding the proposed excavations and dispose of the material.

¹⁶ Heating, ventilation and air conditioning

- c. Over-excavate predetermined areas in the vicinity of the former UST pit and/or pump island. Place the excavated material into end dump trucks for disposal at an appropriate facility based on the waste characterization results.
- d. In the anticipated event of encountering groundwater during the excavation work, the groundwater will be sampled, then pumped out.
- e. Sample and pump out groundwater, if encountered during the excavation work. Apply a catalyzed persulfate oxidation enhancer (or similar compound, to be determined based on subsurface conditions). The analyses requested for the groundwater samples will be as outlined in Section E.6.
- f. Collect soil samples from the excavated areas. At least six soil samples will be collected from the base and the side walls of the excavations. The soil samples will be collected in brass or stainless steel sleeves sealed with Teflon septa and plastic caps.
- g. Submit the samples to McCampbell Analytical, Inc. to be analyzed. The analytes will be adjusted based on the results of the previous investigations and the identified COCs, but are anticipated to include:
 - TPH-g, -d, -ss and -mo (EPA Method 8015B/m);
 - VOCs, incl. MBTEX, naphthalene and fuel oxygenates (EPA Method 8260B);
 - LUFT 5 Metals (EPA Method 6010/200.8); and
 - PAHs (EPA Method 8100 mod.).

Soil analytical results will be reported as dry weight. Any samples not submitted will be placed on hold for future analyses, if needed.

- h. Additional soil may be excavated and/or additional soil samples may be collected based on the hydrocarbon concentrations detected and the requirements of ACDEH and the Water Board.
- i. Backfill the excavated areas with clean backfill material and compact to the requirements of the City of Oakland.
- j. Replace the concrete/asphalt removed from the excavation areas.

E.11 Quality Assurance and Quality Control (QA/QC)

SCHUTZE & Associates, Inc. will collect QA/QC samples to demonstrate the reliability and defensibility of the data. Field QC samples will include duplicate samples, trip blanks, equipment rinseate blanks and source water blanks, as required. Field duplicates will be collected at a rate of one duplicate per ten soil, soil gas and/or groundwater samples or, at a minimum, one per medium.

Data deliverables will go through data validation before being incorporated in report tables, figures or discussions of results.

E.12 Conceptual Site Model (CSM)

Following completion of the investigations outlined in this Work Plan, SCHUTZE & Associates, Inc. will prepare a CSM for the site. Some of the elements required for the CSM will have already been addressed by the results of these investigations. The proposed CSM will contain the following sections:

CONCEPTUAL SITE MODEL

- Physical Site Setting
- History of Use
- Environmental Setting
 - Regional & Site Geology
 - Hydrogeology
 - Surface Water Bodies
- Prior Investigations
- Release History
 - Potential Source(s) of Releases
 - Potential Contaminants of Concern (COC)
- Proposed Remediation Criteria
- Nature and Distribution of Impacts
- Contaminant Migratory Pathways
 - Naturally Occurring Pathways
 - Anthropogenic Pathways
 - Receptor and Exposure Pathway Analysis
 - Potentially Exposed Populations
 - Exposure Pathways
- Fate and Transport of Contaminants of Concern

We are prepared to commence work immediately upon acceptance of the subject site into the USTCF and approval of the Work Plan by the client, ACDEH and the Water Board.

We look forward to working with you on this project.

Cordially,
SCHUTZE & ASSOCIATES, INC.



Jan H. Schutze, P.G., M.Sc.
President

Attachment: Figure 1 – Site Vicinity Map
 Figure 2 – Site Map
 Figure 3 – Proposed Soil Boring & Monitoring Well Locations



44358 S. GRIMMER BOULEVARD, FREMONT, CA 94538 ♦ TELEPHONE (510) 226-9944 ♦ FAX: (510) 226-9948

October 16, 2017
Project No. SCS557.4
Geotracker Global ID T10000009404

Ms. Irene Trimble
6360 Beach Drive SW
Seattle, WA 98136

Reference: Warehouse Property
1647 International Boulevard
Oakland, Alameda County, California

Subject: Perjury Statement for Data Gap Investigation Work Plan and Initial
Conceptual Site Model

To Alameda County Environmental Health:

PERJURY STATEMENT

I declare, under penalty of perjury, that I have read the below-referenced document and the information and/or recommendations contained in this document is true and correct to the best of my knowledge.

- SCHUTZE & Associates, Inc., October 16, 2017, *Data Gap Investigation Work Plan and Initial Conceptual Site Model, Warehouse Property, 1647 International Boulevard, Oakland, California, Project No. SCS557.4*

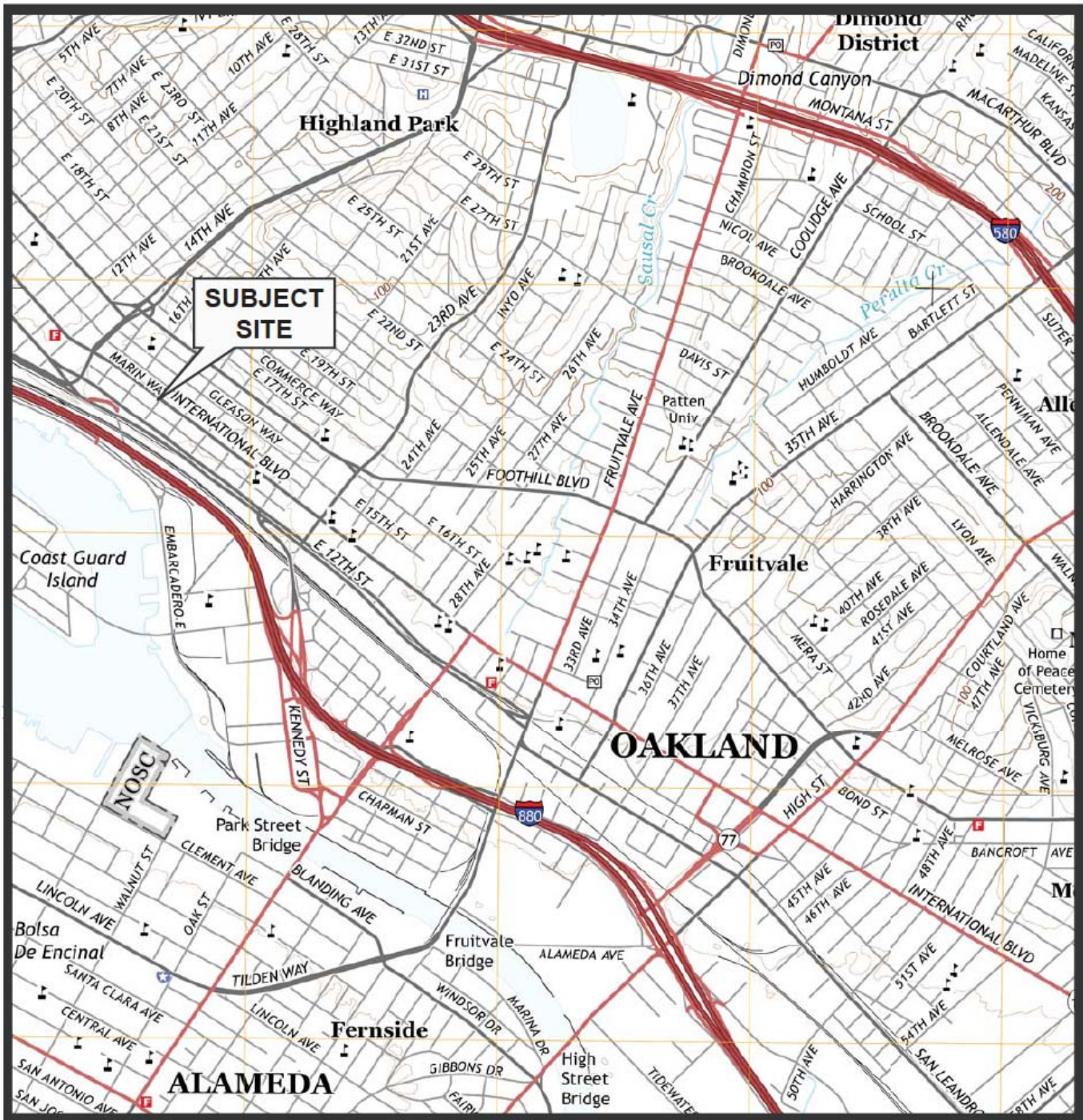
Signed,

RP Signature

RP Printed Name

10/17/17
Date

FIGURES



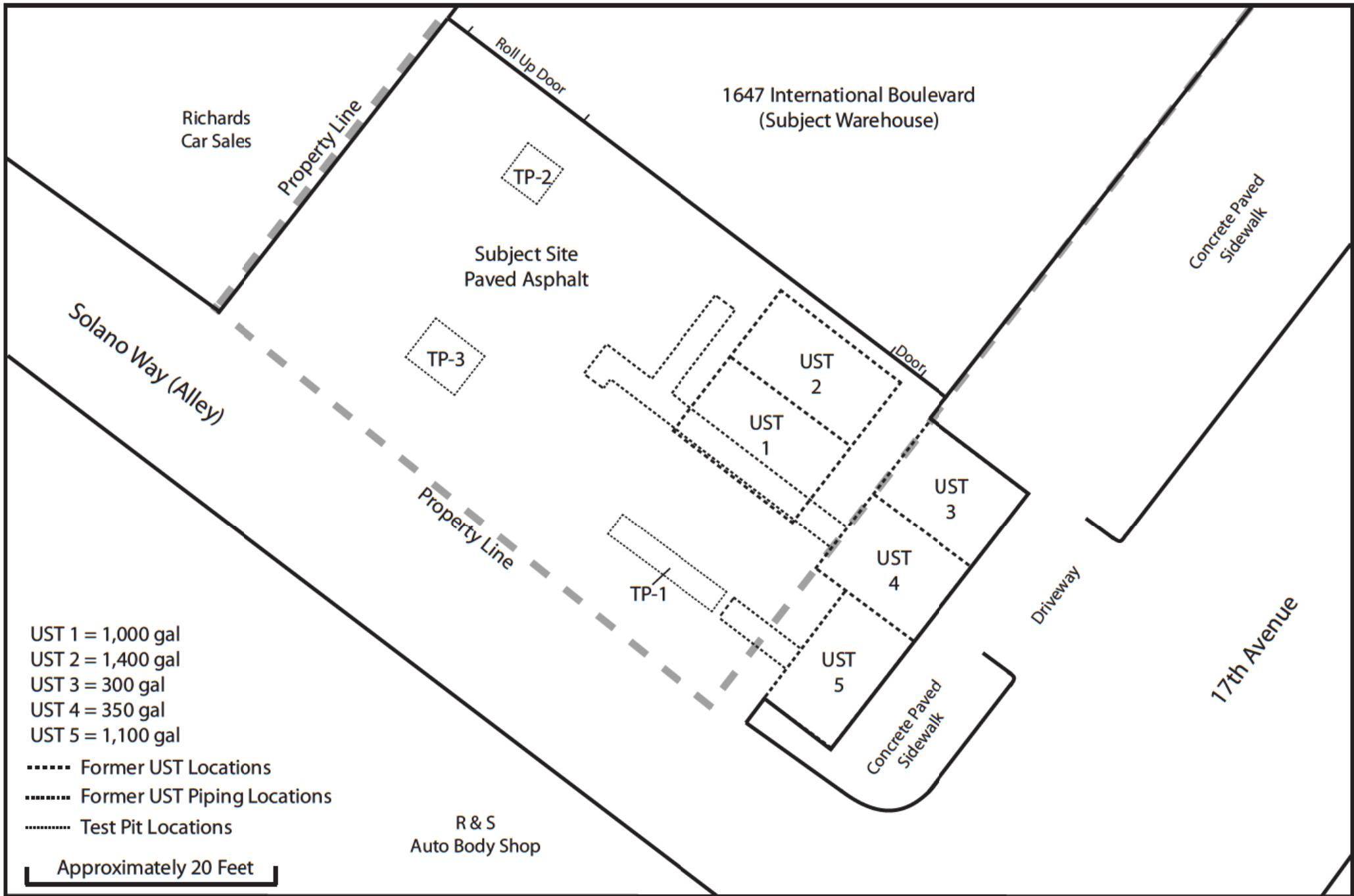
SITE VICINITY MAP
1647 International Boulevard
Oakland, California



SCHUTZE & Associates, Inc.
 Project: SCS557.2-3
 October 2016

Source: USGS
 Oakland East 7.5 Quad
 2015 (scale 1:24,000)

Figure 1




SITE MAP WITH TEST PIT AND FORMER UST AND PIPING LOCATIONS
1647 INTERNATIONAL BOULEVARD
OAKLAND, CALIFORNIA

SCHUTZE & Associates, Inc.
 Project No. SCS557.4

FIGURE 2
 October 2017

APPENDIX A

Conceptual Site Model

Site Conceptual Model (10/16/2017)
1647 International Boulevard, Oakland, Alameda County, California

CSM Element	DESCRIPTION	Graphics; Reference	Data Gap Item #	Resolution
Site Description	<p>Site Location The Site address is 1647 International Boulevard, Oakland, CA. It is located on the western corner of the intersection of International Boulevard and 17th Avenue.</p> <p>Site Description The subject site is currently developed with one warehouse building. Adjacent to the property are: a car dealership to the northwest; International Boulevard to the northeast; an apartment complex to the southeast (across 17th Avenue); and an auto body shop to the southwest (across Solano Way). The property is approximately 1,050 feet (ft) northeast of the Oakland Estuary.</p> <p>Site History The subject property was occupied by Roto-Rooter, a plumbing company, until 1974. Since then, a metal fabricating company has occupied the site.</p>	<p>1) Site Vicinity Map; Schutze & Associates, Inc.</p> <p>2) Site Topographic Map; U.S.G.S. 7.5-Minute Topographic Map, Oakland West Quadrangle, Scale: 1:24,000</p>	1) Detailed site history, on-site operations, hazardous waste storage locations, etc.	Perform a Phase I site investigation
Geology	<p>Regional The City of Oakland is located in California's Central Coast Ranges Geomorphic Province. This region is characterized by a series of parallel, northwesterly trending mountain chains and valleys consisting primarily of Mesozoic and Cenozoic sedimentary rocks.</p> <p>A depression containing the San Francisco Bay separates the Peninsular Ranges from the East Bay Ranges. Most of Oakland lies in this depression and Oakland is underlain by Holocene alluvial fan deposits, dune sands deposited during the Holocene and artificial fill that has been laid down over estuarine mud (Bay Mud).</p> <p>Site As described by Schutze & Associates (2016), the lithology encountered in the subsurface beneath the Site during the exploratory test pits consisted of predominantly a light brown</p>	<p>3) Hydrologic Region Map; Department of Water Resources, CWP 2013</p> <p>4) East Bay Plain Subbasin Description; CA Department of Water Resources, <i>Bulletin 118</i></p>	2) The stratigraphic units of the aquifer are not characterized.	Perform 8 soil borings that are greater than 15 ft deep bgs

CSM Element	DESCRIPTION	Graphics; Reference	Data Gap Item #	Resolution
	<p>sandy clay. The primary stratigraphic units at the Site are listed below, with the approximate ranges of depth each unit was encountered across the site:</p> <ul style="list-style-type: none"> • 0 to 2 ft below ground surface (bgs): light brown, sandy clay fill • 2 to 14 ft bgs: dark brown clay with fine sand <p>Groundwater Groundwater was encountered at the site in sample B-10-W at approximately 14 ft bgs.</p> <p>Regional groundwater in the area generally follows topography. The groundwater flow direction in the vicinity of the Site is to the southwest toward San Francisco Bay.</p> <p>Schutze & Associates reviewed groundwater investigation reports from the Former F&M Auto Service UST Site at 1839 Foothill Boulevard, approximately 1,100 ft east of the Site. The depth to water in the groundwater monitoring wells at the F&M Site ranged from approximately 5.05 to 11.45 ft bgs (approximately 41.5 to 48 ft above mean sea level (MSL)) elevation).</p>		3) There are no monitoring wells on site so the local groundwater depth, flow direction, and gradient are not known.	Drill at least three monitoring wells on the property.
Surface Water Bodies	The closest surface water body is the San Francisco Bay, which is approximately 1,200 ft southwest of the site.			
Nearby Wells	The State Water Resources Quality Control Board (RWQCB) Geotracker GAMA website provides the locations of wells proximal to the site. The nearest wells within a 2,000-ft radius of the site are located at the F&M site (4 wells) and at 2200 East 12 th Street (2 wells).	5) Geotracker GAMA map ; State Water Resources Control Board	4) No identified up-gradient or down-gradient wells to the site.	Well survey from Alameda County Public Works Agency.
Release Source and Volume	<p>The five former underground storage tanks (USTs) are considered the primary release sources at the site.</p> <p>Tank #1: 1,000-gallon gasoline tank removed in good condition with no visible holes. Black and green-stained soil and hydrocarbon odors were observed on all sides of the tank pit.</p> <p>Tank #2: 1,400-gallon fuel/heating oil tank in poor condition with visible holes. Black and green-stained soil and hydrocarbon odors were observed on all sides of the tank pit.</p>	6) Site Map ; Schutze & Associates, Inc. 7) Photos of Tank Removals ; Schutze &	5) Estimate volume of leakage and extent of contamination.	Sample groundwater and soil borings, run soil test to estimate hydraulic properties.

CSM Element	DESCRIPTION	Graphics; Reference	Data Gap Item #	Resolution
	<p>Tank 3: 300-gallon tank in poor conditions with visible holes. Green-staining and hydrocarbon odors were observed in the tank pit on all sides.</p> <p>Tank 4: 350-gallon upright conical tank. Removed in good condition with no visible holes. Staining and hydrocarbon odor likely came from adjacent Tank 3.</p> <p>Tank 5: 1,100-gallon tank in good condition with no visible holes. There was oxidation staining from 1.5 to 2.5 ft bgs and hydrocarbon odors from 2.5 to 14 ft bgs.</p> <p>The three tanks were located beneath a concrete-paved sidewalk and are believed to be part of a dry-cleaning set-up from a previous occupant. The three tanks were interconnected with pipes that allowed fluids to flow from one tank to the next. The fill pipes for the fourth and fifth USTs were discovered cemented in place, indicating their use was altered at some point in the past. Due to the high concentrations of diesel in the contents of all three tanks and the soil samples from beneath the USTs, it is likely that the USTs were later used for storing diesel and/or other hydrocarbons.</p> <p>Unauthorized release was discovered on March 2, 2016. The volume of the release is not known.</p>	Associates, Inc.		
LNAPL	<p>There are currently no groundwater monitoring wells located at the Site. Although light non-aqueous phase liquids were not observed during grab groundwater sampling activities, concentrations of TPH-g (8,000 µg/L) and TPH-d (52,000 µg/L) in sample B-10-W located at former Tank #2 may indicate the potential for the presence of light-non-aqueous phase liquid (LNAPL) to be present.</p>	8) Analytical lab reports ; McCampbell Analytical, Inc.	3) <i>see above.</i>	<i>See item #3 above.</i>
Source Removal Activities	<p>Soil that was excavated from the UST pits during tank removal activities were stockpiled on 6-MIL polyethylene liners. Clean imported fill was used to backfill tank pits #1 and #2. Tank pits #3 though #5 were lined with 6-MIL polyethylene liners and backfilled with the stockpiled soil, upon approval by the Alameda County Environmental Health inspector, to be later removed during an over-excavation. The soil was then compacted (compaction testing was not performed) with a</p>		6) Contaminated soil used to backfill excavation pits.	Over-excavate the soil backfill until soil is not stained or have hydrocarbon odor.

CSM Element	DESCRIPTION	Graphics; Reference	Data Gap Item #	Resolution
	<p>compacter wheel.</p> <p>The stockpiled soil was visibly stained and had a hydrocarbon odor. A four-point composite sample (SP-1.2,2.2,3.2,4.2) from the fifth UST pit contained concentrations of TPH-g of 530 mg/kg and TPH-ss of 410 mg/kg. There have been no other source removal activities at the Site.</p>			
Contaminants of Concern	<p>Contaminants of concern (COCs) are the primary substance(s) that may invoke human health risks at a particular site. Based on the historical investigations at the Site, naphthalene and lead are present above their respective Tier 1 ESLs in the tank pits, immediately surrounding the former USTs.</p> <p>Groundwater may be impacted at the site since various TPH compounds, VOCs and metals have also been detected.</p>	9) Table 2, Data Gap Work Plan ; Schutze & Associates, Inc.	5) <i>see above.</i>	Drill monitoring wells and review list of COCs with each quarterly monitoring event
Petroleum Hydrocarbons in Soil	<p>Soil samples from the base of the tank pits generally exceed the Tier 1 ESL for TPH-g, TPH-ss and TPH-d. The maximum concentrations for TPH-g, TPH-ss and TPH-d are 4,800 mg/kg at Tank #5, 5,900 mg/kg at Tank #4, and 3,900 mg/kg at Tank #1, respectively. Pipe joints are also a primary area of concern, as all three soil samples taken from beneath pipe joints exceeded the ESL for TPH-g.</p> <p>The lateral extent of contamination exceeding the screening criteria appears to be limited to the area around the former USTs. Test pits #2 and #3 do not exceed the ESLs for petroleum hydrocarbons and are located to the northwest of the property. Test pit #1 was dug adjacent to pipe outlets from Tanks #5 and has concentrations of 260 mg/kg for TPH-g and 200 mg/kg for TPH-ss, both of which are considerably lower than the values recorded for the base of pit and pipe joints.</p>	10) Summary analytical tables ; Schutze & Associates, Inc.	7) Determine if soil poses a risk as a long-term secondary source.	Drill borings and collect soil and groundwater samples.
Petroleum Hydrocarbons in Groundwater	<p>One groundwater sample (B-10-W) was collected at Tank #2 and was analyzed for petroleum hydrocarbons. Concentrations of TPH-g (8,000 µg/L), TPH-ss (15,000 µg/L), and TPH-d (52,000 µg/L) exceeded their respective screening criteria. There are no permanent monitoring wells located at the Site. As such, the groundwater flow direction and the extent of contamination across the Site cannot be evaluated.</p>		3) <i>see above.</i>	<i>See item #3 above.</i>

CSM Element	DESCRIPTION	Graphics; Reference	Data Gap Item #	Resolution
Risk Evaluation	<p>The Site was formerly occupied by a plumbing company and is currently occupied by a metal fabricating company. The site contains a one-story warehouse with a paved asphalt lot on the southern corner.</p> <p>The CSM identifies the primary source, impacted media, release mechanism(s), secondary source(s), exposure route(s), potential receptors (residential, commercial/industrial worker, and construction worker), and an assessment of whether the exposure route/pathway is potentially complete, incomplete, or insignificant. Potential exposure routes that have been evaluated include incidental ingestion, dermal contact, dust inhalation, and vapor inhalation.</p> <p>For direct contact with contaminated soil, the exposure route for incidental ingestion, dermal contact and dust inhalation for a residential and commercial/industrial worker are considered incomplete. These exposure routes for the construction worker are considered a potentially complete pathway, depending on the nature of the work. For volatilization from soil to outdoor air, vapor inhalation is the potential exposure pathway. Given dilution effects that take place outdoors, this exposure pathway is considered incomplete for all three potential receptors. For indoor air, this exposure pathway is considered potentially complete for all three potential receptors.</p> <p>For leaching of contaminants from soil to groundwater, the ingestion and dermal pathways for groundwater are considered incomplete, except for the construction worker, as shallow groundwater is not utilized as a drinking water source at the Site. For the construction worker, incidental ingestion and dermal contact is a potentially complete pathway. For volatilization from groundwater to outdoor air, the exposure pathway is considered insignificant due to dilution effects that take place outdoors. For indoor air, volatilization from groundwater to indoor air is considered a potentially complete pathway.</p>		8) Determine if soil vapor poses a health risk for indoor and outdoor air.	Conduct soil vapor, sub-slab and indoor air surveys

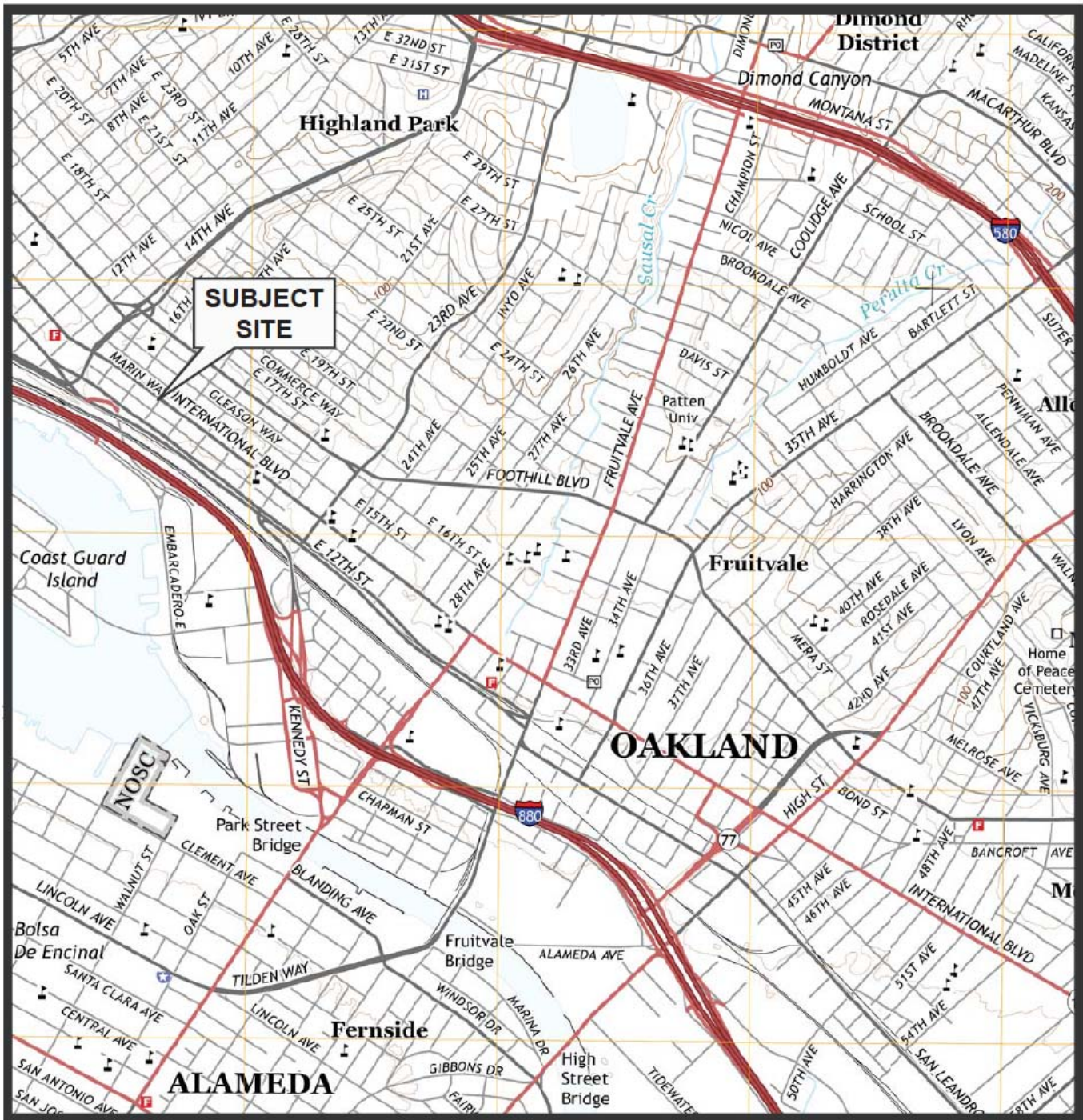
**Data Gaps Summary and Proposed Investigation
1647 International Boulevard, Oakland, Alameda County, California**

Item	Data Gap Description	Proposed Investigation	Rationale	Analyses
1	Detailed site history, on-site operations, hazardous waste storage locations, etc.	<p>Perform a Phase I site investigation. It will consist of:</p> <p>1) A visual reconnaissance.</p> <p>2) Interviews with selected individuals knowledgeable of the site (i.e., property owners/managers) to develop an understanding of past and present site use.</p> <p>3) A records examination.</p> <p>4) A review of relevant local, state and federal regulatory agency databases.</p>	<p>1) Identify apparent or potential indications of adverse environmental impacts from this property and adjacent sites.</p> <p>2) Develop an understanding of past and present site use.</p> <p>3) Establish the history of the site by reviewing available records at local agencies: building/planning department, department of public works and department of health; historical aerial photographs; Sanborn Fire Insurance maps, and historical city directories.</p> <p>4) Identify records of sites or facilities where there has been a release of hazardous substances which may cause or contribute to a release or threatened release of hazardous substances at the subject property, within a search radius of up to one-mile around the subject properties.</p>	N/A
2	The stratigraphic units of the aquifer are not characterized.	<p>At least eight soil borings will be drilled to a total depth of 25 ft bgs.</p> <p>Borings will be continuously sampled with a Geoprobe direct push system, using a 2.25-inch outer diameter probe rod and a 1.5-inch acetate liner inserted to the bottom of the outer casing. Borings will be logged using the Unified Soil Classification System.</p> <p>Grab groundwater samples will be collected from the first encountered</p>	<p>Soil borings will be located as shown in the work plan Figure 11:</p> <p>B1 will be drilled to the southwest of Tank #1 to determine the extent of contamination.</p> <p>B2 will be located to the west of Tank #1 to determine the extent of contamination.</p> <p>B3 will be located to the northwest of Tank #2 to determine the potential presence of cross-gradient</p>	<p>Petroleum hydrocarbons (EPA SW8015B/m), VOCs (EPA SW8260B), LUFT 5 Metals (E200.8/6020), PAH (EPA 8100 mod.)</p>

		<p>groundwater at each soil boring.</p> <p>One deep soil boring (B8) will be drilled to examine the vertical extent of contamination.</p>	<p>contamination.</p> <p>B4 will be drilled between Tanks #2 and #3 to provide a theoretical maximum to contamination.</p> <p>B5 will be located to the south of Tank #5 on the sidewalk to characterize down-gradient contamination.</p> <p>B6 will be drilled to the north of Tank #3 on the sidewalk to provide possible background concentrations and to determine if there is up-gradient contamination.</p> <p>B7 will be located east of Tank #5 to determine the extent of contamination and possible cross-gradient contamination.</p> <p>B8 will be located on Solano Way to determine the extent of vertical and down-gradient contamination.</p>	
3	<p>There are no monitoring wells on site so the local groundwater depth, flow direction, and gradient are not known.</p>	<p>Instead of performing soil borings, construct 2" monitoring wells in the same locations.</p>	<p>Monitoring wells will be located as shown in the work plan Figure 11:</p> <p>MW-1 will be located to the south of Tank #1 to monitor down-gradient contamination.</p> <p>MW-2 will be installed to the west of Tank #1 to monitor the western extent of contamination.</p> <p>MW-3 will be drilled east of Tank #5 to monitor the eastern extent of contamination.</p> <p>MW-4 will be drilled south of Tank #5 to monitor the downgradient extent of contamination.</p>	<p>Petroleum hydrocarbons (EPA SW8015B/m), VOCs (EPA SW8260B), LUFT 5 Metals (E200.8/6020), PAH (EPA 8100 mod.)</p>

4	No identified up-gradient or down-gradient wells to the site.	Obtain a well survey from Alameda County Public Works Agency.	Identify other monitoring wells in the site vicinity to help determine groundwater flow direction and if contaminants may be coming from another plume.	N/A
5	Volume of leakage and extent of contamination are not identified.	Excavate the contaminated soil and calculate its volume. From drilling, estimate the porosity of the soil and calculate a volume of the contaminants.	Determine the amount of contamination in the soil and groundwater to see if further remediation is needed.	Petroleum hydrocarbons (EPA SW8015B/m), VOCs (EPA SW8260B), LUFT 5 Metals (E200.8/6020), PAH (EPA 8100 mod.)
6	Pits were backfilled with contaminated soil.	Over-excavate the backfilled pits and continue excavating until soil staining and hydrocarbon odors are no longer apparent.	Attempt to remove as much contaminated soil as possible since it acts as a secondary source.	N/A
7	Determine if soil poses a risk as a long-term secondary source.	After over-excavation, determine the extent of contamination left in the soil and groundwater by drilling soil borings and grab groundwater samples.	Determine if site can be closed under the Low-Threat Underground Storage Tank Case Closure Policy.	N/A
8	Determine if soil vapor poses a health risk for indoor air.	<p>Drill four borings to depths of 5 ft bgs and 10 ft bgs by hand auger at SV1 and SV2, similar to locations of soil borings B1 and B3 (Figure 11).</p> <p>Drill and install one semi-permanent sub-slab vapor monitoring port.</p> <p>Conduct an indoor air survey that consists of two indoor air samples and an ambient air sample.</p>	<p>Each boring pair will have a 5 ft and 10 ft boring to measure the vertical extent of soil gas. Four soil vapor samples will be collected in one-liter SUMMA canisters.</p> <p>The port will be installed using a hammer drill. This will allow for repeated sampling without the need for additional drilling. Samples will be collected in 6-liter SUMMA.</p> <p>Collected three 8-hour indoor air samples using 6-liter SUMMA canisters with flow regulators. Two sample will be collected inside the warehouse and the other will be collected outside, with its location based on the prevailing wind direction.</p>	EPA method TO-15 (Standard VOCs + TPH-g)

FIGURES AND ATTACHMENTS



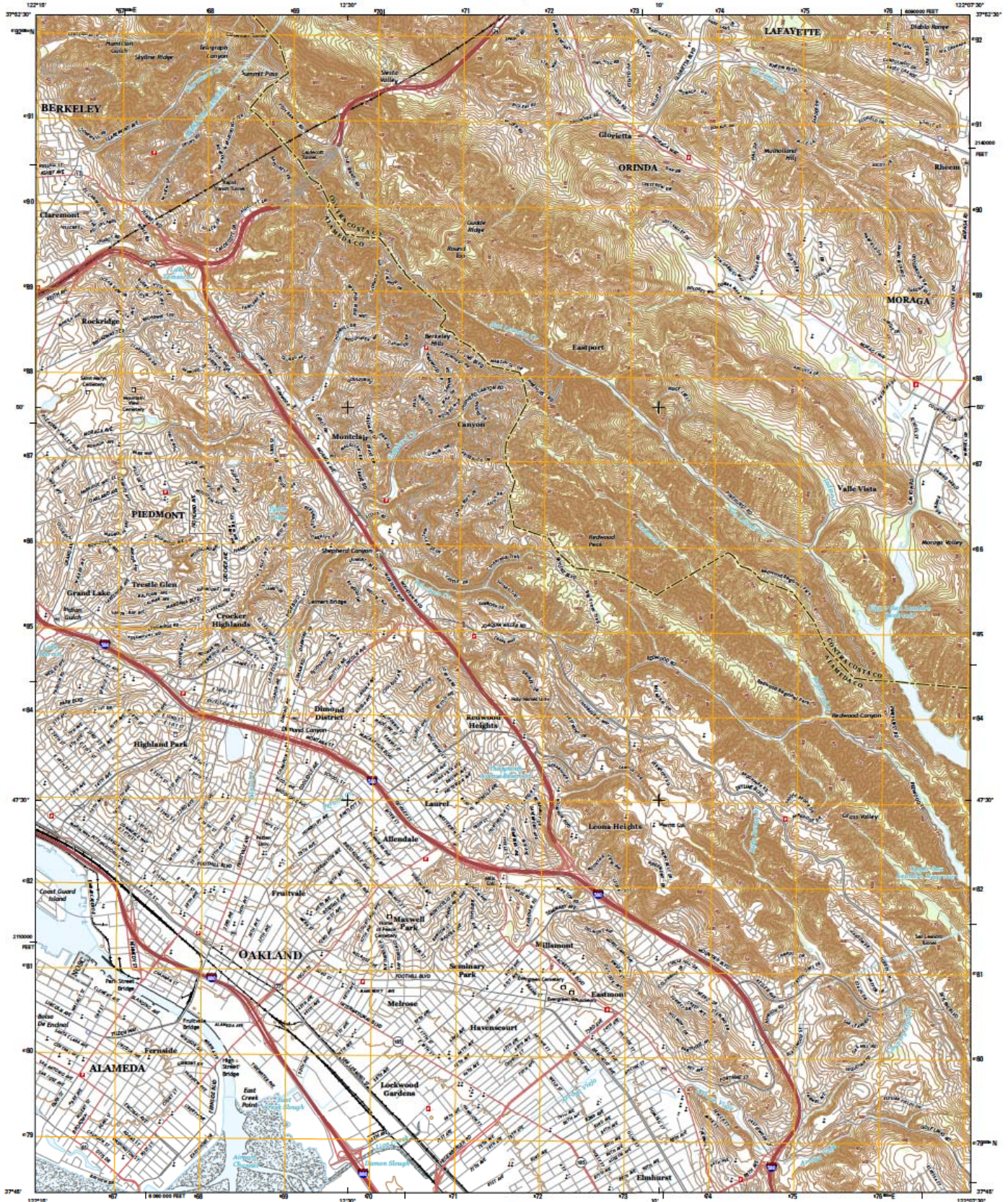
SITE VICINITY MAP
1647 International Boulevard
Oakland, California



SCHUTZE & Associates, Inc.
 Project: SCS557.2-3
 October 2016

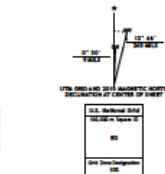
Source: USGS
 Oakland East 7.5 Quad
 2015 (scale 1:24,000)

Figure 1



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84), International and
1 000-meter grid: Universal Transverse Mercator, Zone 10,
18 000-foot offset, California Coordinate System of 1983 (CCS83)
This map is not a legal document. Boundary lines may be
generated for this map scale. Private lands with government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery: 2010, 2012
Roads: 2010, 2012
Hydrography: National Hydrography Dataset, 2012
Contours: National Elevation Dataset, 2012
Boundaries: Multiple sources, see metadata for the 1972-2015
Public Land Survey System. BLM, 2011



SCALE 1:24 000

1 000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL: 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1983

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is available at
http://www.usgs.gov

An inset map of California showing the location of the Oakland East quadrangle in the eastern part of the state. Below it is a legend for road classification and other features.

ROAD CLASSIFICATION

- Expressway
- Secondary Hwy
- Ramp
- Interstate Route
- Local Connector
- Local Road
- RWD
- US Route
- State Route

Legend

- 1 Richmond
- 2 Richmond Valley
- 3 Richmond Canyon
- 4 Oakland Road
- 5 Oak Township Bridge
- 6 Hayward Point
- 7 Oak Meadows
- 8 Hayward

OAKLAND EAST, CA
2015

Alluvial Groundwater Basins and Subbasins within the San Francisco Bay Hydrologic Region



Santa Clara Valley Groundwater Basin, East Bay Plain Subbasin

- Groundwater Basin Number: 2-9.04
- County: Alameda, Contra Costa
- Surface Area: 77,800 acres (122 square miles)

Basin Boundaries & Hydrology

The East Bay Plain Subbasin is a northwest trending alluvial plain bounded on the north by San Pablo Bay, on the east by the contact with Franciscan Basement rock, on the south by the Niles Cone Groundwater Basin. The East Bay Plain Basin extends beneath San Francisco Bay to the west.

Numerous creeks including San Pablo Creek, Wildcat Creek, San Leandro Creek, and San Lorenzo Creek flow from the western slope of the Coast Ranges westward across the plain and into the San Francisco and San Pablo bays (CRWQCB 1999). Average precipitation in the subbasin ranges from about 17 inches in the southeast to greater than 25 inches along the eastern boundary, most of which occurs between the months of November and March.

Hydrogeologic Information

Water Bearing Formations

The East Bay Plain subbasin aquifer system consists of unconsolidated sediments of Quaternary age. Deposits include the early Pleistocene Santa Clara Formation, the late Pleistocene Alameda Formation, the early Holocene Temescal Formation, and Artificial Fill. The cumulative thickness of the unconsolidated sediments is about 1,000 feet (CRWQCB 1999). The average specific yield of the basin was calculated to be about 6% (DWR 1994).

Early Pleistocene Santa Clara Formation. The Santa Clara Formation consists of alluvial fan deposits inter-fingered with lake, swamp, river channel, and flood plain deposits. The formation ranges from 300 to 600 feet thick (CRWQCB 1999).

Late Pleistocene Alameda Formation. The Alameda Formation includes a sequence of alluvial fan deposits bounded by mud deposits on top and bottom of the formation. The formation was deposited primarily in an estuarine environment and ranges from 26 to 245 feet thick (CRWQCB 1999).

Early Holocene Temescal Formation. The Temescal Formation is an alluvial deposit consisting primarily of silts and clays with some gravel layers. The formation ranges from 1 to 50 feet thick (CRWQCB 1999).

Artificial Fill is found mostly along the bay front and wetlands areas and is derived primarily from dredging as well as quarrying, construction, demolition debris, and municipal waste. The fill ranges from 1 to 50 feet with the thickest deposits found nearer the Bay (CRWQCB 1999).

Groundwater Level Trends

Historic water levels in the deep (more than 500 feet) aquifer in the basin have varied between -10 to -140 feet mean sea level since the early 1950's. The low water level was reached in about 1962. Shallower aquifers have a much less pronounced water level decline. The historical low water level for aquifers at a depth of about 250 feet bgs since 1950 has been about -30 feet msl. Water levels rose about 5 feet per year between 1965 and 1980. Water levels have been rising continuously since then, but at a less rapid rate. As of 2000 water levels are very near surface in all aquifers.

Groundwater Storage

Groundwater Storage Capacity. Based on an analysis of 357 well logs, DWR (1994) calculated a total storage capacity in the subbasin of 2,670,000 acre feet. The analysis made calculation of storage for successive slices of the subbasin starting at a surface elevation of 350 above MSL and extending to a depth of 1,000 feet below MSL. The calculated average specific yield was 6%.

Groundwater in Storage. Based on 1993 groundwater elevations, DWR (1994) calculated to available storage to a depth of 1,000 below MSL at about 2,500,000 acre feet. However, due to concern over potential adverse impacts such as sea water intrusion, another calculation for the volume of water stored in sediments above MSL was determined at about 80,000 acre feet for 1993 (DWR 1994).

Groundwater Budget (Type A)

Groundwater extraction in the basin remained fairly constant over the last several years. The following budget is based on two studies by Muir (1993 and 1996). It is representative of current conditions in the subbasin. Annual basin inflows include natural recharge of 9,900 af, artificial/incidental recharge of 9,900 af, applied water recharge of 200 af, and subsurface inflow of 200 af. Annual basin outflows include urban extraction of 2,440 af, agricultural extraction of 910 af, and subsurface outflow of 13,500 af.

Groundwater Quality

Characterization. Calcium bicarbonate type groundwater occurs mostly in the upper 200 feet of the subsurface, while sodium bicarbonate waters are common from about 200 to 1,000 foot depths (Ken Muir personal communication 2001). Data from 29 wells in the subbasin indicates that TDS in the shallow zone ranges from about 360 to 1,020 mg/l, while TDS from 200 to 1000 feet below ground surface ranges from 310 to 1,420 mg/l from 13 wells (Muir 1997). TDS exceeded 500 mg/l in 15 of the 29 sampled wells.

Impairments. The San Francisco Regional Water Quality Control Board (1999) identified 13 distinct locations with as areas of major groundwater pollution. These were identified as having plumes of contamination greater than 1,000 feet in length. Most contamination is due to release of fuels and solvents. Most contamination appears to be restricted to the upper 50 feet of the subsurface (RWQCB 1999).

Water Quality in Public Supply Wells

Constituent Group ¹	Number of wells sampled ²	Number of wells with a concentration above an MCL ³
Inorganics – Primary	5	0
Radiological	4	0
Nitrates	5	0
Pesticides	3	0
VOCs and SVOCs	3	0
Inorganics – Secondary	5	2

¹ A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003)

² Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

³ Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Production characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: 100 – 1,000	Average: unknown (Muir pers comm 2001)
	Total depths (ft)	
Domestic	Range: 32-525	Average: 206 (20 Well Completion Reports)
Municipal/Irrigation	Range: 29-630	Average: 191 (62 Well Completion Reports)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
EBMUD	Groundwater levels	29 wells semi-annually
Alameda County FC & WCD	Major ion	16 wells (9 in odd numbered years, 7 in even years)
Department of Health Services	Coliform, nitrates, mineral, organic chemicals, and radiological.	7 wells as required in Title 22, Calif. Code of Regulations

Basin Management

Groundwater management:	Entities in the basin have had preliminary discussions on groundwater management, but there is currently no compelling need and no groundwater management plans or ordinances are currently underway.
Water agencies	
Public	East Bay MUD, Alameda County FC & WCD.
Private	

References Cited

- California Department of Water Resources. 1994. Ground Water Storage Capacity of a Portion of the East Bay Plain, Alameda County, California. 35 p.
- California Regional Water Quality Control Board. 1999. East Bay Plain Groundwater Basin Beneficial Use Evaluation Report – Alameda and Contra Costa Counties, CA. 100 p.
- Muir, K.S. 1993a. Geologic Framework of the East Bay Plain Groundwater Basin – Alameda County, California. 37 p.
- _____. 1993b. Groundwater Recharge in the East Bay Plain Area, Alameda County, California.
- _____. 1996a. Groundwater Discharge in the East Bay Plain Area, Alameda County, California.
- _____. 1996b. Groundwater Yield of the East Bay Plain Area, Alameda County, California.

Errata

Changes made to the basin description will be noted here.

Additional References

California Department of Water Resources. 1960. Intrusion of Salt Water into Ground Water Basins of Southern Alameda County. Bulletin No. 81. 44p.

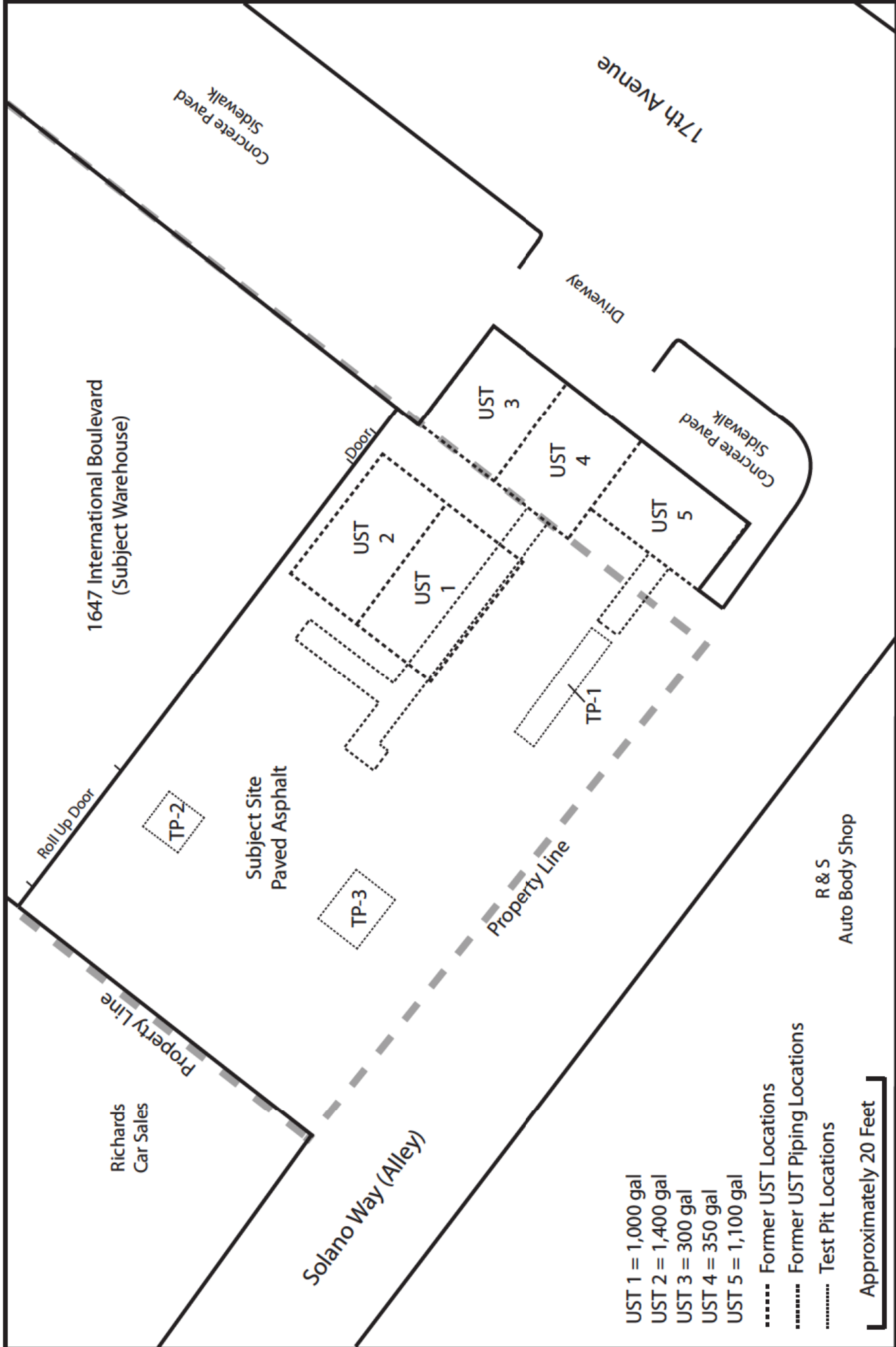
_____. 1963. Alameda County Investigation. Bulletin No. 13. 196 p.

CH2M Hill. 2000. Regional Hydrogeologic Investigation South East Bay Plain.

Figuers, S. 1998. Groundwater Study and Water Supply History of the East Bay Plain, Alameda and Contra Costa Counties, CA. 90 p.

Hickenbottom, K. and K.S. Muir. 1988. Geohydrology and Groundwater-Quality Overview, of the East Bay Plain Area, Alameda County, California – 205 (J) Report. 83 p. and Appendix.

Todd Engineers. 1986. Reconnaissance of Groundwater Resources for the EBMUD Service Area. 62 p.



- UST 1 = 1,000 gal
- UST 2 = 1,400 gal
- UST 3 = 300 gal
- UST 4 = 350 gal
- UST 5 = 1,100 gal

- Former UST Locations
- Former UST Piping Locations
- Test Pit Locations

Approximately 20 Feet



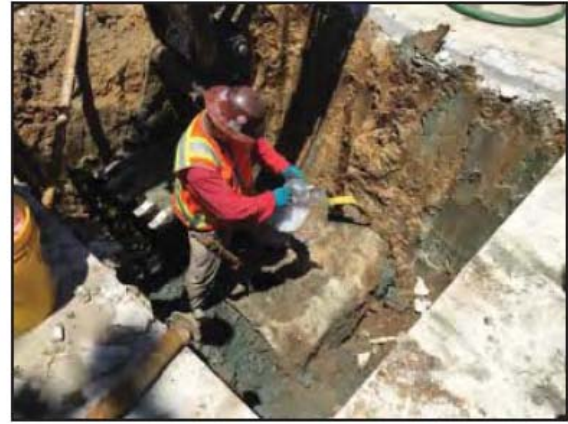
SITE MAP WITH TEST PIT AND FORMER UST AND PIPING LOCATIONS
1647 INTERNATIONAL BOULEVARD
OAKLAND, CALIFORNIA

SCHUTZE & Associates, Inc.
 Project No. SCS557.2-3

FIGURE 2
 October 2016



Photograph 1: A saw was used to cut the concrete slab above the third and fourth USTs. The excavation area had previously been cleared for utilities by USA.



Photograph 2: Dry ice was added to the tank to lower the oxygen level and Lower Explosive Levels (LELs).



Photograph 3: Excavated soil was stockpiled on a 6-MIL polyethylene liner. Green hydrocarbon staining is visible in the stockpiled soil.



Photograph 4: Residual soil was scraped off of the third UST using a shovel to observe its condition.



Photograph 5: The third UST was found in poor condition with a 4-inch diameter hole.



Photograph 6: Green staining was observed in the base and sidewalls of the third UST pit. Pipe lines were found running southwest towards the fourth UST (arrow).



Photograph 7: Trench plates were placed over the open pits for safety until they were backfilled.



Photograph 8: An excavator was used to expose the fourth UST.



Photograph 9: Multiple pipes were found running northwest (arrow) into the subject property and southwest towards the fifth UST.



Photograph 10: Dry ice was added to the fourth UST to lower the oxygen level and Lower Explosive Levels (LELs).



Photograph 11: The fourth UST was removed using the excavator bucket and was found to be an upright, conical tank.



Photograph 12: The fourth UST was found in good condition with no visible holes.



Photograph 13: A hole was cut into the fourth UST and was then triple rinsed by Western Abatement personnel.



Photograph 14: Green staining was observed in the base and sidewalls of the fourth UST pit. Pipe lines were found running southwest towards the fifth UST and northwest into the subject property (arrows).



Photograph 15: The third and fourth UST pit was temporarily backfilled using the stockpile soil, which will later be removed during over-excavation.



Photograph 16: Clean imported fill was also added to the UST pit to make up for the volume of the USTs.



Photograph 17: The backfill was then compacted using a compactor wheel. Water was added to the soil during compaction for dust control.



Photograph 18: The area above the third and fourth UST pit was temporarily asphalted over to match the existing grade.



Photograph 19: A saw was used to cut the concrete slab above the fifth UST. The excavation area had previously been cleared for utilities by USA.



Photograph 20: Additional pipe lines were found running northwest into the subject property from the fifth UST.



Photograph 21: The tank contents were pumped just before adding dry ice to the fifth UST.



Photograph 22: The fifth UST was removed using the excavator arm.



Photograph 23: The fifth UST was found in good condition with no visible holes.



Photograph 24: The fifth UST pit was lined with a 6-MIL polyethylene liner before being temporarily backfilled with the stockpiled soil.



Photograph 25: Tank contents and rinsate were stored on site in DOT-approved 55-gallon drums and 300-gallon totes before being hauled and disposed.



Photograph 26: Trenches were excavated along the piping system for sampling and removal of the piping. Note the shallow olive green soil staining.



Photograph 27: Trenches running northwest into the property where the pipelines were located.



Photograph 28: Approximately 200 ft of piping was removed and stored on a plastic liner before disposal.



Photograph 29: Test pits were excavated to determine if other USTs existed on site. Test pit number 2 is shown at the bottom left corner and test pit number 3 is shown being excavated on the right.



Photograph 30: No green staining was observed in test pit number 3.



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1604363

Report Created for: Schutze & Associates, Inc.
44358 South Grimmer Blvd
Fremont, CA 94538

Project Contact: Kevin Loeb
Project P.O.:
Project Name: SCS557; Trimble Tank Pull

Project Received: 04/08/2016

Analytical Report reviewed & approved for release on 04/21/2016 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Schutze & Associates, Inc.
Project: SCS557; Trimble Tank Pull
WorkOrder: 1604363

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: Schutze & Associates, Inc.
Project: SCS557; Trimble Tank Pull
WorkOrder: 1604363

Analytical Qualifiers

H samples were analyzed out of holding time
S Surrogate spike recovery outside accepted recovery limits
a1 sample diluted due to matrix interference
a3 sample diluted due to high organic content.
a4 reporting limits raised due to the sample's matrix prohibiting a full volume extraction.
b6 lighter than water immiscible sheen/product is present
d2 heavier gasoline range compounds are significant (aged gasoline?)
d5 TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?)
d7 strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2 diesel range compounds are significant; no recognizable pattern
e4 gasoline range compounds are significant.
e7 oil range compounds are significant
e8 kerosene/kerosene range/jet fuel range
e11/e4 stoddard solvent/mineral spirit (?); and/or gasoline range compounds are significant.

Quality Control Qualifiers

F10 MS/MSD outside control limits. Physical or chemical interferences exist due to sample matrix.



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/11/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
TC	1604363-004A	Oil	04/06/2016	GC10	119337
Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Acetone	ND	H	100	1	04/21/2016 05:37
tert-Amyl methyl ether (TAME)	ND	H	5.0	1	04/21/2016 05:37
Benzene	ND	H	5.0	1	04/21/2016 05:37
Bromobenzene	ND	H	5.0	1	04/21/2016 05:37
Bromochloromethane	ND	H	5.0	1	04/21/2016 05:37
Bromodichloromethane	ND	H	5.0	1	04/21/2016 05:37
Bromoform	ND	H	5.0	1	04/21/2016 05:37
Bromomethane	ND	H	5.0	1	04/21/2016 05:37
2-Butanone (MEK)	ND	H	20	1	04/21/2016 05:37
t-Butyl alcohol (TBA)	ND	H	50	1	04/21/2016 05:37
n-Butyl benzene	21	H	5.0	1	04/21/2016 05:37
sec-Butyl benzene	ND	H	5.0	1	04/21/2016 05:37
tert-Butyl benzene	ND	H	5.0	1	04/21/2016 05:37
Carbon Disulfide	ND	H	5.0	1	04/21/2016 05:37
Carbon Tetrachloride	ND	H	5.0	1	04/21/2016 05:37
Chlorobenzene	ND	H	5.0	1	04/21/2016 05:37
Chloroethane	ND	H	5.0	1	04/21/2016 05:37
Chloroform	ND	H	5.0	1	04/21/2016 05:37
Chloromethane	ND	H	5.0	1	04/21/2016 05:37
2-Chlorotoluene	ND	H	5.0	1	04/21/2016 05:37
4-Chlorotoluene	ND	H	5.0	1	04/21/2016 05:37
Dibromochloromethane	ND	H	5.0	1	04/21/2016 05:37
1,2-Dibromo-3-chloropropane	ND	H	5.0	1	04/21/2016 05:37
1,2-Dibromoethane (EDB)	ND	H	5.0	1	04/21/2016 05:37
Dibromomethane	ND	H	5.0	1	04/21/2016 05:37
1,2-Dichlorobenzene	ND	H	5.0	1	04/21/2016 05:37
1,3-Dichlorobenzene	ND	H	5.0	1	04/21/2016 05:37
1,4-Dichlorobenzene	ND	H	5.0	1	04/21/2016 05:37
Dichlorodifluoromethane	ND	H	5.0	1	04/21/2016 05:37
1,1-Dichloroethane	ND	H	5.0	1	04/21/2016 05:37
1,2-Dichloroethane (1,2-DCA)	ND	H	5.0	1	04/21/2016 05:37
1,1-Dichloroethene	ND	H	5.0	1	04/21/2016 05:37
cis-1,2-Dichloroethene	ND	H	5.0	1	04/21/2016 05:37
trans-1,2-Dichloroethene	ND	H	5.0	1	04/21/2016 05:37
1,2-Dichloropropane	ND	H	5.0	1	04/21/2016 05:37
1,3-Dichloropropane	ND	H	5.0	1	04/21/2016 05:37
2,2-Dichloropropane	ND	H	5.0	1	04/21/2016 05:37

(Cont.)



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/11/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
TC	1604363-004A	Oil	04/06/2016	GC10	119337
Analytes	Result	Qualifiers	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	H	5.0	1	04/21/2016 05:37
cis-1,3-Dichloropropene	ND	H	5.0	1	04/21/2016 05:37
trans-1,3-Dichloropropene	ND	H	5.0	1	04/21/2016 05:37
Diisopropyl ether (DIPE)	ND	H	5.0	1	04/21/2016 05:37
Ethylbenzene	11	H	5.0	1	04/21/2016 05:37
Ethyl tert-butyl ether (ETBE)	ND	H	5.0	1	04/21/2016 05:37
Freon 113	ND	H	100	1	04/21/2016 05:37
Hexachlorobutadiene	ND	H	5.0	1	04/21/2016 05:37
Hexachloroethane	ND	H	5.0	1	04/21/2016 05:37
2-Hexanone	ND	H	5.0	1	04/21/2016 05:37
Isopropylbenzene	ND	H	5.0	1	04/21/2016 05:37
4-Isopropyl toluene	9.7	H	5.0	1	04/21/2016 05:37
Methyl-t-butyl ether (MTBE)	ND	H	5.0	1	04/21/2016 05:37
Methylene chloride	ND	H	5.0	1	04/21/2016 05:37
4-Methyl-2-pentanone (MIBK)	ND	H	5.0	1	04/21/2016 05:37
Naphthalene	340	H	5.0	1	04/21/2016 05:37
n-Propyl benzene	10	H	5.0	1	04/21/2016 05:37
Styrene	ND	H	5.0	1	04/21/2016 05:37
1,1,1,2-Tetrachloroethane	ND	H	5.0	1	04/21/2016 05:37
1,1,2,2-Tetrachloroethane	ND	H	5.0	1	04/21/2016 05:37
Tetrachloroethene	ND	H	5.0	1	04/21/2016 05:37
Toluene	16	H	5.0	1	04/21/2016 05:37
1,2,3-Trichlorobenzene	ND	H	5.0	1	04/21/2016 05:37
1,2,4-Trichlorobenzene	ND	H	5.0	1	04/21/2016 05:37
1,1,1-Trichloroethane	ND	H	5.0	1	04/21/2016 05:37
1,1,2-Trichloroethane	ND	H	5.0	1	04/21/2016 05:37
Trichloroethene	ND	H	5.0	1	04/21/2016 05:37
Trichlorofluoromethane	ND	H	5.0	1	04/21/2016 05:37
1,2,3-Trichloropropane	ND	H	5.0	1	04/21/2016 05:37
1,2,4-Trimethylbenzene	96	H	5.0	1	04/21/2016 05:37
1,3,5-Trimethylbenzene	24	H	5.0	1	04/21/2016 05:37
Vinyl Chloride	ND	H	5.0	1	04/21/2016 05:37
Xylenes, Total	81	H	5.0	1	04/21/2016 05:37

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/11/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
TC	1604363-004A	Oil	04/06/2016	GC10	119337

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>		
Dibromofluoromethane	112	H	70-130		04/21/2016 05:37
Toluene-d8	103	H	70-130		04/21/2016 05:37
4-BFB	124	H	70-130		04/21/2016 05:37

Analyst(s): KF



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-NW	1604363-002A	Soil	04/07/2016	GC18	119276
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Acetone	ND		1.0	10	04/19/2016 21:18
tert-Amyl methyl ether (TAME)	ND		0.050	10	04/19/2016 21:18
Benzene	ND		0.050	10	04/19/2016 21:18
Bromobenzene	ND		0.050	10	04/19/2016 21:18
Bromochloromethane	ND		0.050	10	04/19/2016 21:18
Bromodichloromethane	ND		0.050	10	04/19/2016 21:18
Bromoform	ND		0.050	10	04/19/2016 21:18
Bromomethane	ND		0.050	10	04/19/2016 21:18
2-Butanone (MEK)	ND		0.20	10	04/19/2016 21:18
t-Butyl alcohol (TBA)	ND		0.50	10	04/19/2016 21:18
n-Butyl benzene	ND		0.050	10	04/19/2016 21:18
sec-Butyl benzene	ND		0.050	10	04/19/2016 21:18
tert-Butyl benzene	ND		0.050	10	04/19/2016 21:18
Carbon Disulfide	ND		0.050	10	04/19/2016 21:18
Carbon Tetrachloride	ND		0.050	10	04/19/2016 21:18
Chlorobenzene	ND		0.050	10	04/19/2016 21:18
Chloroethane	ND		0.050	10	04/19/2016 21:18
Chloroform	ND		0.050	10	04/19/2016 21:18
Chloromethane	ND		0.050	10	04/19/2016 21:18
2-Chlorotoluene	ND		0.050	10	04/19/2016 21:18
4-Chlorotoluene	ND		0.050	10	04/19/2016 21:18
Dibromochloromethane	ND		0.050	10	04/19/2016 21:18
1,2-Dibromo-3-chloropropane	ND		0.040	10	04/19/2016 21:18
1,2-Dibromoethane (EDB)	ND		0.040	10	04/19/2016 21:18
Dibromomethane	ND		0.050	10	04/19/2016 21:18
1,2-Dichlorobenzene	ND		0.050	10	04/19/2016 21:18
1,3-Dichlorobenzene	ND		0.050	10	04/19/2016 21:18
1,4-Dichlorobenzene	ND		0.050	10	04/19/2016 21:18
Dichlorodifluoromethane	ND		0.050	10	04/19/2016 21:18
1,1-Dichloroethane	ND		0.050	10	04/19/2016 21:18
1,2-Dichloroethane (1,2-DCA)	ND		0.040	10	04/19/2016 21:18
1,1-Dichloroethene	ND		0.050	10	04/19/2016 21:18
cis-1,2-Dichloroethene	ND		0.050	10	04/19/2016 21:18
trans-1,2-Dichloroethene	ND		0.050	10	04/19/2016 21:18
1,2-Dichloropropane	ND		0.050	10	04/19/2016 21:18
1,3-Dichloropropane	ND		0.050	10	04/19/2016 21:18
2,2-Dichloropropane	ND		0.050	10	04/19/2016 21:18

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Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-NW	1604363-002A	Soil	04/07/2016	GC18	119276
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
1,1-Dichloropropene	ND		0.050	10	04/19/2016 21:18
cis-1,3-Dichloropropene	ND		0.050	10	04/19/2016 21:18
trans-1,3-Dichloropropene	ND		0.050	10	04/19/2016 21:18
Diisopropyl ether (DIPE)	ND		0.050	10	04/19/2016 21:18
Ethylbenzene	ND		0.050	10	04/19/2016 21:18
Ethyl tert-butyl ether (ETBE)	ND		0.050	10	04/19/2016 21:18
Freon 113	ND		0.050	10	04/19/2016 21:18
Hexachlorobutadiene	ND		0.050	10	04/19/2016 21:18
Hexachloroethane	ND		0.050	10	04/19/2016 21:18
2-Hexanone	ND		0.050	10	04/19/2016 21:18
Isopropylbenzene	ND		0.050	10	04/19/2016 21:18
4-Isopropyl toluene	ND		0.050	10	04/19/2016 21:18
Methyl-t-butyl ether (MTBE)	ND		0.050	10	04/19/2016 21:18
Methylene chloride	ND		0.050	10	04/19/2016 21:18
4-Methyl-2-pentanone (MIBK)	ND		0.050	10	04/19/2016 21:18
Naphthalene	ND		0.050	10	04/19/2016 21:18
n-Propyl benzene	ND		0.050	10	04/19/2016 21:18
Styrene	ND		0.050	10	04/19/2016 21:18
1,1,1,2-Tetrachloroethane	ND		0.050	10	04/19/2016 21:18
1,1,2,2-Tetrachloroethane	ND		0.050	10	04/19/2016 21:18
Tetrachloroethene	ND		0.050	10	04/19/2016 21:18
Toluene	ND		0.050	10	04/19/2016 21:18
1,2,3-Trichlorobenzene	ND		0.050	10	04/19/2016 21:18
1,2,4-Trichlorobenzene	ND		0.050	10	04/19/2016 21:18
1,1,1-Trichloroethane	ND		0.050	10	04/19/2016 21:18
1,1,2-Trichloroethane	ND		0.050	10	04/19/2016 21:18
Trichloroethene	ND		0.050	10	04/19/2016 21:18
Trichlorofluoromethane	ND		0.050	10	04/19/2016 21:18
1,2,3-Trichloropropane	ND		0.050	10	04/19/2016 21:18
1,2,4-Trimethylbenzene	ND		0.050	10	04/19/2016 21:18
1,3,5-Trimethylbenzene	ND		0.050	10	04/19/2016 21:18
Vinyl Chloride	ND		0.050	10	04/19/2016 21:18
Xylenes, Total	ND		0.050	10	04/19/2016 21:18

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-NW	1604363-002A	Soil	04/07/2016	GC18	119276

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	100		70-130	04/19/2016 21:18
Toluene-d8	99		70-130	04/19/2016 21:18
4-BFB	96		70-130	04/19/2016 21:18
Benzene-d6	87		60-140	04/19/2016 21:18
Ethylbenzene-d10	96		60-140	04/19/2016 21:18
1,2-DCB-d4	90		60-140	04/19/2016 21:18

Analyst(s): HK

Analytical Comments: a3



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-SE	1604363-003A	Soil	04/07/2016	GC18	119276
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Acetone	ND		4.0	40	04/19/2016 21:58
tert-Amyl methyl ether (TAME)	ND		0.20	40	04/19/2016 21:58
Benzene	ND		0.20	40	04/19/2016 21:58
Bromobenzene	ND		0.20	40	04/19/2016 21:58
Bromochloromethane	ND		0.20	40	04/19/2016 21:58
Bromodichloromethane	ND		0.20	40	04/19/2016 21:58
Bromoform	ND		0.20	40	04/19/2016 21:58
Bromomethane	ND		0.20	40	04/19/2016 21:58
2-Butanone (MEK)	ND		0.80	40	04/19/2016 21:58
t-Butyl alcohol (TBA)	ND		2.0	40	04/19/2016 21:58
n-Butyl benzene	ND		0.20	40	04/19/2016 21:58
sec-Butyl benzene	ND		0.20	40	04/19/2016 21:58
tert-Butyl benzene	ND		0.20	40	04/19/2016 21:58
Carbon Disulfide	ND		0.20	40	04/19/2016 21:58
Carbon Tetrachloride	ND		0.20	40	04/19/2016 21:58
Chlorobenzene	ND		0.20	40	04/19/2016 21:58
Chloroethane	ND		0.20	40	04/19/2016 21:58
Chloroform	ND		0.20	40	04/19/2016 21:58
Chloromethane	ND		0.20	40	04/19/2016 21:58
2-Chlorotoluene	ND		0.20	40	04/19/2016 21:58
4-Chlorotoluene	ND		0.20	40	04/19/2016 21:58
Dibromochloromethane	ND		0.20	40	04/19/2016 21:58
1,2-Dibromo-3-chloropropane	ND		0.16	40	04/19/2016 21:58
1,2-Dibromoethane (EDB)	ND		0.16	40	04/19/2016 21:58
Dibromomethane	ND		0.20	40	04/19/2016 21:58
1,2-Dichlorobenzene	ND		0.20	40	04/19/2016 21:58
1,3-Dichlorobenzene	ND		0.20	40	04/19/2016 21:58
1,4-Dichlorobenzene	ND		0.20	40	04/19/2016 21:58
Dichlorodifluoromethane	ND		0.20	40	04/19/2016 21:58
1,1-Dichloroethane	ND		0.20	40	04/19/2016 21:58
1,2-Dichloroethane (1,2-DCA)	ND		0.16	40	04/19/2016 21:58
1,1-Dichloroethene	ND		0.20	40	04/19/2016 21:58
cis-1,2-Dichloroethene	ND		0.20	40	04/19/2016 21:58
trans-1,2-Dichloroethene	ND		0.20	40	04/19/2016 21:58
1,2-Dichloropropane	ND		0.20	40	04/19/2016 21:58
1,3-Dichloropropane	ND		0.20	40	04/19/2016 21:58
2,2-Dichloropropane	ND		0.20	40	04/19/2016 21:58

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Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-SE	1604363-003A	Soil	04/07/2016	GC18	119276

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.20	40	04/19/2016 21:58
cis-1,3-Dichloropropene	ND	0.20	40	04/19/2016 21:58
trans-1,3-Dichloropropene	ND	0.20	40	04/19/2016 21:58
Diisopropyl ether (DIPE)	ND	0.20	40	04/19/2016 21:58
Ethylbenzene	ND	0.20	40	04/19/2016 21:58
Ethyl tert-butyl ether (ETBE)	ND	0.20	40	04/19/2016 21:58
Freon 113	ND	0.20	40	04/19/2016 21:58
Hexachlorobutadiene	ND	0.20	40	04/19/2016 21:58
Hexachloroethane	ND	0.20	40	04/19/2016 21:58
2-Hexanone	ND	0.20	40	04/19/2016 21:58
Isopropylbenzene	ND	0.20	40	04/19/2016 21:58
4-Isopropyl toluene	ND	0.20	40	04/19/2016 21:58
Methyl-t-butyl ether (MTBE)	ND	0.20	40	04/19/2016 21:58
Methylene chloride	ND	0.20	40	04/19/2016 21:58
4-Methyl-2-pentanone (MIBK)	ND	0.20	40	04/19/2016 21:58
Naphthalene	ND	0.20	40	04/19/2016 21:58
n-Propyl benzene	ND	0.20	40	04/19/2016 21:58
Styrene	ND	0.20	40	04/19/2016 21:58
1,1,1,2-Tetrachloroethane	ND	0.20	40	04/19/2016 21:58
1,1,2,2-Tetrachloroethane	ND	0.20	40	04/19/2016 21:58
Tetrachloroethene	ND	0.20	40	04/19/2016 21:58
Toluene	ND	0.20	40	04/19/2016 21:58
1,2,3-Trichlorobenzene	ND	0.20	40	04/19/2016 21:58
1,2,4-Trichlorobenzene	ND	0.20	40	04/19/2016 21:58
1,1,1-Trichloroethane	ND	0.20	40	04/19/2016 21:58
1,1,2-Trichloroethane	ND	0.20	40	04/19/2016 21:58
Trichloroethene	ND	0.20	40	04/19/2016 21:58
Trichlorofluoromethane	ND	0.20	40	04/19/2016 21:58
1,2,3-Trichloropropane	ND	0.20	40	04/19/2016 21:58
1,2,4-Trimethylbenzene	ND	0.20	40	04/19/2016 21:58
1,3,5-Trimethylbenzene	ND	0.20	40	04/19/2016 21:58
Vinyl Chloride	ND	0.20	40	04/19/2016 21:58
Xylenes, Total	ND	0.20	40	04/19/2016 21:58

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-SE	1604363-003A	Soil	04/07/2016	GC18	119276

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	100	70-130		04/19/2016 21:58
Toluene-d8	99	70-130		04/19/2016 21:58
4-BFB	90	70-130		04/19/2016 21:58
Benzene-d6	85	60-140		04/19/2016 21:58
Ethylbenzene-d10	97	60-140		04/19/2016 21:58
1,2-DCB-d4	96	60-140		04/19/2016 21:58

Analyst(s): HK

Analytical Comments: a3



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
BF-1,2	1604363-005A	Soil	04/06/2016	GC16	119276
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Acetone	ND		0.10	1	04/19/2016 14:12
tert-Amyl methyl ether (TAME)	ND		0.0050	1	04/19/2016 14:12
Benzene	ND		0.0050	1	04/19/2016 14:12
Bromobenzene	ND		0.0050	1	04/19/2016 14:12
Bromochloromethane	ND		0.0050	1	04/19/2016 14:12
Bromodichloromethane	ND		0.0050	1	04/19/2016 14:12
Bromoform	ND		0.0050	1	04/19/2016 14:12
Bromomethane	ND		0.0050	1	04/19/2016 14:12
2-Butanone (MEK)	ND		0.020	1	04/19/2016 14:12
t-Butyl alcohol (TBA)	ND		0.050	1	04/19/2016 14:12
n-Butyl benzene	ND		0.0050	1	04/19/2016 14:12
sec-Butyl benzene	ND		0.0050	1	04/19/2016 14:12
tert-Butyl benzene	ND		0.0050	1	04/19/2016 14:12
Carbon Disulfide	ND		0.0050	1	04/19/2016 14:12
Carbon Tetrachloride	ND		0.0050	1	04/19/2016 14:12
Chlorobenzene	ND		0.0050	1	04/19/2016 14:12
Chloroethane	ND		0.0050	1	04/19/2016 14:12
Chloroform	ND		0.0050	1	04/19/2016 14:12
Chloromethane	ND		0.0050	1	04/19/2016 14:12
2-Chlorotoluene	ND		0.0050	1	04/19/2016 14:12
4-Chlorotoluene	ND		0.0050	1	04/19/2016 14:12
Dibromochloromethane	ND		0.0050	1	04/19/2016 14:12
1,2-Dibromo-3-chloropropane	ND		0.0040	1	04/19/2016 14:12
1,2-Dibromoethane (EDB)	ND		0.0040	1	04/19/2016 14:12
Dibromomethane	ND		0.0050	1	04/19/2016 14:12
1,2-Dichlorobenzene	ND		0.0050	1	04/19/2016 14:12
1,3-Dichlorobenzene	ND		0.0050	1	04/19/2016 14:12
1,4-Dichlorobenzene	ND		0.0050	1	04/19/2016 14:12
Dichlorodifluoromethane	ND		0.0050	1	04/19/2016 14:12
1,1-Dichloroethane	ND		0.0050	1	04/19/2016 14:12
1,2-Dichloroethane (1,2-DCA)	ND		0.0040	1	04/19/2016 14:12
1,1-Dichloroethene	ND		0.0050	1	04/19/2016 14:12
cis-1,2-Dichloroethene	ND		0.0050	1	04/19/2016 14:12
trans-1,2-Dichloroethene	ND		0.0050	1	04/19/2016 14:12
1,2-Dichloropropane	ND		0.0050	1	04/19/2016 14:12
1,3-Dichloropropane	ND		0.0050	1	04/19/2016 14:12
2,2-Dichloropropane	ND		0.0050	1	04/19/2016 14:12

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
BF-1,2	1604363-005A	Soil	04/06/2016	GC16	119276
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
1,1-Dichloropropene	ND		0.0050	1	04/19/2016 14:12
cis-1,3-Dichloropropene	ND		0.0050	1	04/19/2016 14:12
trans-1,3-Dichloropropene	ND		0.0050	1	04/19/2016 14:12
Diisopropyl ether (DIPE)	ND		0.0050	1	04/19/2016 14:12
Ethylbenzene	ND		0.0050	1	04/19/2016 14:12
Ethyl tert-butyl ether (ETBE)	ND		0.0050	1	04/19/2016 14:12
Freon 113	ND		0.0050	1	04/19/2016 14:12
Hexachlorobutadiene	ND		0.0050	1	04/19/2016 14:12
Hexachloroethane	ND		0.0050	1	04/19/2016 14:12
2-Hexanone	ND		0.0050	1	04/19/2016 14:12
Isopropylbenzene	ND		0.0050	1	04/19/2016 14:12
4-Isopropyl toluene	ND		0.0050	1	04/19/2016 14:12
Methyl-t-butyl ether (MTBE)	ND		0.0050	1	04/19/2016 14:12
Methylene chloride	ND		0.0050	1	04/19/2016 14:12
4-Methyl-2-pentanone (MIBK)	ND		0.0050	1	04/19/2016 14:12
Naphthalene	ND		0.0050	1	04/19/2016 14:12
n-Propyl benzene	ND		0.0050	1	04/19/2016 14:12
Styrene	ND		0.0050	1	04/19/2016 14:12
1,1,1,2-Tetrachloroethane	ND		0.0050	1	04/19/2016 14:12
1,1,2,2-Tetrachloroethane	ND		0.0050	1	04/19/2016 14:12
Tetrachloroethene	ND		0.0050	1	04/19/2016 14:12
Toluene	ND		0.0050	1	04/19/2016 14:12
1,2,3-Trichlorobenzene	ND		0.0050	1	04/19/2016 14:12
1,2,4-Trichlorobenzene	ND		0.0050	1	04/19/2016 14:12
1,1,1-Trichloroethane	ND		0.0050	1	04/19/2016 14:12
1,1,2-Trichloroethane	ND		0.0050	1	04/19/2016 14:12
Trichloroethene	ND		0.0050	1	04/19/2016 14:12
Trichlorofluoromethane	ND		0.0050	1	04/19/2016 14:12
1,2,3-Trichloropropane	ND		0.0050	1	04/19/2016 14:12
1,2,4-Trimethylbenzene	ND		0.0050	1	04/19/2016 14:12
1,3,5-Trimethylbenzene	ND		0.0050	1	04/19/2016 14:12
Vinyl Chloride	ND		0.0050	1	04/19/2016 14:12
Xylenes, Total	ND		0.0050	1	04/19/2016 14:12

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NELAP 4033ORELAP

Angela Rydelius, Lab Manager



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
BF-1,2	1604363-005A	Soil	04/06/2016	GC16	119276

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
Dibromofluoromethane	99		70-130	04/19/2016 14:12
Toluene-d8	104		70-130	04/19/2016 14:12
4-BFB	109		70-130	04/19/2016 14:12
Benzene-d6	115		60-140	04/19/2016 14:12
Ethylbenzene-d10	121		60-140	04/19/2016 14:12
1,2-DCB-d4	96		60-140	04/19/2016 14:12

Analyst(s): HK



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/18/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-10-W	1604363-001B	Water	04/07/2016	GC18	119675
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Acetone	ND		1000	100	04/18/2016 20:38
tert-Amyl methyl ether (TAME)	ND		50	100	04/18/2016 20:38
Benzene	ND		50	100	04/18/2016 20:38
Bromobenzene	ND		50	100	04/18/2016 20:38
Bromochloromethane	ND		50	100	04/18/2016 20:38
Bromodichloromethane	ND		50	100	04/18/2016 20:38
Bromoform	ND		50	100	04/18/2016 20:38
Bromomethane	ND		50	100	04/18/2016 20:38
2-Butanone (MEK)	ND		200	100	04/18/2016 20:38
t-Butyl alcohol (TBA)	ND		200	100	04/18/2016 20:38
n-Butyl benzene	51		50	100	04/18/2016 20:38
sec-Butyl benzene	ND		50	100	04/18/2016 20:38
tert-Butyl benzene	ND		50	100	04/18/2016 20:38
Carbon Disulfide	ND		50	100	04/18/2016 20:38
Carbon Tetrachloride	ND		50	100	04/18/2016 20:38
Chlorobenzene	ND		50	100	04/18/2016 20:38
Chloroethane	ND		50	100	04/18/2016 20:38
Chloroform	ND		50	100	04/18/2016 20:38
Chloromethane	ND		50	100	04/18/2016 20:38
2-Chlorotoluene	ND		50	100	04/18/2016 20:38
4-Chlorotoluene	ND		50	100	04/18/2016 20:38
Dibromochloromethane	ND		50	100	04/18/2016 20:38
1,2-Dibromo-3-chloropropane	ND		20	100	04/18/2016 20:38
1,2-Dibromoethane (EDB)	ND		50	100	04/18/2016 20:38
Dibromomethane	ND		50	100	04/18/2016 20:38
1,2-Dichlorobenzene	ND		50	100	04/18/2016 20:38
1,3-Dichlorobenzene	ND		50	100	04/18/2016 20:38
1,4-Dichlorobenzene	ND		50	100	04/18/2016 20:38
Dichlorodifluoromethane	ND		50	100	04/18/2016 20:38
1,1-Dichloroethane	ND		50	100	04/18/2016 20:38
1,2-Dichloroethane (1,2-DCA)	ND		50	100	04/18/2016 20:38
1,1-Dichloroethene	ND		50	100	04/18/2016 20:38
cis-1,2-Dichloroethene	ND		50	100	04/18/2016 20:38
trans-1,2-Dichloroethene	ND		50	100	04/18/2016 20:38
1,2-Dichloropropane	ND		50	100	04/18/2016 20:38
1,3-Dichloropropane	ND		50	100	04/18/2016 20:38
2,2-Dichloropropane	ND		50	100	04/18/2016 20:38

(Cont.)



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/18/16
Project: SCS557; Trimble Tank Pull


WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-10-W	1604363-001B	Water	04/07/2016	GC18	119675
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
1,1-Dichloropropene	ND		50	100	04/18/2016 20:38
cis-1,3-Dichloropropene	ND		50	100	04/18/2016 20:38
trans-1,3-Dichloropropene	ND		50	100	04/18/2016 20:38
Diisopropyl ether (DIPE)	ND		50	100	04/18/2016 20:38
Ethylbenzene	73		50	100	04/18/2016 20:38
Ethyl tert-butyl ether (ETBE)	ND		50	100	04/18/2016 20:38
Freon 113	ND		50	100	04/18/2016 20:38
Hexachlorobutadiene	ND		50	100	04/18/2016 20:38
Hexachloroethane	ND		50	100	04/18/2016 20:38
2-Hexanone	ND		50	100	04/18/2016 20:38
Isopropylbenzene	ND		50	100	04/18/2016 20:38
4-Isopropyl toluene	ND		50	100	04/18/2016 20:38
Methyl-t-butyl ether (MTBE)	ND		50	100	04/18/2016 20:38
Methylene chloride	ND		50	100	04/18/2016 20:38
4-Methyl-2-pentanone (MIBK)	ND		50	100	04/18/2016 20:38
Naphthalene	210		50	100	04/18/2016 20:38
n-Propyl benzene	92		50	100	04/18/2016 20:38
Styrene	ND		50	100	04/18/2016 20:38
1,1,1,2-Tetrachloroethane	ND		50	100	04/18/2016 20:38
1,1,2,2-Tetrachloroethane	ND		50	100	04/18/2016 20:38
Tetrachloroethene	ND		50	100	04/18/2016 20:38
Toluene	ND		50	100	04/18/2016 20:38
1,2,3-Trichlorobenzene	ND		50	100	04/18/2016 20:38
1,2,4-Trichlorobenzene	ND		50	100	04/18/2016 20:38
1,1,1-Trichloroethane	ND		50	100	04/18/2016 20:38
1,1,2-Trichloroethane	ND		50	100	04/18/2016 20:38
Trichloroethene	ND		50	100	04/18/2016 20:38
Trichlorofluoromethane	ND		50	100	04/18/2016 20:38
1,2,3-Trichloropropane	ND		50	100	04/18/2016 20:38
1,2,4-Trimethylbenzene	470		50	100	04/18/2016 20:38
1,3,5-Trimethylbenzene	94		50	100	04/18/2016 20:38
Vinyl Chloride	ND		50	100	04/18/2016 20:38
Xylenes, Total	250		50	100	04/18/2016 20:38

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/18/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-10-W	1604363-001B	Water	04/07/2016	GC18	119675
Analytes	Result	RL	DF	Date Analyzed	
Surrogates	REC (%)	Limits			
Dibromofluoromethane	98	70-130		04/18/2016 20:38	
Toluene-d8	97	70-130		04/18/2016 20:38	
4-BFB	97	70-130		04/18/2016 20:38	
Analyst(s): HK	Analytical Comments: b6				



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/11/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/L

TPH(g) by Purge & Trap and GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
TC	1604363-004A	Oil	04/06/2016	GC18	119337

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TPH(g)	2400	H	0.25	1	04/21/2016 15:12

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	89	H	70-130	04/21/2016 15:12

Analyst(s): HK



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

TPH(g) by Purge & Trap and GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-NW	1604363-002A	Soil	04/07/2016	GC18	119276

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	14	2.5	10	04/19/2016 21:18

Surrogates	REC (%)	Limits	Date Analyzed
Dibromofluoromethane	91	70-130	04/19/2016 21:18

Analyst(s): HK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-SE	1604363-003A	Soil	04/07/2016	GC18	119276

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	81	10	40	04/19/2016 21:58

Surrogates	REC (%)	Limits	Date Analyzed
Dibromofluoromethane	91	70-130	04/19/2016 21:58

Analyst(s): HK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
BF-1,2	1604363-005A	Soil	04/06/2016	GC16	119276

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	0.25	1	04/19/2016 14:12

Surrogates	REC (%)	Limits	Date Analyzed
Dibromofluoromethane	97	70-130	04/19/2016 14:12

Analyst(s): HK



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/16/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

TPH(g) by Purge & Trap and GC/MS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-10-W	1604363-001B	Water	04/07/2016	GC16	119675
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
TPH(g)	7700		500	10	04/16/2016 16:13
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
Dibromofluoromethane	100		70-130		04/16/2016 16:13
<u>Analyst(s):</u> AK			<u>Analytical Comments:</u> b6		



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/14/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics by GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-NW	1604363-002A	Soil	04/07/2016	GC21	119523
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Acenaphthene	ND		2.0	1	04/15/2016 11:55
Acenaphthylene	ND		2.0	1	04/15/2016 11:55
Acetochlor	ND		2.0	1	04/15/2016 11:55
Anthracene	ND		2.0	1	04/15/2016 11:55
Benzidine	ND		10	1	04/15/2016 11:55
Benzo (a) anthracene	ND		2.0	1	04/15/2016 11:55
Benzo (a) pyrene	ND		2.0	1	04/15/2016 11:55
Benzo (b) fluoranthene	ND		2.0	1	04/15/2016 11:55
Benzo (g,h,i) perylene	ND		2.0	1	04/15/2016 11:55
Benzo (k) fluoranthene	ND		2.0	1	04/15/2016 11:55
Benzyl Alcohol	ND		10	1	04/15/2016 11:55
1,1-Biphenyl	ND		2.0	1	04/15/2016 11:55
Bis (2-chloroethoxy) Methane	ND		2.0	1	04/15/2016 11:55
Bis (2-chloroethyl) Ether	ND		2.0	1	04/15/2016 11:55
Bis (2-chloroisopropyl) Ether	ND		2.0	1	04/15/2016 11:55
Bis (2-ethylhexyl) Adipate	ND		2.0	1	04/15/2016 11:55
Bis (2-ethylhexyl) Phthalate	ND		2.0	1	04/15/2016 11:55
4-Bromophenyl Phenyl Ether	ND		2.0	1	04/15/2016 11:55
Butylbenzyl Phthalate	ND		2.0	1	04/15/2016 11:55
4-Chloroaniline	ND		4.0	1	04/15/2016 11:55
4-Chloro-3-methylphenol	ND		2.0	1	04/15/2016 11:55
2-Chloronaphthalene	ND		2.0	1	04/15/2016 11:55
2-Chlorophenol	ND		2.0	1	04/15/2016 11:55
4-Chlorophenyl Phenyl Ether	ND		2.0	1	04/15/2016 11:55
Chrysene	ND		2.0	1	04/15/2016 11:55
Dibenzo (a,h) anthracene	ND		2.0	1	04/15/2016 11:55
Dibenzofuran	ND		2.0	1	04/15/2016 11:55
Di-n-butyl Phthalate	ND		2.0	1	04/15/2016 11:55
1,2-Dichlorobenzene	ND		2.0	1	04/15/2016 11:55
1,3-Dichlorobenzene	ND		2.0	1	04/15/2016 11:55
1,4-Dichlorobenzene	ND		2.0	1	04/15/2016 11:55
3,3-Dichlorobenzidine	ND		4.0	1	04/15/2016 11:55
2,4-Dichlorophenol	ND		2.0	1	04/15/2016 11:55
Diethyl Phthalate	ND		2.0	1	04/15/2016 11:55
2,4-Dimethylphenol	ND		2.0	1	04/15/2016 11:55
Dimethyl Phthalate	ND		2.0	1	04/15/2016 11:55
4,6-Dinitro-2-methylphenol	ND		10	1	04/15/2016 11:55

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Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/14/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics by GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-NW	1604363-002A	Soil	04/07/2016	GC21	119523
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
2,4-Dinitrophenol	ND		50	1	04/15/2016 11:55
2,4-Dinitrotoluene	ND		2.0	1	04/15/2016 11:55
2,6-Dinitrotoluene	ND		2.0	1	04/15/2016 11:55
Di-n-octyl Phthalate	ND		4.0	1	04/15/2016 11:55
1,2-Diphenylhydrazine	ND		2.0	1	04/15/2016 11:55
Fluoranthene	ND		2.0	1	04/15/2016 11:55
Fluorene	ND		2.0	1	04/15/2016 11:55
Hexachlorobenzene	ND		2.0	1	04/15/2016 11:55
Hexachlorobutadiene	ND		2.0	1	04/15/2016 11:55
Hexachlorocyclopentadiene	ND		10	1	04/15/2016 11:55
Hexachloroethane	ND		2.0	1	04/15/2016 11:55
Indeno (1,2,3-cd) pyrene	ND		2.0	1	04/15/2016 11:55
Isophorone	ND		2.0	1	04/15/2016 11:55
2-Methylnaphthalene	ND		2.0	1	04/15/2016 11:55
2-Methylphenol (o-Cresol)	ND		2.0	1	04/15/2016 11:55
3 & 4-Methylphenol (m,p-Cresol)	ND		2.0	1	04/15/2016 11:55
Naphthalene	ND		2.0	1	04/15/2016 11:55
2-Nitroaniline	ND		10	1	04/15/2016 11:55
3-Nitroaniline	ND		10	1	04/15/2016 11:55
4-Nitroaniline	ND		10	1	04/15/2016 11:55
Nitrobenzene	ND		2.0	1	04/15/2016 11:55
2-Nitrophenol	ND		10	1	04/15/2016 11:55
4-Nitrophenol	ND		10	1	04/15/2016 11:55
N-Nitrosodiphenylamine	ND		2.0	1	04/15/2016 11:55
N-Nitrosodi-n-propylamine	ND		2.0	1	04/15/2016 11:55
Pentachlorophenol	ND		10	1	04/15/2016 11:55
Phenanthrene	ND		2.0	1	04/15/2016 11:55
Phenol	ND		2.0	1	04/15/2016 11:55
Pyrene	ND		2.0	1	04/15/2016 11:55
1,2,4-Trichlorobenzene	ND		2.0	1	04/15/2016 11:55
2,4,5-Trichlorophenol	ND		2.0	1	04/15/2016 11:55
2,4,6-Trichlorophenol	ND		2.0	1	04/15/2016 11:55

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Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/14/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics by GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-NW	1604363-002A	Soil	04/07/2016	GC21	119523

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>	
2-Fluorophenol	111		30-130	04/15/2016 11:55
Phenol-d5	91		30-130	04/15/2016 11:55
Nitrobenzene-d5	78		30-130	04/15/2016 11:55
2-Fluorobiphenyl	85		30-130	04/15/2016 11:55
2,4,6-Tribromophenol	62		16-130	04/15/2016 11:55
4-Terphenyl-d14	88		30-130	04/15/2016 11:55

Analyst(s): REB

Analytical Comments: a4



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/14/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics by GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-SE	1604363-003A	Soil	04/07/2016	GC21	119523
Analytes	Result	RL	DF	Date Analyzed	
Acenaphthene	ND	2.0	1	04/15/2016 12:23	
Acenaphthylene	ND	2.0	1	04/15/2016 12:23	
Acetochlor	ND	2.0	1	04/15/2016 12:23	
Anthracene	ND	2.0	1	04/15/2016 12:23	
Benzidine	ND	10	1	04/15/2016 12:23	
Benzo (a) anthracene	ND	2.0	1	04/15/2016 12:23	
Benzo (a) pyrene	ND	2.0	1	04/15/2016 12:23	
Benzo (b) fluoranthene	ND	2.0	1	04/15/2016 12:23	
Benzo (g,h,i) perylene	ND	2.0	1	04/15/2016 12:23	
Benzo (k) fluoranthene	ND	2.0	1	04/15/2016 12:23	
Benzyl Alcohol	ND	10	1	04/15/2016 12:23	
1,1-Biphenyl	ND	2.0	1	04/15/2016 12:23	
Bis (2-chloroethoxy) Methane	ND	2.0	1	04/15/2016 12:23	
Bis (2-chloroethyl) Ether	ND	2.0	1	04/15/2016 12:23	
Bis (2-chloroisopropyl) Ether	ND	2.0	1	04/15/2016 12:23	
Bis (2-ethylhexyl) Adipate	ND	2.0	1	04/15/2016 12:23	
Bis (2-ethylhexyl) Phthalate	ND	2.0	1	04/15/2016 12:23	
4-Bromophenyl Phenyl Ether	ND	2.0	1	04/15/2016 12:23	
Butylbenzyl Phthalate	ND	2.0	1	04/15/2016 12:23	
4-Chloroaniline	ND	4.0	1	04/15/2016 12:23	
4-Chloro-3-methylphenol	ND	2.0	1	04/15/2016 12:23	
2-Chloronaphthalene	ND	2.0	1	04/15/2016 12:23	
2-Chlorophenol	ND	2.0	1	04/15/2016 12:23	
4-Chlorophenyl Phenyl Ether	ND	2.0	1	04/15/2016 12:23	
Chrysene	ND	2.0	1	04/15/2016 12:23	
Dibenzo (a,h) anthracene	ND	2.0	1	04/15/2016 12:23	
Dibenzofuran	ND	2.0	1	04/15/2016 12:23	
Di-n-butyl Phthalate	ND	2.0	1	04/15/2016 12:23	
1,2-Dichlorobenzene	ND	2.0	1	04/15/2016 12:23	
1,3-Dichlorobenzene	ND	2.0	1	04/15/2016 12:23	
1,4-Dichlorobenzene	ND	2.0	1	04/15/2016 12:23	
3,3-Dichlorobenzidine	ND	4.0	1	04/15/2016 12:23	
2,4-Dichlorophenol	ND	2.0	1	04/15/2016 12:23	
Diethyl Phthalate	ND	2.0	1	04/15/2016 12:23	
2,4-Dimethylphenol	ND	2.0	1	04/15/2016 12:23	
Dimethyl Phthalate	ND	2.0	1	04/15/2016 12:23	
4,6-Dinitro-2-methylphenol	ND	10	1	04/15/2016 12:23	

(Cont.)



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/14/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics by GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-SE	1604363-003A	Soil	04/07/2016	GC21	119523
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
2,4-Dinitrophenol	ND		50	1	04/15/2016 12:23
2,4-Dinitrotoluene	ND		2.0	1	04/15/2016 12:23
2,6-Dinitrotoluene	ND		2.0	1	04/15/2016 12:23
Di-n-octyl Phthalate	ND		4.0	1	04/15/2016 12:23
1,2-Diphenylhydrazine	ND		2.0	1	04/15/2016 12:23
Fluoranthene	ND		2.0	1	04/15/2016 12:23
Fluorene	ND		2.0	1	04/15/2016 12:23
Hexachlorobenzene	ND		2.0	1	04/15/2016 12:23
Hexachlorobutadiene	ND		2.0	1	04/15/2016 12:23
Hexachlorocyclopentadiene	ND		10	1	04/15/2016 12:23
Hexachloroethane	ND		2.0	1	04/15/2016 12:23
Indeno (1,2,3-cd) pyrene	ND		2.0	1	04/15/2016 12:23
Isophorone	ND		2.0	1	04/15/2016 12:23
2-Methylnaphthalene	ND		2.0	1	04/15/2016 12:23
2-Methylphenol (o-Cresol)	ND		2.0	1	04/15/2016 12:23
3 & 4-Methylphenol (m,p-Cresol)	ND		2.0	1	04/15/2016 12:23
Naphthalene	ND		2.0	1	04/15/2016 12:23
2-Nitroaniline	ND		10	1	04/15/2016 12:23
3-Nitroaniline	ND		10	1	04/15/2016 12:23
4-Nitroaniline	ND		10	1	04/15/2016 12:23
Nitrobenzene	ND		2.0	1	04/15/2016 12:23
2-Nitrophenol	ND		10	1	04/15/2016 12:23
4-Nitrophenol	ND		10	1	04/15/2016 12:23
N-Nitrosodiphenylamine	ND		2.0	1	04/15/2016 12:23
N-Nitrosodi-n-propylamine	ND		2.0	1	04/15/2016 12:23
Pentachlorophenol	ND		10	1	04/15/2016 12:23
Phenanthrene	ND		2.0	1	04/15/2016 12:23
Phenol	ND		2.0	1	04/15/2016 12:23
Pyrene	ND		2.0	1	04/15/2016 12:23
1,2,4-Trichlorobenzene	ND		2.0	1	04/15/2016 12:23
2,4,5-Trichlorophenol	ND		2.0	1	04/15/2016 12:23
2,4,6-Trichlorophenol	ND		2.0	1	04/15/2016 12:23

(Cont.)



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/14/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics by GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-SE	1604363-003A	Soil	04/07/2016	GC21	119523

Analytes	Result	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
2-Fluorophenol	104	30-130		04/15/2016 12:23
Phenol-d5	84	30-130		04/15/2016 12:23
Nitrobenzene-d5	74	30-130		04/15/2016 12:23
2-Fluorobiphenyl	81	30-130		04/15/2016 12:23
2,4,6-Tribromophenol	52	16-130		04/15/2016 12:23
4-Terphenyl-d14	86	30-130		04/15/2016 12:23

Analyst(s): REB

Analytical Comments: a4



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/11/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW9045C
Analytical Method: SW9045C_Corr
Unit: pH units

Corrosivity

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
TC	1604363-004A	Oil	04/06/2016	WetChem	119569

Analytes	Result	Accuracy	DF	Date Analyzed
Corrosivity	6.4	±0.05	1	04/11/2016 20:35

Analyst(s): RB



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/15/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW1010
Analytical Method: SW1010
Unit: °C

Flash Point by SW1010

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
TC	1604363-004A	Oil	04/06/2016	WetChem	119623

<u>Analytes</u>	<u>Result</u>	<u>Accuracy</u>	<u>DF</u>	<u>Date Analyzed</u>
Flash Point	>100 °C	±2	1	04/15/2016 15:55

Analyst(s): AL



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/11/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/L

Gasoline Range(C6-C12) & Stoddard Solvent Range(C9-C12) Volatile Hydrocarbons W/BTEX & MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
TC	1604363-004A	Oil	04/06/2016	GC19	119339

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	19,000	2500	5	04/13/2016 16:54
TPH(ss)	37,000	2500	5	04/13/2016 16:54
MTBE	---	250	5	04/13/2016 16:54
Benzene	---	25	5	04/13/2016 16:54
Toluene	---	25	5	04/13/2016 16:54
Ethylbenzene	---	25	5	04/13/2016 16:54
Xylenes	---	75	5	04/13/2016 16:54

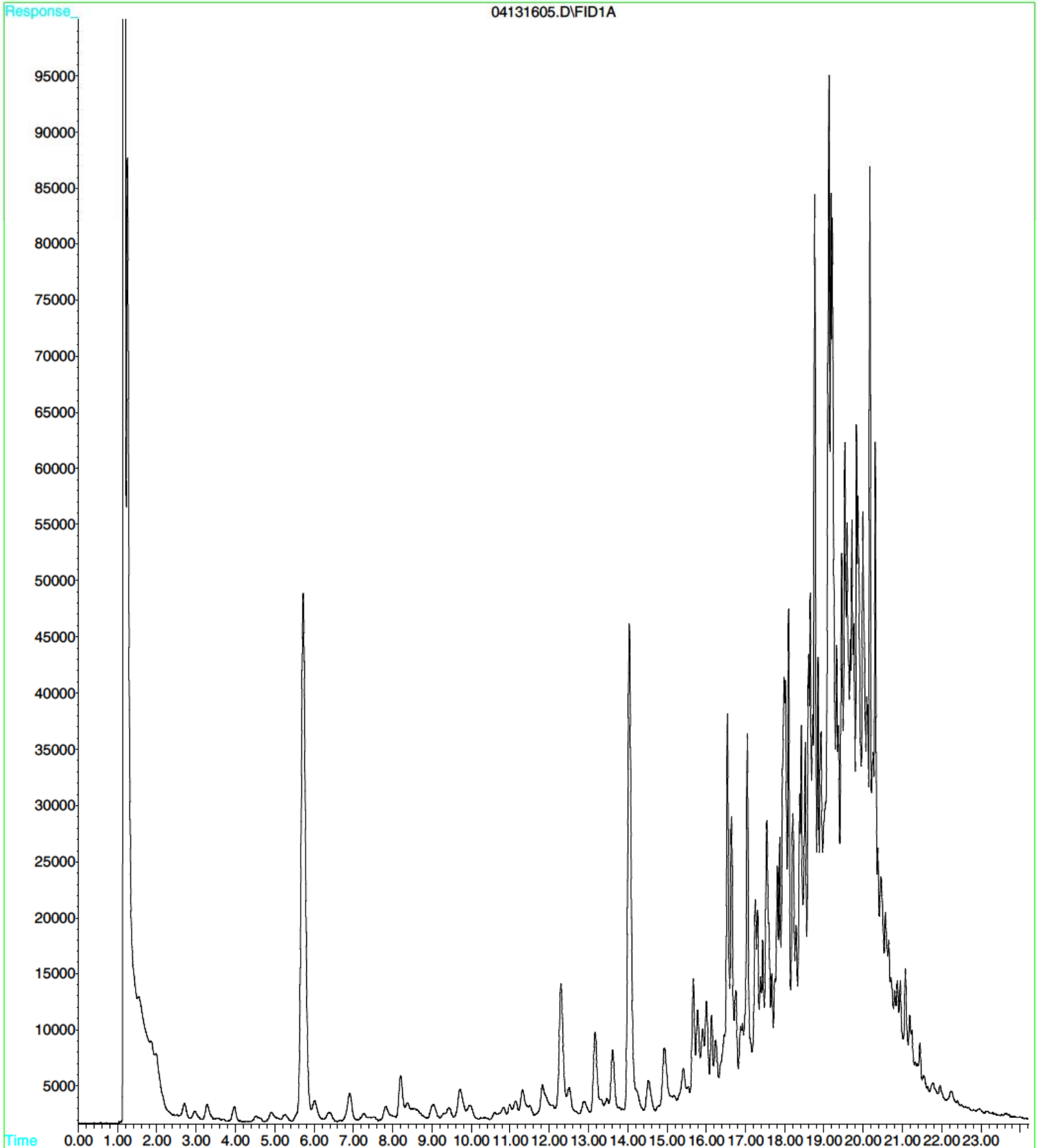
Surrogates	REC (%)	Limits	Date Analyzed
aaa-TFT	88	70-130	04/13/2016 16:54

Analyst(s): IA

Analytical Comments: d7

File : D:\HPCHEM\GC19\DATA\04131605.D
Operator : IRINA
Acquired : 13 Apr 2016 4:54 pm using AcqMethod GC19P2.M
Instrument : GC-19
Sample Name: 1604363-004A O rr
Misc Info : G-MBTXEX_O
Vial Number: 5

1604363-004A





Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-NW	1604363-002A	Soil	04/07/2016	GC19	119277

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	23	1.0	1	04/12/2016 04:26
MTBE	---	0.050	1	04/12/2016 04:26
Benzene	---	0.0050	1	04/12/2016 04:26
Toluene	---	0.0050	1	04/12/2016 04:26
Ethylbenzene	---	0.0050	1	04/12/2016 04:26
TPH(ss)	45	1.0	1	04/12/2016 04:26
Xylenes	---	0.015	1	04/12/2016 04:26

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	93	70-130	04/12/2016 04:26

Analyst(s): IA **Analytical Comments:** d5

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-SE	1604363-003A	Soil	04/07/2016	GC19	119277

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	150	20	20	04/11/2016 23:24
MTBE	---	1.0	20	04/11/2016 23:24
Benzene	---	0.10	20	04/11/2016 23:24
Toluene	---	0.10	20	04/11/2016 23:24
Ethylbenzene	---	0.10	20	04/11/2016 23:24
TPH(ss)	280	20	20	04/11/2016 23:24
Xylenes	---	0.30	20	04/11/2016 23:24

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	114	70-130	04/11/2016 23:24

Analyst(s): IA **Analytical Comments:** d5



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
BF-1,2	1604363-005A	Soil	04/06/2016	GC19	119277

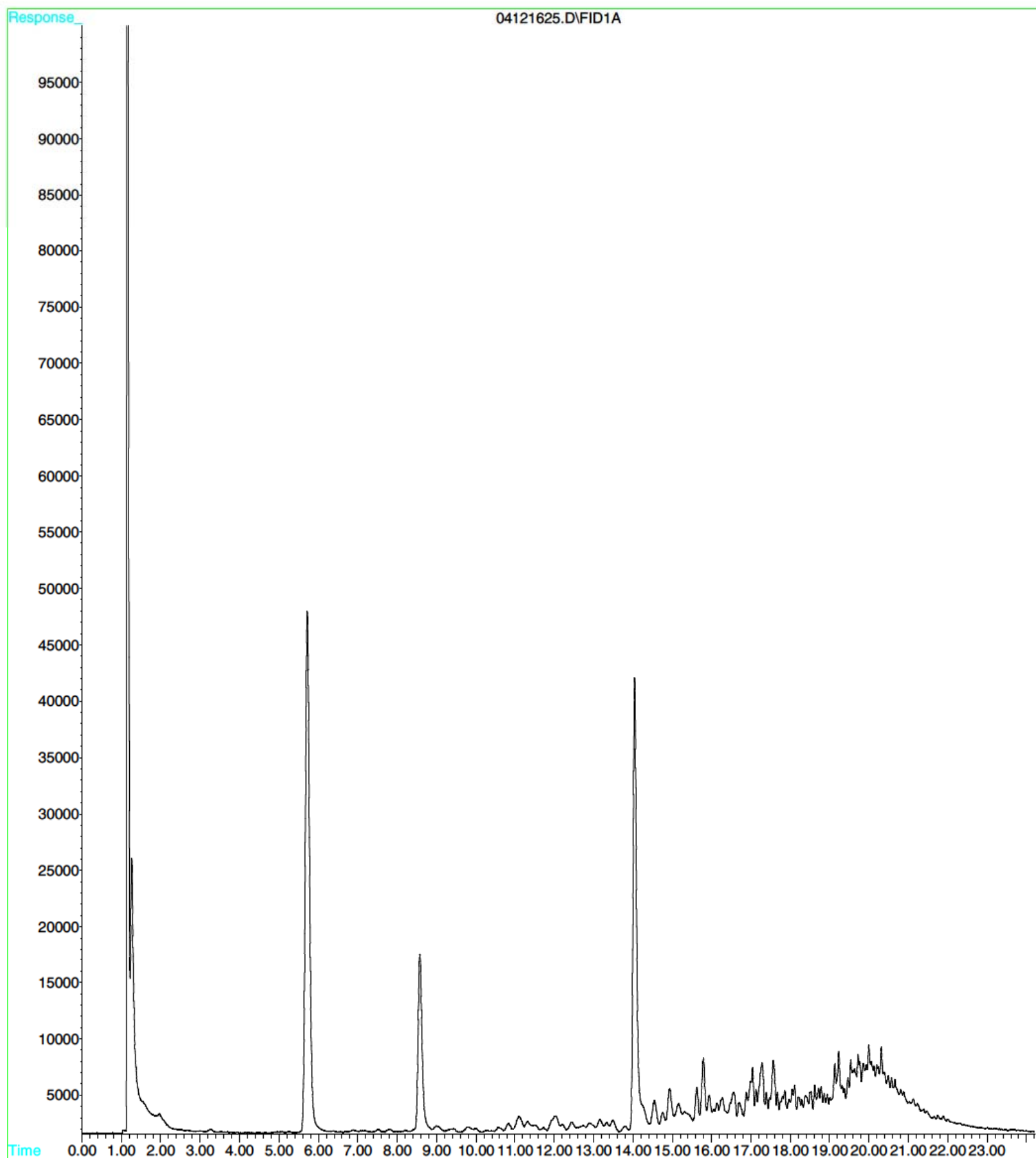
Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	1.0	1	04/13/2016 00:02
MTBE	---	0.050	1	04/13/2016 00:02
Benzene	---	0.0050	1	04/13/2016 00:02
Toluene	---	0.0050	1	04/13/2016 00:02
Ethylbenzene	---	0.0050	1	04/13/2016 00:02
TPH(ss)	ND	1.0	1	04/13/2016 00:02
Xylenes	---	0.015	1	04/13/2016 00:02

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	104	70-130	04/13/2016 00:02

Analyst(s): IA

File : D:\HPCHEM\GC19\DATA\04121625.D
Operator : IRINA
Acquired : 13 Apr 2016 4:03 am using AcqMethod GC19P2.M
Instrument : GC-19
Sample Name: 1604363-002A S rr
Misc Info : G-MBTXEX_S
Vial Number: 25

1604363-002A





Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/15/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L

Gasoline Range(C6-C12) & Stoddard Solvent Range(C9-C12) Volatile Hydrocarbons W/BTEX & MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-10-W	1604363-001A	Water	04/07/2016	GC19	119530

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	8000	500	10	04/15/2016 14:27
MTBE	ND	50	10	04/15/2016 14:27
Benzene	11	5.0	10	04/15/2016 14:27
Toluene	ND	5.0	10	04/15/2016 14:27
Ethylbenzene	100	5.0	10	04/15/2016 14:27
TPH(ss)	15,000	500	10	04/15/2016 14:27
Xylenes	360	15	10	04/15/2016 14:27

Surrogates	REC (%)	Limits	Date Analyzed
aaa-TFT	96	70-130	04/15/2016 14:27

Analyst(s): IA

Analytical Comments: d2,b6



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

LUFT 5 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-NW	1604363-002A	Soil	04/07/2016	ICP-MS1	119288
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Cadmium	ND		0.25	1	04/12/2016 18:44
Chromium	45		0.50	1	04/12/2016 18:44
Lead	13		0.50	1	04/12/2016 18:44
Nickel	99		0.50	1	04/12/2016 18:44
Zinc	40		5.0	1	04/12/2016 18:44
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
Terbium	106		70-130		04/12/2016 18:44

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-SE	1604363-003A	Soil	04/07/2016	ICP-MS1	119288
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Cadmium	ND		0.25	1	04/12/2016 18:50
Chromium	54		0.50	1	04/12/2016 18:50
Lead	13		0.50	1	04/12/2016 18:50
Nickel	72		0.50	1	04/12/2016 18:50
Zinc	39		5.0	1	04/12/2016 18:50
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
Terbium	109		70-130		04/12/2016 18:50

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
BF-1,2	1604363-005A	Soil	04/06/2016	ICP-MS1	119288
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Cadmium	ND		0.25	1	04/12/2016 19:22
Chromium	12		0.50	1	04/12/2016 19:22
Lead	0.91		0.50	1	04/12/2016 19:22
Nickel	23		0.50	1	04/12/2016 19:22
Zinc	57		5.0	1	04/12/2016 19:22
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
Terbium	110		70-130		04/12/2016 19:22

Analyst(s): DVH



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

LUFT 5 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-10-W	1604363-001C	Water	04/07/2016	ICP-MS3	119270
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Cadmium	ND		2.5	10	04/12/2016 22:28
Chromium	66		5.0	10	04/12/2016 22:28
Lead	140		5.0	10	04/12/2016 22:28
Nickel	120		5.0	10	04/12/2016 22:28
Zinc	ND		150	10	04/12/2016 22:28
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
Terbium	121		70-130		04/12/2016 22:28
<u>Analyst(s):</u> BBO	<u>Analytical Comments:</u> a1				



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/11/16
Project: SCS557; Trimble Tank Pull


WorkOrder: 1604363
Extraction Method: SM9040B
Analytical Method: SM9040B
Unit: pH units @ 25°C

pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
TC	1604363-004A	Oil	04/06/2016	WetChem	119569

Analytes	Result	Accuracy	DF	Date Analyzed
pH	6.35	±0.05	1	04/11/2016 20:41

Analyst(s): RB

 Angela Rydelius, Lab Manager



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 20:48
Date Prepared: 4/11/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3010
Analytical Method: SW6020
Unit: mg/kg

RCRA Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
TC	1604363-004A	Oil	04/06/2016	ICP-MS1	119340

Analytes	Result	RL	DF	Date Analyzed
Arsenic	ND	0.50	1	04/13/2016 16:35
Barium	ND	5.0	1	04/13/2016 16:35
Cadmium	ND	0.25	1	04/13/2016 16:35
Chromium	ND	0.50	1	04/13/2016 16:35
Lead	0.69	0.50	1	04/13/2016 16:35
Mercury	ND	0.050	1	04/13/2016 16:35
Selenium	ND	0.50	1	04/13/2016 16:35
Silver	ND	0.50	1	04/13/2016 16:35

Analyst(s): DVH



Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/11/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3580A
Analytical Method: SW8015B
Unit: mg/kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
TC	1604363-004A	Oil	04/06/2016	GC11B	119338

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	480,000	80,000	500	04/13/2016 12:58
TPH-Motor Oil (C18-C36)	570,000	400,000	500	04/13/2016 12:58
TPH-Bunker Oil (C10-C36)	780,000	400,000	500	04/13/2016 12:58
TPH-Heating Oil (C9-C18)	220,000	80,000	500	04/13/2016 12:58

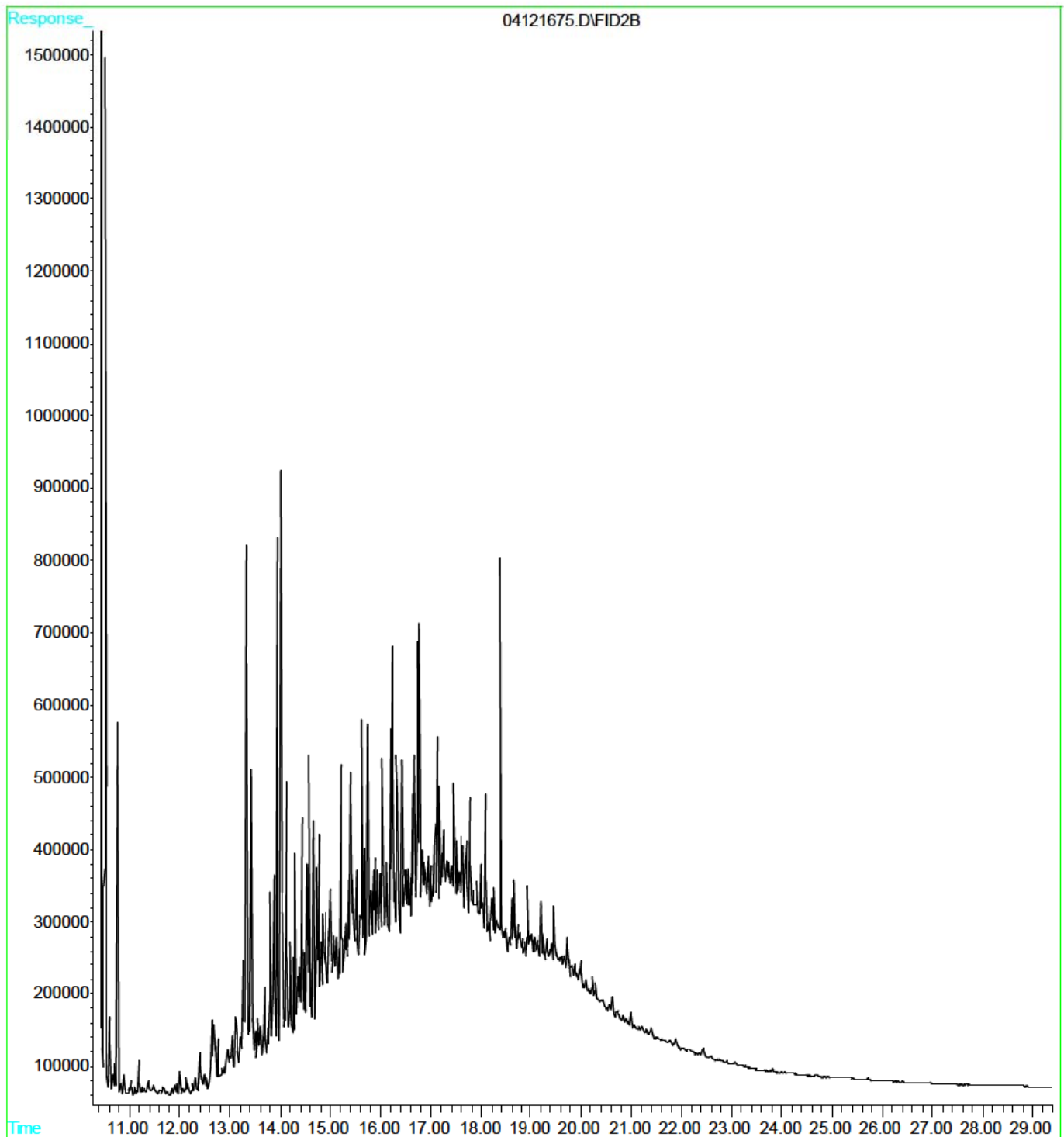
Surrogates	REC (%)	Limits	Date Analyzed
C9	104	70-130	04/13/2016 12:58

Analyst(s): TK

Analytical Comments: e2,e7

File : D:\HPCHEM\GC11\DATAB\04121675.D
Operator : Toshiko
Acquired : 13 Apr 2016 12:58 pm using AcqMethod GC11A_B.M
Instrument : GC-11
Sample Name: 1604363-004A O +BO,HTO RR
Misc Info : TPH
Vial Number: 88

1604363-004A





Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-NW	1604363-002A	Soil	04/07/2016	GC6B	119278

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	60	5.0	5	04/11/2016 23:31
TPH-Motor Oil (C18-C36)	86	25	5	04/11/2016 23:31
TPH-Bunker Oil (C10-C36)	120	25	5	04/11/2016 23:31
TPH-Heating Oil (C9-C18)	29	5.0	5	04/11/2016 23:31

Surrogates	REC (%)	Limits	Date Analyzed
C9	83	70-130	04/11/2016 23:31

Analyst(s): TK

Analytical Comments: e2,e7

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SW-10-SE	1604363-003A	Soil	04/07/2016	GC9b	119278

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	82	2.0	2	04/12/2016 13:20
TPH-Motor Oil (C18-C36)	65	10	2	04/12/2016 13:20
TPH-Bunker Oil (C10-C36)	120	10	2	04/12/2016 13:20
TPH-Heating Oil (C9-C18)	61	2.0	2	04/12/2016 13:20

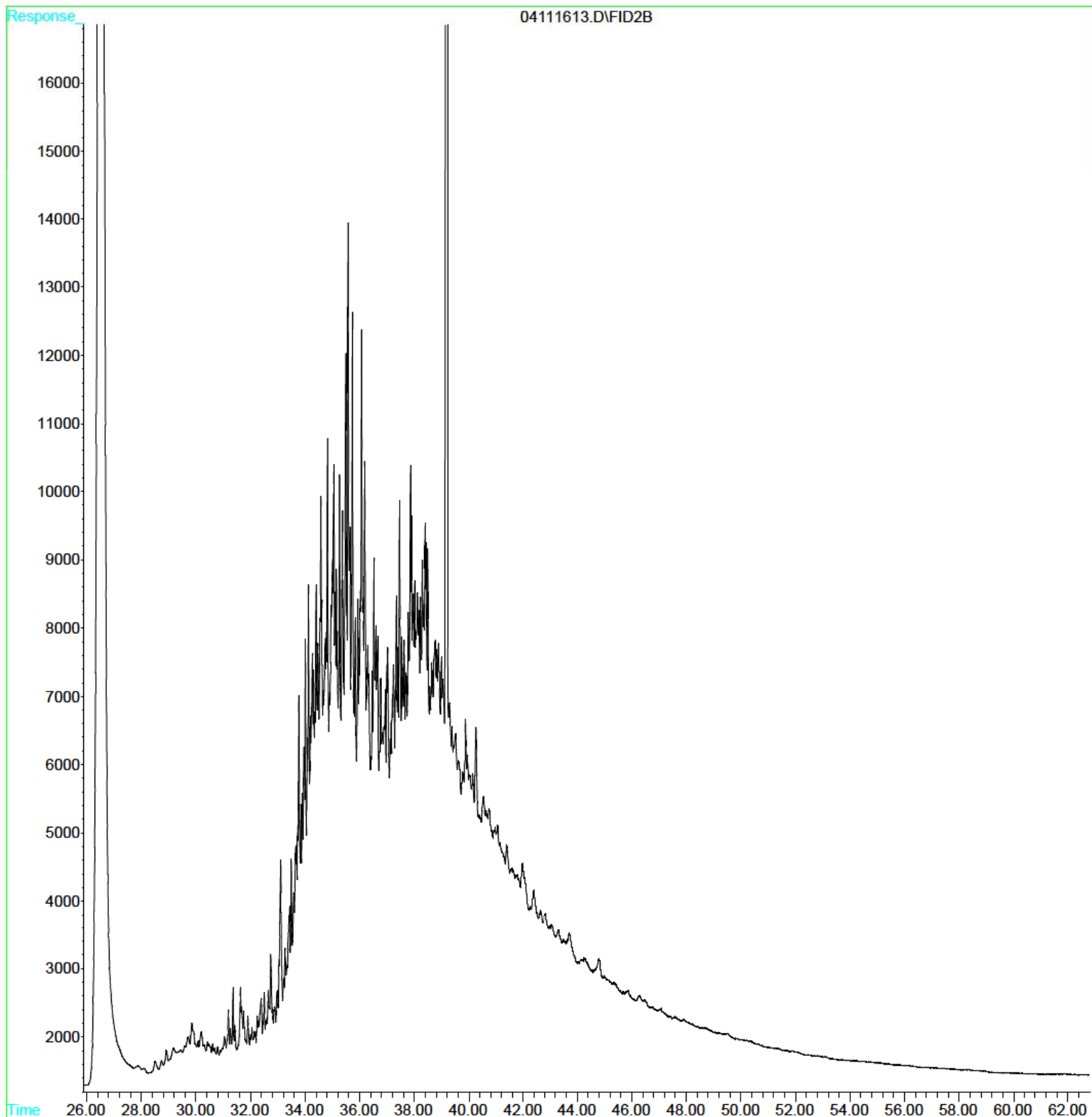
Surrogates	REC (%)	Limits	Date Analyzed
C9	85	70-130	04/12/2016 13:20

Analyst(s): TK

Analytical Comments: e7,e2,e11/e4

File : D:\HPCHEM\GC6\DATAB\04111613.D
Operator : Toshiko
Acquired : 11 Apr 2016 11:31 pm using AcqMethod GC6AI.M
Instrument : GC-6
Sample Name: 1604363-002A S +BO,HTO
Misc Info : TPH
Vial Number: 57

1604363-002A





Analytical Report

Client: Schutze & Associates, Inc.
Date Received: 4/8/16 18:55
Date Prepared: 4/8/16
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
Extraction Method: SW3510C
Analytical Method: SW8015B
Unit: µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-10-W	1604363-001A	Water	04/07/2016	GC9a	119286

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	52,000	1000	10	04/12/2016 17:23
TPH-Motor Oil (C18-C36)	13,000	5000	10	04/12/2016 17:23
TPH-Bunker Oil (C10-C36)	61,000	5000	10	04/12/2016 17:23
TPH-Heating Oil (C9-C18)	49,000	1000	10	04/12/2016 17:23

Surrogates	REC (%)	Limits	Date Analyzed
C9	120	70-130	04/12/2016 17:23

Analyst(s): TK

Analytical Comments: e4,e2,e7,e8,b6



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/11/16
Date Analyzed: 4/21/16
Instrument: GC10
Matrix: Liquid
Project: SCS557; Trimble Tank Pull


WorkOrder: 1604363
BatchID: 119337
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/L
Sample ID: MB-119337

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	100	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	-	5.0	-	-	-	-
Benzene	ND	-	5.0	-	-	-	-
Bromobenzene	ND	-	5.0	-	-	-	-
Bromochloromethane	ND	-	5.0	-	-	-	-
Bromodichloromethane	ND	-	5.0	-	-	-	-
Bromoform	ND	-	5.0	-	-	-	-
Bromomethane	ND	-	5.0	-	-	-	-
2-Butanone (MEK)	ND	-	20	-	-	-	-
t-Butyl alcohol (TBA)	ND	-	50	-	-	-	-
n-Butyl benzene	ND	-	5.0	-	-	-	-
sec-Butyl benzene	ND	-	5.0	-	-	-	-
tert-Butyl benzene	ND	-	5.0	-	-	-	-
Carbon Disulfide	ND	-	5.0	-	-	-	-
Carbon Tetrachloride	ND	-	5.0	-	-	-	-
Chlorobenzene	ND	-	5.0	-	-	-	-
Chloroethane	ND	-	5.0	-	-	-	-
Chloroform	ND	-	5.0	-	-	-	-
Chloromethane	ND	-	5.0	-	-	-	-
2-Chlorotoluene	ND	-	5.0	-	-	-	-
4-Chlorotoluene	ND	-	5.0	-	-	-	-
Dibromochloromethane	ND	-	5.0	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	5.0	-	-	-	-
1,2-Dibromoethane (EDB)	ND	-	5.0	-	-	-	-
Dibromomethane	ND	-	5.0	-	-	-	-
1,2-Dichlorobenzene	ND	-	5.0	-	-	-	-
1,3-Dichlorobenzene	ND	-	5.0	-	-	-	-
1,4-Dichlorobenzene	ND	-	5.0	-	-	-	-
Dichlorodifluoromethane	ND	-	5.0	-	-	-	-
1,1-Dichloroethane	ND	-	5.0	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	-	5.0	-	-	-	-
1,1-Dichloroethene	ND	-	5.0	-	-	-	-
cis-1,2-Dichloroethene	ND	-	5.0	-	-	-	-
trans-1,2-Dichloroethene	ND	-	5.0	-	-	-	-
1,2-Dichloropropane	ND	-	5.0	-	-	-	-
1,3-Dichloropropane	ND	-	5.0	-	-	-	-
2,2-Dichloropropane	ND	-	5.0	-	-	-	-

(Cont.)

NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/11/16
Date Analyzed: 4/21/16
Instrument: GC10
Matrix: Liquid
Project: SCS557; Trimble Tank Pull


WorkOrder: 1604363
BatchID: 119337
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/L
Sample ID: MB-119337

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	5.0	-	-	-	-
cis-1,3-Dichloropropene	ND	-	5.0	-	-	-	-
trans-1,3-Dichloropropene	ND	-	5.0	-	-	-	-
Diisopropyl ether (DIPE)	ND	-	5.0	-	-	-	-
Ethylbenzene	ND	-	5.0	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	-	5.0	-	-	-	-
Freon 113	ND	-	5.0	-	-	-	-
Hexachlorobutadiene	ND	-	5.0	-	-	-	-
Hexachloroethane	ND	-	5.0	-	-	-	-
2-Hexanone	ND	-	5.0	-	-	-	-
Isopropylbenzene	ND	-	5.0	-	-	-	-
4-Isopropyl toluene	ND	-	5.0	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	-	5.0	-	-	-	-
Methylene chloride	ND	-	5.0	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	5.0	-	-	-	-
Naphthalene	ND	-	5.0	-	-	-	-
n-Propyl benzene	ND	-	5.0	-	-	-	-
Styrene	ND	-	5.0	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	5.0	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	5.0	-	-	-	-
Tetrachloroethene	ND	-	5.0	-	-	-	-
Toluene	ND	-	5.0	-	-	-	-
1,2,3-Trichlorobenzene	ND	-	5.0	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	5.0	-	-	-	-
1,1,1-Trichloroethane	ND	-	5.0	-	-	-	-
1,1,2-Trichloroethane	ND	-	5.0	-	-	-	-
Trichloroethene	ND	-	5.0	-	-	-	-
Trichlorofluoromethane	ND	-	5.0	-	-	-	-
1,2,3-Trichloropropane	ND	-	5.0	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	5.0	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	5.0	-	-	-	-
Vinyl Chloride	ND	-	5.0	-	-	-	-
Xylenes, Total	ND	-	5.0	-	-	-	-

(Cont.)

NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/11/16
Date Analyzed: 4/21/16
Instrument: GC10
Matrix: Liquid
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119337
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/L
Sample ID: MB-119337

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	281	-		250	112	-	-
Toluene-d8	258	-		250	103	-	-
4-BFB	26.6	-		25	106	-	-



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/8/16
Date Analyzed: 4/9/16
Instrument: GC10
Matrix: Soil
Project: SCS557; Trimble Tank Pull


WorkOrder: 1604363
BatchID: 119276
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-119276
 1604337-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0360	0.0050	0.050	-	72	53-116
Benzene	ND	0.0471	0.0050	0.050	-	94	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.164	0.050	0.20	-	82	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0423	0.0050	0.050	-	85	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0398	0.0040	0.050	-	80	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0448	0.0040	0.050	-	90	58-135
1,1-Dichloroethene	ND	0.0457	0.0050	0.050	-	91	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

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NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/8/16
Date Analyzed: 4/9/16
Instrument: GC10
Matrix: Soil
Project: SCS557; Trimble Tank Pull


WorkOrder: 1604363
BatchID: 119276
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-119276
 1604337-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0442	0.0050	0.050	-	88	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0429	0.0050	0.050	-	86	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0402	0.0050	0.050	-	80	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0468	0.0050	0.050	-	94	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0448	0.0050	0.050	-	90	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

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NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/8/16
Date Analyzed: 4/9/16
Instrument: GC10
Matrix: Soil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119276
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-119276
 1604337-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.119	0.122		0.12	95	98	70-130
Toluene-d8	0.120	0.117		0.12	96	94	70-130
4-BFB	0.00971	0.00977		0.012	78	78	70-130
Benzene-d6	0.0785	0.0912		0.10	79	91	60-140
Ethylbenzene-d10	0.0828	0.0940		0.10	83	94	60-140
1,2-DCB-d4	0.0765	0.0794		0.10	76	79	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0360	0.0376	0.050	ND	72	75	56-94	4.30	0
Benzene	0.0468	0.0470	0.050	ND	94	94	60-106	0	0
t-Butyl alcohol (TBA)	0.168	0.180	0.20	ND	84	90	56-140	7.04	0
Chlorobenzene	0.0413	0.0418	0.050	ND	83	84	61-108	1.07	0
1,2-Dibromoethane (EDB)	0.0412	0.0433	0.050	ND	82	87	54-119	4.83	0
1,2-Dichloroethane (1,2-DCA)	0.0450	0.0460	0.050	ND	90	92	48-115	2.09	0
1,1-Dichloroethene	0.0469	0.0470	0.050	ND	94	94	46-111	0	0
Diisopropyl ether (DIPE)	0.0429	0.0429	0.050	ND	86	86	53-111	0	0
Ethyl tert-butyl ether (ETBE)	0.0418	0.0428	0.050	ND	84	86	61-104	2.36	0
Methyl-t-butyl ether (MTBE)	0.0407	0.0426	0.050	ND	81	85	58-107	4.50	0
Toluene	0.0451	0.0456	0.050	ND	90	91	64-114	1.23	0
Trichloroethene	0.0445	0.0450	0.050	ND	89	90	60-116	1.28	0

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
Dibromofluoromethane	0.121	0.122	0.12		97	98	70-130	0.894	0
Toluene-d8	0.115	0.118	0.12		92	94	70-130	2.03	0
4-BFB	0.0101	0.0107	0.012		81	86	88-121	5.89	0
Benzene-d6	0.0918	0.0899	0.10		92	90	60-140	2.15	0
Ethylbenzene-d10	0.0910	0.0895	0.10		91	89	60-140	1.76	0
1,2-DCB-d4	0.0788	0.0787	0.10		79	79	60-140	0	0



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/16/16
Date Analyzed: 4/16/16
Instrument: GC16
Matrix: Water
Project: SCS557; Trimble Tank Pull


WorkOrder: 1604363
BatchID: 119675
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-119675
 1604363-001BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	9.01	0.50	10	-	90	54-140
Benzene	ND	9.93	0.50	10	-	99	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	32.3	2.0	40	-	81	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	9.06	0.50	10	-	91	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	9.22	0.50	10	-	92	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	9.53	0.50	10	-	95	66-125
1,1-Dichloroethene	ND	10.2	0.50	10	-	102	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-

(Cont.)

NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/16/16
Date Analyzed: 4/16/16
Instrument: GC16
Matrix: Water
Project: SCS557; Trimble Tank Pull


WorkOrder: 1604363
BatchID: 119675
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-119675
 1604363-001BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
Diisopropyl ether (DIPE)	ND	9.69	0.50	10	-	97	57-136
Ethanol	ND	-	50	-	-	-	-
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	9.53	0.50	10	-	95	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	9.15	0.50	10	-	92	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	9.18	0.50	10	-	92	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	9.41	0.50	10	-	94	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-

(Cont.)

NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/16/16
Date Analyzed: 4/16/16
Instrument: GC16
Matrix: Water
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119675
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-119675
 1604363-001BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	26.2	26.0		25	105	104	70-130
Toluene-d8	24.6	23.5		25	98	94	70-130
4-BFB	2.55	2.71		2.5	102	108	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	NR	NR		ND<50	NR	NR	-	NR	
Benzene	NR	NR		ND<50	NR	NR	-	NR	
t-Butyl alcohol (TBA)	NR	NR		ND<200	NR	NR	-	NR	
Chlorobenzene	NR	NR		ND<50	NR	NR	-	NR	
1,2-Dibromoethane (EDB)	NR	NR		ND<50	NR	NR	-	NR	
1,2-Dichloroethane (1,2-DCA)	NR	NR		ND<50	NR	NR	-	NR	
1,1-Dichloroethene	NR	NR		ND<50	NR	NR	-	NR	
Diisopropyl ether (DIPE)	NR	NR		ND<50	NR	NR	-	NR	
Ethyl tert-butyl ether (ETBE)	NR	NR		ND<50	NR	NR	-	NR	
Methyl-t-butyl ether (MTBE)	NR	NR		ND<50	NR	NR	-	NR	
Toluene	NR	NR		ND<50	NR	NR	-	NR	
Trichloroethene	NR	NR		ND<50	NR	NR	-	NR	
Surrogate Recovery									
Dibromofluoromethane	NR	NR			NR	NR	-	NR	
Toluene-d8	NR	NR			NR	NR	-	NR	
4-BFB	NR	NR			NR	NR	-	NR	

CLIENT: Schutze & Associates, Inc.

Work Order: 1604363

Project: SCS557; Trimble Tank Pull

ANALYTICAL QC SUMMARY REPORT

BatchID: 119276

SampleID MB-119276	TestCode: 8260gas_s	Units: mg/kg	Prep Date: 4/8/2016
Batch ID: 119276	TestNo: SW8260B	Run ID: GC10_160422C	Analysis Date: 4/9/2016
Analyte	Result	PQL SPKValue SPKRefVal %REC Limits	RPDRefVal %RPD RPDLimit Qual

TPH(g)	ND	0.25	-
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Surrogate Recovery

Dibromofluoromethane	0.164	0.125	131	70 - 130	S
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Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

CLIENT: Schutze & Associates, Inc.

ANALYTICAL QC SUMMARY REPORT

Work Order: 1604363

Project: SCS557; Trimble Tank Pull

BatchID: 119276

SampleID	LCS-119276	TestCode: 8260gas_s	Units: mg/kg	Prep Date: 4/8/2016						
Batch ID:	119276	TestNo: SW8260B	Run ID: GC10_160422C	Analysis Date: 4/9/2016						
Analyte	Result	PQL	SPKValue	SPKRefVal	%REC	Limits	RPDRefVal	%RPD	RPDLimit	Qual
VOC (C6-C12)	3.20	0.25	3.2	0	100	74 - 142				
Surrogate Recovery										
Dibromofluoromethane	0.168		0.125		134	70 - 130				S

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

CLIENT: Schutze & Associates, Inc.

ANALYTICAL QC SUMMARY REPORT

Work Order: 1604363

Project: SCS557; Trimble Tank Pull

BatchID: 119337

SampleID MB-119337	TestCode: 8260gas_o	Units: mg/L	Prep Date: 4/11/2016
Batch ID: 119337	TestNo: SW8260B	Run ID: GC18_160422C	Analysis Date: 4/21/2016
Analyte	Result	PQL SPKValue SPKRefVal %REC Limits	RPDRefVal %RPD RPDLimit Qual

TPH(g)	ND	500	-
Surrogate Recovery			
Dibromofluoromethane	221	250	88 70 - 130

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

CLIENT: Schutze & Associates, Inc.

ANALYTICAL QC SUMMARY REPORT

Work Order: 1604363

Project: SCS557; Trimble Tank Pull

BatchID: 119675

SampleID MB-119675	TestCode: 8260GAS_W	Units: µg/L	Prep Date: 4/16/2016
Batch ID: 119675	TestNo: SW8260B	Run ID: GC16_160417B	Analysis Date: 4/16/2016
Analyte	Result	PQL SPKValue SPKRefVal %REC	Limits RPDRefVal %RPD RPDLimit Qual

TPH(g)	ND	50	-
Surrogate Recovery			
Dibromofluoromethane	25.9	25	103 70 - 130

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

CLIENT: Schutze & Associates, Inc.

ANALYTICAL QC SUMMARY REPORT

Work Order: 1604363

Project: SCS557; Trimble Tank Pull

BatchID: 119675

SampleID	LCS-119675	TestCode: 8260gas_w	Units: µg/L	Prep Date: 4/16/2016						
Batch ID:	119675	TestNo: SW8260B	Run ID: GC16_160417B	Analysis Date: 4/16/2016						
Analyte	Result	PQL	SPKValue	SPKRefVal	%REC	Limits	RPDRefVal	%RPD	RPDLimit	Qual

VOC (C6-C12)	517	50	644	0	80	70 - 130				
Surrogate Recovery										
Dibromofluoromethane	25.5		25		102	70 - 130				

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/13/16
Date Analyzed: 4/13/16
Instrument: GC21
Matrix: Soil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119523
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg
Sample ID: MB/LCS-119523

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	4.34	0.25	5	-	87	30-130
Acenaphthylene	ND	-	0.25	-	-	-	-
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	-	0.25	-	-	-	-
Benzidine	ND	-	1.3	-	-	-	-
Benzo (a) anthracene	ND	-	0.25	-	-	-	-
Benzo (b) fluoranthene	ND	-	0.25	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.25	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.25	-	-	-	-
Benzo (a) pyrene	ND	-	0.25	-	-	-	-
Benzyl Alcohol	ND	-	1.3	-	-	-	-
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	-	0.25	-	-	-	-
Bis (2-chloroethyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-chloroisopropyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Adipate	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	-	0.25	-	-	-	-
4-Bromophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Butylbenzyl Phthalate	ND	-	0.25	-	-	-	-
4-Chloroaniline	ND	-	0.25	-	-	-	-
4-Chloro-3-methylphenol	ND	4.72	0.25	5	-	94	30-130
2-Chloronaphthalene	ND	-	0.25	-	-	-	-
2-Chlorophenol	ND	4.50	0.25	5	-	90	30-130
4-Chlorophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Chrysene	ND	-	0.25	-	-	-	-
Dibenzo (a,h) anthracene	ND	-	0.25	-	-	-	-
Dibenzofuran	ND	-	0.25	-	-	-	-
Di-n-butyl Phthalate	ND	-	0.25	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,4-Dichlorobenzene	ND	4.06	0.25	5	-	81	30-130
3,3-Dichlorobenzidine	ND	-	0.50	-	-	-	-
2,4-Dichlorophenol	ND	-	0.25	-	-	-	-
Diethyl Phthalate	ND	-	0.25	-	-	-	-
2,4-Dimethylphenol	ND	-	0.25	-	-	-	-
Dimethyl Phthalate	ND	-	0.25	-	-	-	-
4,6-Dinitro-2-methylphenol	ND	-	1.3	-	-	-	-

(Cont.)

NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/13/16
Date Analyzed: 4/13/16
Instrument: GC21
Matrix: Soil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119523
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg
Sample ID: MB/LCS-119523

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	-	6.3	-	-	-	-
2,4-Dinitrotoluene	ND	4.44	0.25	5	-	89	30-130
2,6-Dinitrotoluene	ND	-	0.25	-	-	-	-
Di-n-octyl Phthalate	ND	-	0.50	-	-	-	-
1,2-Diphenylhydrazine	ND	-	0.25	-	-	-	-
Fluoranthene	ND	-	0.25	-	-	-	-
Fluorene	ND	-	0.25	-	-	-	-
Hexachlorobenzene	ND	-	0.25	-	-	-	-
Hexachlorobutadiene	ND	-	0.25	-	-	-	-
Hexachlorocyclopentadiene	ND	-	1.3	-	-	-	-
Hexachloroethane	ND	-	0.25	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.25	-	-	-	-
Isophorone	ND	-	0.25	-	-	-	-
2-Methylnaphthalene	ND	-	0.25	-	-	-	-
2-Methylphenol (o-Cresol)	ND	-	0.25	-	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	-	0.25	-	-	-	-
Naphthalene	ND	-	0.25	-	-	-	-
2-Nitroaniline	ND	-	1.3	-	-	-	-
3-Nitroaniline	ND	-	1.3	-	-	-	-
4-Nitroaniline	ND	-	1.3	-	-	-	-
Nitrobenzene	ND	-	0.25	-	-	-	-
2-Nitrophenol	ND	-	1.3	-	-	-	-
4-Nitrophenol	ND	3.58	1.3	5	-	72	30-130
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	4.08	0.25	5	-	82	30-130
Pentachlorophenol	ND	4.32	1.3	5	-	86	30-130
Phenanthrene	ND	-	0.25	-	-	-	-
Phenol	ND	4.24	0.25	5	-	85	30-130
Pyrene	ND	4.97	0.25	5	-	99	30-130
1,2,4-Trichlorobenzene	ND	4.37	0.25	5	-	87	30-130
2,4,5-Trichlorophenol	ND	-	0.25	-	-	-	-
2,4,6-Trichlorophenol	ND	-	0.25	-	-	-	-

(Cont.)

NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/13/16
Date Analyzed: 4/13/16
Instrument: GC21
Matrix: Soil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119523
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg
Sample ID: MB/LCS-119523

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	5.02	4.88		5	100	98	30-130
Phenol-d5	4.27	4.29		5	85	86	30-130
Nitrobenzene-d5	3.82	4.06		5	76	81	30-130
2-Fluorobiphenyl	3.80	4.00		5	76	80	30-130
2,4,6-Tribromophenol	2.98	3.67		5	60	73	30-130
4-Terphenyl-d14	3.89	4.18		5	78	84	30-130



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/11/16
Date Analyzed: 4/11/16
Instrument: WetChem
Matrix: Liquid
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119569
Extraction Method: SW9045C
Analytical Method: SW9045C_Corr
Unit: pH units

QC Summary Report for SW9045C_Corr

SampleID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1604363-004A	6.4	1	6.4	1	0	10

Client: Schutze & Associates, Inc.
Date Prepared: 4/15/16
Date Analyzed: 4/15/16
Instrument: WetChem
Matrix: Oil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119623
Extraction Method: SW1010
Analytical Method: SW1010
Unit: °C

QC Summary Report for Flash Point

SampleID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1604363-004A	>100 °C	1	>100 °C	1	N/A	2



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/11/16
Date Analyzed: 4/12/16
Instrument: GC19
Matrix: Oil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119339
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/L
Sample ID: MB-119339

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	-	500	-	-	-	-
MTBE	ND	-	50	-	-	-	-
Benzene	ND	-	5.0	-	-	-	-
Toluene	ND	-	5.0	-	-	-	-
Ethylbenzene	ND	-	5.0	-	-	-	-
Xylenes	ND	-	15	-	-	-	-
Surrogate Recovery							
aaa-TFT	90.6	-		100	91	-	-



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/8/16
Date Analyzed: 4/9/16
Instrument: GC7
Matrix: Soil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119277
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: mg/Kg
Sample ID: MB/LCS-119277
 1604363-002AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	0.521	0.40	0.60	-	87	70-130
MTBE	ND	0.0888	0.050	0.10	-	89	70-130
Benzene	ND	0.108	0.0050	0.10	-	108	70-130
Toluene	ND	0.100	0.0050	0.10	-	100	70-130
Ethylbenzene	ND	0.108	0.0050	0.10	-	108	70-130
Xylenes	ND	0.320	0.015	0.30	-	107	70-130
Surrogate Recovery							
aaa-TFT	0.114	0.123		0.10	114	123	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		1.3	NR	NR	-	NR	
MTBE	NR	NR		ND	NR	NR	-	NR	
Benzene	NR	NR		ND	NR	NR	-	NR	
Toluene	NR	NR		ND	NR	NR	-	NR	
Ethylbenzene	NR	NR		ND	NR	NR	-	NR	
Xylenes	NR	NR		ND	NR	NR	-	NR	
Surrogate Recovery									
aaa-TFT	NR	NR			NR	NR	-	NR	



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/13/16
Date Analyzed: 4/13/16
Instrument: GC3
Matrix: Water
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119530
Extraction Method: SW5030B
Analytical Method: SW8021B/8015Bm
Unit: µg/L
Sample ID: MB/LCS-119530
 1604314-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	58.6	40	60	-	98	70-130
MTBE	ND	9.30	5.0	10	-	93	70-130
Benzene	ND	9.70	0.50	10	-	97	70-130
Toluene	ND	9.86	0.50	10	-	99	70-130
Ethylbenzene	ND	9.96	0.50	10	-	100	70-130
Xylenes	ND	30.3	1.5	30	-	101	70-130

Surrogate Recovery

aaa-TFT	9.88	9.80		10	99	98	70-130
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Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	54.8	60.2	60	ND	91	100	70-130	9.39	20
MTBE	8.07	9.49	10	ND	81	95	70-130	16.2	20
Benzene	9.26	9.97	10	ND	93	100	70-130	7.45	20
Toluene	9.44	10.2	10	ND	94	102	70-130	8.21	20
Ethylbenzene	9.64	10.5	10	ND	96	105	70-130	8.88	20
Xylenes	29.0	32.1	30	ND	97	107	70-130	10.3	20

Surrogate Recovery

aaa-TFT	10.2	9.64	10		102	96	70-130	5.25	20
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Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/8/16
Date Analyzed: 4/11/16
Instrument: ICP-MS2
Matrix: Soil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119288
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg
Sample ID: MB/LCS-119288
 1604362-028AMS/MSD
 1604362-028APDS

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Cadmium	ND	55.9	0.25	50	-	112	75-125
Chromium	ND	59.4	0.50	50	-	119	75-125
Lead	ND	54.8	0.50	50	-	110	75-125
Nickel	ND	54.2	0.50	50	-	108	75-125
Zinc	ND	549	5.0	500	-	110	75-125
Surrogate Recovery							
Terbium	556	579		500	111	116	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Cadmium	54.0	49.6	50	0.36	107	98	75-125	8.55	20
Chromium	74.1	68.7	50	19	111	100	75-125	7.51	20
Lead	68.4	63.6	50	27.49	82	72,F10	75-125	7.40	20
Nickel	66.1	61.5	50	11	110	101	75-125	7.24	20
Zinc	751	690	500	230	104	92	75-125	8.48	20
Surrogate Recovery									
Terbium	563	503	500		113	101	70-130	11.4	20

Analyte	PDS Result	SPK Val	SPKRef Val	PDS %REC	PDS Limits
Lead	78.6	50	27.49	102	75-125

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Cadmium	ND<1.2	0.36		
Chromium	19.4	19	2.11	10
Lead	26.9	27.49	2.15	10
Nickel	11.0	11	0	
Zinc	223	230	3.04	10

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/8/16
Date Analyzed: 4/11/16
Instrument: ICP-MS2
Matrix: Water
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119270
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-119270
 1604341-001EMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Cadmium	ND	51.5	0.25	50	-	103	85-115
Chromium	ND	54.2	0.50	50	-	108	85-115
Lead	ND	50.4	0.50	50	-	101	85-115
Nickel	ND	51.4	0.50	50	-	103	85-115
Zinc	ND	533	15	500	-	107	85-115
Surrogate Recovery							
Terbium	776	737		750	103	98	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Cadmium	51.5	52.6	50	ND	103	105	70-130	2.00	20
Chromium	89.6	91.5	50	38.30	103	106	70-130	2.11	20
Lead	61.6	62.4	50	10.25	103	104	70-130	1.32	20
Nickel	88.1	89.9	50	39.46	97	101	70-130	2.02	20
Zinc	616	635	500	127.5	98	102	70-130	2.97	20
Surrogate Recovery									
Terbium	834	843	750		111	112	70-130	1.00	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Cadmium	ND<1.2	ND		
Chromium	41.0	38.30	7.05	10
Lead	10.4	10.25	1.46	
Nickel	41.8	39.46	5.93	10
Zinc	137	127.5	7.45	

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Schutze & Associates, Inc.	WorkOrder: 1604363
Date Prepared: 4/11/16	BatchID: 119569
Date Analyzed: 4/11/16	Extraction Method: SM9040B
Instrument: WetChem	Analytical Method: SM9040B
Matrix: Liquid	Unit: pH units @ 25°C
Project: SCS557; Trimble Tank Pull	

QC Summary Report for pH

SampleID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1604363-004A	6.35	1	6.36	1	0.01	0.1

QA/QC Officer



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/11/16
Date Analyzed: 4/12/16
Instrument: ICP-MS1
Matrix: Oil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119340
Extraction Method: SW3010
Analytical Method: SW6020
Unit: mg/kg
Sample ID: MB-119340

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Arsenic	ND	-	0.50	-	-	-	-
Barium	ND	-	5.0	-	-	-	-
Cadmium	ND	-	0.25	-	-	-	-
Chromium	ND	-	0.50	-	-	-	-
Lead	ND	-	0.50	-	-	-	-
Mercury	ND	-	0.050	-	-	-	-
Selenium	ND	-	0.50	-	-	-	-
Silver	ND	-	0.50	-	-	-	-
Surrogate Recovery							
Terbium	487	-		500	97	-	-



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/11/16
Date Analyzed: 4/12/16
Instrument: GC6A
Matrix: Oil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119338
Extraction Method: SW3580A
Analytical Method: SW8015B
Unit: mg/kg
Sample ID: MB-119338

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	-	160	-	-	-	-
TPH-Motor Oil (C18-C36)	ND	-	800	-	-	-	-
Surrogate Recovery							
C9	1830	-		2000	92	-	-



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/8/16
Date Analyzed: 4/9/16
Instrument: GC9a
Matrix: Soil
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119278
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg
Sample ID: MB/LCS-119278
 1604346-001AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	40.0	1.0	40	-	100	70-130
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	22.2	22.4		25	89	89	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	39.6	39.0	40	2.846	92	90	70-130	1.51	30
Surrogate Recovery									
C9	22.1	22.1	25		88	88	70-130	0	30



Quality Control Report

Client: Schutze & Associates, Inc.
Date Prepared: 4/8/16
Date Analyzed: 4/9/16
Instrument: GC9b
Matrix: Water
Project: SCS557; Trimble Tank Pull

WorkOrder: 1604363
BatchID: 119286
Extraction Method: SW3510C
Analytical Method: SW8015B
Unit: µg/L
Sample ID: MB/LCS/LCSD-119286

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	50	-	-	-
TPH-Motor Oil (C18-C36)	ND	250	-	-	-
Surrogate Recovery					
C9	562		625	90	65-122

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	1070	1090	1000	107	109	61-157	1.49	30
Surrogate Recovery								
C9	564	569	625	90	91	65-122	0.968	30

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1604363

ClientCode: SCO

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

Report to:

Kevin Loeb
Schutze & Associates, Inc.
44358 South Grimmer Blvd
Fremont, CA 94538
(510) 226-9944 FAX: (510) 625-8176

Email: kevin@schutze-inc.com; js@schutze-inc.co
cc/3rd Party:
PO:
ProjectNo: SCS557; Trimble Tank Pull

Bill to:

Accounts Payable
Schutze & Associates, Inc.
44358 South Grimmer Blvd
Fremont, CA 94538
priscillajazz@yahoo.com

Requested TAT: 5 days;

Date Received: 04/08/2016

Date Logged: 04/08/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1604363-001	B-10-W	Water	4/7/2016	<input type="checkbox"/>			B			B						A
1604363-002	SW-10-NW	Soil	4/7/2016	<input type="checkbox"/>		A			A		A					A
1604363-003	SW-10-SE	Soil	4/7/2016	<input type="checkbox"/>		A			A		A					A
1604363-004	TC	Oil	4/6/2016	<input type="checkbox"/>	A			A				A	A	A		
1604363-005	BF-1,2	Soil	4/6/2016	<input type="checkbox"/>		A			A							A

Test Legend:

1	8260B_O	2	8260B_S	3	8260B_W	4	8260GAS_O
5	8260GAS_S	6	8260GAS_W	7	8270_S	8	CORR_L
9	FLASH_O	10	G-MBTEX_O	11	G-MBTEX_S	12	G-MBTEX_W

Prepared by: Briana Cutino

The following SamplIDs: 001A, 001B, 002A, 003A, 004A, 005A contain testgroup.

Comments: Citric Acid added to 001 4/11/16 5D TAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1604363

ClientCode: SCO

WaterTrax WriteOn EDF Excel EQUIS Email HardCopy ThirdParty J-flag

Report to:

Kevin Loeb
Schutze & Associates, Inc.
44358 South Grimmer Blvd
Fremont, CA 94538
(510) 226-9944 FAX: (510) 625-8176

Email: kevin@schutze-inc.com; js@schutze-inc.co
cc/3rd Party:
PO:
ProjectNo: SCS557; Trimble Tank Pull

Bill to:

Accounts Payable
Schutze & Associates, Inc.
44358 South Grimmer Blvd
Fremont, CA 94538
priscillajazz@yahoo.com

Requested TAT: 5 days;

Date Received: 04/08/2016

Date Logged: 04/08/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					13	14	15	16	17	18	19	20	21	22	23	24
1604363-001	B-10-W	Water	4/7/2016	<input type="checkbox"/>		C						A				
1604363-002	SW-10-NW	Soil	4/7/2016	<input type="checkbox"/>	A						A					
1604363-003	SW-10-SE	Soil	4/7/2016	<input type="checkbox"/>	A						A					
1604363-004	TC	Oil	4/6/2016	<input type="checkbox"/>			A	A	A							
1604363-005	BF-1,2	Soil	4/6/2016	<input type="checkbox"/>	A											

Test Legend:

13	LUFTMS_6020_TTLC_S
17	TPH_O
21	

14	LUFTMS_TTLC_W
18	TPH_S
22	

15	PH_L
19	TPH_W
23	

16	RCRAMS_TTLC_O
20	
24	

Prepared by: Briana Cutino

The following SamplIDs: 001A, 001B, 002A, 003A, 004A, 005A contain testgroup.

Comments: Citric Acid added to 001 4/11/16 5D TAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: SCHUTZE & ASSOCIATES, INC.

QC Level: LEVEL 2

Work Order: 1604363

Project: SCS557; Trimble Tank Pull

Client Contact: Kevin Loeb

Date Logged: 4/8/2016

Comments: Citric Acid added to 001 4/11/16 5D TAT

Contact's Email: kevin@schutze-inc.com; js@schutze-inc.com;
 Mari@schutze-inc.com; claudine@schutze-inc.com

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut			
1604363-001A	B-10-W	Water	Multi-Range TPH(g,d,mo)	1	VOA w/ HCl	<input type="checkbox"/>	4/7/2016	5 days	Present	<input type="checkbox"/>				
1604363-001B	B-10-W	Water	TPH(g) & 8260 (Basic List) by P&T GCMS	1	VOA w/ HCl	<input type="checkbox"/>	4/7/2016	5 days	Present	<input type="checkbox"/>				
1604363-001C	B-10-W	Water	E200.8 (LUFT)	1	VOA w/ HCl	<input type="checkbox"/>	4/7/2016	5 days	Present	<input type="checkbox"/>				
1604363-002A	SW-10-NW	Soil	SW6020 (LUFT)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	4/7/2016	5 days		<input type="checkbox"/>				
			Multi-Range TPH(g,d,mo)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			SW8270C (SVOCs)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			TPH(g) & 8260 (Basic List) by P&T GCMS									<input type="checkbox"/>	5 days	<input type="checkbox"/>
1604363-003A	SW-10-SE	Soil	SW6020 (LUFT)	1	Stainless Steel tube 2"x6"	<input type="checkbox"/>	4/7/2016	5 days		<input type="checkbox"/>				
			Multi-Range TPH(g,d,mo)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			SW8270C (SVOCs)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			TPH(g) & 8260 (Basic List) by P&T GCMS									<input type="checkbox"/>	5 days	<input type="checkbox"/>
1604363-004A	TC	Oil	SW6020 (RCRA Metals)	1	ILA w/ HCl	<input type="checkbox"/>	4/6/2016	5 days		<input type="checkbox"/>				
			SM9040B (pH)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			Multi-Range TPH(g,d,mo)									<input type="checkbox"/>	5 days	<input type="checkbox"/>
			SW1010 (Flash Point)									<input type="checkbox"/>	5 days	<input type="checkbox"/>

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
 - MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



WORK ORDER SUMMARY

Client Name: SCHUTZE & ASSOCIATES, INC.

QC Level: LEVEL 2

Work Order: 1604363

Project: SCS557; Trimble Tank Pull

Client Contact: Kevin Loeb

Date Logged: 4/8/2016

Comments: Citric Acid added to 001 4/11/16 5D TAT

Contact's Email: kevin@schutze-inc.com; js@schutze-inc.com;
 Mari@schutze-inc.com; claudine@schutze-inc.com

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1604363-004A	TC	Oil	SW9045C (Corrosivity)	1	ILA w/ HCl	<input type="checkbox"/>	4/6/2016	5 days		<input type="checkbox"/>	
			TPH(g) & 8260 (Basic List) by P&T GCMS			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1604363-005A	BF-1,2	Soil	SW6020 (LUFT)	2 / (2:1)	Stainless Steel tube 2"x6"	<input type="checkbox"/>	4/6/2016	5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			TPH(g) & 8260 (Basic List) by P&T GCMS			<input type="checkbox"/>		5 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).
 - MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



Sample Receipt Checklist

Client Name:	Schutze & Associates, Inc.	Date and Time Received:	4/8/2016 18:55
Project Name:	SCS557; Trimble Tank Pull	Date Logged:	4/8/2016
WorkOrder №:	1604363 Matrix: <u>Oil/Soil/Water</u>	Received by:	Briana Cutino
Carrier:	<u>Benjamin Yslas (MAI Courier)</u>	Logged by:	Briana Cutino

Chain of Custody (COC) Information

Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Sample IDs noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Date and Time of collection noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Sampler's name noted on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper containers/bottles?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Sample/Temp Blank temperature	Temp: 2°C		NA <input type="checkbox"/>
Water - VOA vials have zero headspace / no bubbles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Samples Received on Ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

(Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

 Comments:

Table 2
Selected Analytical Results in Groundwater Sample (B-10-W)
1647 International Boulevard, Oakland, CA

Parameters	Result (µg/L)	Tier 1 ESL (µg/L)
TPH-g	8,000	100
TPH-ss	15,000	100
TPH-d	52,000	100
Benzene	11	1.0
Ethylbenzene	100	13
Xylenes (total)	360	20
Naphthalene	210	0.17
Chromium (total)	66	50
Lead	140	2.5
Nickel	120	8.2
Tier 1 ESLs = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for Groundwater (February 2016).		

TABLE 1
Selected Analytical Results for TPH
1647 International Boulevard, Oakland, CA

Type of Sample	Date Sampled	Sampling Location	Sample ID	Matrix	Unit	TPH					
						TPH-g	TPH-ss	TPH-d	TPH-mo	TPH-bo	TPH-ho
Tank Removal	3/2/2016	1st UST Pit (base)	B-8.5-NW	Soil	mg/kg	160	150	440	270	620	330
			B-8.5-SE	Soil	mg/kg	140	270	58	49	92	48
			B-11.5-M	Soil	mg/kg	610	620	3,900	2,800	1,600	3,000
	4/7/2016	2nd UST Pit (sidewalls)	SW-10-NW	Soil	mg/kg	23	45	60	86	120	29
			SW-10-SE	Soil	mg/kg	150	280	82	65	120	61
	2nd UST Pit (water) ⁽¹⁾	B-10-W	Water	µg/L	8,000	15,000	52,000	13,000	61,000	49,000	
Waste Characterization	3/2/2016	Stockpiles (excavated soil)	SP-1,2,3,4	Soil	mg/kg	18	36	15	36	12	9.1
	3/4/2016	2nd UST (fill pipe)	Tank II Content ⁽²⁾	Solid	mg/kg	650	1,000	32,000	38,000	59,000	13,000
	4/6/2016	2nd UST (tank contents)	TC ⁽²⁾	Oil	mg/L	19,000	37,000	480,000	570,000	780,000	220,000
Tier 1 ESLs for Soil						100	100	230	5,100	N/A	N/A
Tier 1 ESLs for Groundwater						100	100	100	N/A	N/A	N/A
<p>Matrix / Unit = soil and solids reported in milligrams per kilogram (mg/kg); water reported in micrograms per liter (µg/L); oil reported in milligrams per liter (mg/L). TPH = total petroleum hydrocarbons specified as gasoline range (-g), Stoddard solvent range (-ss), diesel range (-d), motor oil range (-mo), bunker oil range (-bo) and heating oil range (-ho). ESLs = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for Soil and Groundwater (February 2016); Tier 1 ESLs based on: groundwater is a current or potential drinking water resource. N/A = not applicable (no ESL listed). BOLD indicates concentrations above the ESL. (1) Water sample collected in 2nd UST pit appeared to be rinsate water that had leaked from the UST rather than groundwater (see Section C.3). (2) Soil and groundwater ESLs listed are not applicable to samples Tank II Content (matrix = solid) and TC (matrix = oil). These samples are discussed in Section G.</p>											

TABLE 2
Selected Analytical Results for VOCs
1647 International Boulevard, Oakland, CA

Type of Sample	Date Sampled	Sampling Location	Sample ID	Matrix	Unit	VOCs					
						MTBE	Benzene	Toluene	Ethylbenzene	Xylenes (total)	Naphthalene
Tank Removal	3/2/2016	1st UST Pit (base)	B-8.5-NW	Soil	mg/kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
			B-8.5-SE	Soil	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
			B-11.5-M	Soil	mg/kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	5.4
	4/7/2016	2nd UST Pit (sidewalls)	SW-10-NW	Soil	mg/kg	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05
			SW-10-SE	Soil	mg/kg	ND<0.20	ND<0.20	ND<0.20	ND<0.20	ND<0.20	ND<0.20
		2nd UST Pit (water) ⁽¹⁾	B-10-W	Water	µg/L	ND<50	11	ND<5.0	100	360	210
Waste Characterization	3/2/2016	Stockpiles (excavated soil)	SP-1,2,3,4	Soil	mg/kg	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
	3/4/2016	2nd UST (fill pipe)	Tank II Content ⁽²⁾	Solid	mg/kg	ND<0.40	ND<0.40	ND<0.40	ND<0.40	ND<0.40	5.1
	4/6/2016	2nd UST (tank contents)	TC ⁽²⁾	Oil	mg/L	ND<5.0	ND<5.0	16	11	81	340
Tier 1 ESLs for Soil						0.023	0.044	2.9	1.4	2.3	0.033
Tier 1 ESLs for Groundwater						5.0	1.0	40	13	20	0.17
<p>Matrix / Unit = soil and solids reported in milligrams per kilogram (mg/kg); water reported in micrograms per liter (µg/L); oil reported in milligrams per liter (mg/L). VOCs = Volatile organic compounds; MTBE = Methyl tert-butyl ether. ESLs = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for Soil and Groundwater (February 2016); Tier 1 ESLs based on: groundwater is a current or potential drinking water resource. BOLD indicates concentrations above the ESL. (1) Water sample collected in 2nd UST pit appeared to be rinsate water that had leaked from the UST rather than groundwater (see Section C.3). (2) Soil and groundwater ESLs listed are not applicable to samples Tank II Content (matrix = solid) and TC (matrix = oil). These samples are discussed in Section G.</p>											

TABLE 3
Selected Analytical Results for Metals
1647 International Boulevard, Oakland, CA

Type of Sample	Date Sampled	Sampling Location	Sample ID	Matrix	Unit	Metals					
						Cadmium	Chromium (total)	Chromium VI	Lead	Nickel	Zinc
Tank Removal	3/2/2016	1st UST Pit (base)	B-8.5-NW	Soil	mg/kg	0.52	38	--	6.8	95	29
			B-8.5-SE	Soil	mg/kg	0.41	42	--	7.7	68	32
			B-11.5-M	Soil	mg/kg	0.28	90	ND<4.0	13	55	32
	4/7/2016	2nd UST Pit (sidewalls)	SW-10-NW	Soil	mg/kg	ND<0.25	45	--	13	99	40
			SW-10-SE	Soil	mg/kg	ND<0.25	54	ND<4.0	13	72	39
		2nd UST Pit (water) ⁽¹⁾	B-10-W	Water	µg/L	ND<2.5	66	--	140	120	ND<150
Waste Characterization	3/2/2016	Stockpiles (excavated soil)	SP-1,2,3,4	Soil	mg/kg	ND<0.25	51	ND<4.0	9.2	54	35
	3/4/2016	2nd UST (fill pipe)	Tank II Content ⁽²⁾	Solid	mg/kg	3.5	51	--	72	56	1100
	4/6/2016	2nd UST (tank contents)	TC ⁽²⁾	Oil	mg/L	ND<0.25	ND<0.50	--	0.69	--	--
Tier 1 ESLs for Soil						39	N/A	0.30	80	820	23,000
Tier 1 ESLs for Groundwater						0.25	50	10	2.5	8.2	81
<p>Matrix / Unit = soil and solids reported in milligrams per kilogram (mg/kg); water reported in micrograms per liter (µg/L); oil reported in milligrams per liter (mg/L). ESLs = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for Soil and Groundwater (February 2016); Tier 1 ESLs based on: groundwater is a current or potential drinking water resource. -- = not analyzed; N/A = not applicable (no ESL listed). BOLD indicates concentrations above the ESL. (1) Water sample collected in 2nd UST pit appeared to be rinsate water that had leaked from the UST rather than groundwater (see Section C.3). (2) Soil and groundwater ESLs listed are not applicable to samples Tank II Content (matrix = solid) and TC (matrix = oil). These samples are discussed in Section G.</p>											

TABLE 4
Selected Analytical Results for TPH
1647 International Boulevard, Oakland, CA

Type of Sample	Date Sampled	Sampling Location	Sample ID	Matrix	Unit	TPH					
						TPH-g	TPH-ss	TPH-d	TPH-mo	TPH-bo	TPH-ho
Tank Removal	8/1/2016	3rd UST Pit (base)	B-M-9.5 ⁽¹⁾⁽²⁾	Soil	mg/kg	52	120	38	16	49	34
	8/2/2016	4th UST Pit (base)	B2-M-10.5 ⁽¹⁾⁽²⁾	Soil	mg/kg	1,300	5,900	2,100	26	2,100	2,300
	8/31/2016	5th UST Pit (base)	B3-M-14 ⁽¹⁾⁽²⁾	Soil	mg/kg,	4,800	3,600	1,200	37	1,300	1,200
Waste Characterization	8/1/2016	3rd UST (tank contents)	TC-3 ⁽¹⁾⁽³⁾	Water	µg/L	30,000	21,000	21,000	2,500	24,000	23,000
	8/2/2016	4th UST (tank contents)	TC-4 ⁽¹⁾⁽²⁾⁽³⁾	Sludge	mg/kg	890	6,000	340,000	9,500	350,000	340,000
	8/30/2016	5th UST (tank contents)	TC-5 ⁽¹⁾⁽³⁾	Water	µg/L	9,400	7,200	55,000	ND<3,800	55,000	56,000
Piping Removal	8/31/2016	Beneath Pipe Joint	PJ-1-2 ⁽¹⁾⁽²⁾	Soil	mg/kg	1,500	1,100	61	19	77	62
	9/1/2016	Beneath Pipe Joint	PJ-2-2	Soil	mg/kg	120	86	840	540	1,100	650
	9/1/2016	Beneath Pipe Joint	PJ-3-2 ⁽¹⁾⁽²⁾	Soil	mg/kg	1,000	710	110	19	120	110
	9/1/2016	Beneath Piping	P-4-2 ⁽¹⁾	Soil	mg/kg	ND<1.0	ND<1.0	17	86	89	9.9
Test Pits	8/31/2016	Test Pit Base	TP-1-5 ⁽¹⁾⁽²⁾	Soil	mg/kg	260	200	16	16	26	9.1
	8/31/2016	Test Pit Base	TP-2-4 ⁽¹⁾	Soil	mg/kg	ND<1.0	ND<1.0	11	62	69	4.1
	9/1/2016	Test Pit Base	TP-3-5	Soil	mg/kg	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<5.0	ND<1.0
Tier 1 ESLs for Soil						100	100	230	5,100	N/A	N/A

Matrix / Unit = soil and sludge reported in milligrams per kilogram (mg/kg); water reported in micrograms per liter (µg/L).

TPH = total petroleum hydrocarbons specified as gasoline range (-g), Stoddard solvent range (-ss), diesel range (-d), motor oil range (-mo), bunker oil range (-bo) and heating oil range (-ho).

ESLs = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for Soil (February 2016 [rev. 3]); Tier 1 ESLs based on: groundwater is a current or potential drinking water resource.

N/A = not applicable (no ESL listed); ND<1.0 = Non detected below a reporting limit of 1.0. **BOLD** indicates concentrations above the ESL.

(1) Flagged by laboratory as "diesel range compounds are significant; no recognizable pattern."

(2) Flagged by laboratory as "Stoddard solvent/mineral spirit?"

(3) Soil ESLs listed are not applicable to tank content samples. These samples are discussed in Section G.

TABLE 5
Selected Analytical Results for VOCs
1647 International Boulevard, Oakland, CA

Type of Sample	Date Sampled	Sampling Location	Sample ID	Matrix	Unit	VOCs					
						MTBE	Benzene	Toluene	Ethylbenzene	Xylenes (total)	Naphthalene
Tank Removal	8/1/2016	3rd UST Pit (base)	B-M-9.5	Soil	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.098
	8/2/2016	4th UST Pit (base)	B2-M-10.5	Soil	mg/kg	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.1
	8/31/2016	5th UST Pit (base)	B3-M-14	Soil	mg/kg	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	0.29
Waste Characterization	8/1/2016	3rd UST (tank contents)	TC-3 ⁽¹⁾	Water	µg/L	ND<50	ND<50	880	130	6,700	700
	8/2/2016	4th UST (tank contents)	TC-4 ⁽¹⁾	Sludge	mg/kg	ND<1.0	ND<1.0	ND<1.0	1.6	14	2.2
	8/30/2016	5th UST (tank contents)	TC-5 ⁽¹⁾	Water	µg/L	ND<25	ND<25	ND<25	ND<25	26	ND<25
Piping Removal	8/31/2016	Beneath Pipe Joint	PJ-1-2	Soil	mg/kg	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
	9/1/2016	Beneath Pipe Joint	PJ-2-2	Soil	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
	9/1/2016	Beneath Pipe Joint	PJ-3-2	Soil	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	0.20	ND<0.10
	9/1/2016	Beneath Piping	P-4-2	Soil	mg/kg	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050
Test Pits	8/31/2016	Test Pit Base	TP-1-5	Soil	mg/kg	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
	8/31/2016	Test Pit Base	TP-2-4	Soil	mg/kg	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050
	9/1/2016	Test Pit Base	TP-3-5	Soil	mg/kg	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050
Tier 1 ESLs for Soil						0.023	0.044	2.9	1.4	2.3	0.033
<p>Matrix / Unit = soil and solids reported in milligrams per kilogram (mg/kg); water reported in micrograms per liter (µg/L). VOCs = Volatile organic compounds; MTBE = Methyl tert-butyl ether. ESLs = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for Soil (February 2016 [rev. 3]); Tier 1 ESLs based on: groundwater is a current or potential drinking water resource. ND<1.0 = Non detected below a reporting limit of 1.0. BOLD indicates concentrations above the ESL. (1) Soil ESLs listed are not applicable to tank content samples. These samples are discussed in Section G.</p>											

TABLE 6
Selected Analytical Results for Metals
1647 International Boulevard, Oakland, CA

Type of Sample	Date Sampled	Sampling Location	Sample ID	Matrix	Unit	Metals					
						Cadmium	Chromium (total)	Chromium VI	Lead	Nickel	Zinc
Tank Removal	8/1/2016	3rd UST Pit (base)	B-M-9.5	Soil	mg/kg	1.3	47	-	43	64	1,300
	8/2/2016	4th UST Pit (base)	B2-M-10.5	Soil	mg/kg	0.25	47	-	7.5	48	38
	8/31/2016	5th UST Pit (base)	B3-M-14	Soil	mg/kg	ND<0.25	39	-	10	51	33
Waste Characterization	8/1/2016	3rd UST (tank contents)	TC-3 ⁽¹⁾	Water	µg/L	16	11	--	110	30	7,400
	8/2/2016	4th UST (tank contents)	TC-4 ⁽¹⁾	Sludge	mg/kg	4.6	28	--	150	9.8	370
	8/30/2016	5th UST (tank contents)	TC-5 ⁽¹⁾	Water	µg/L	12	73	ND<2.0	500	79	3,600
Piping Removal	8/31/2016	Beneath Pipe Joint	PJ-1-2	Soil	mg/kg	ND<0.25	57	ND<4.0	16	59	69
	9/1/2016	Beneath Pipe Joint	PJ-2-2	Soil	mg/kg	0.35	44	--	99	39	150
	9/1/2016	Beneath Pipe Joint	PJ-3-2	Soil	mg/kg	ND<0.25	52	--	10	41	30
	9/1/2016	Beneath Piping	P-4-2	Soil	mg/kg	1.6	61	--	9.8	55	440
Test Pits	8/31/2016	Test Pit Base	TP-1-5	Soil	mg/kg	ND<0.25	51	--	4.8	120	30
	8/31/2016	Test Pit Base	TP-2-4	Soil	mg/kg	ND<0.25	56	--	89	52	52
	9/1/2016	Test Pit Base	TP-3-5	Soil	mg/kg	ND<0.25	58	ND<4.0	4.6	64	30
Tier 1 ESLs for Soil						39	N/A	0.30	80	86	23,000

Matrix / Unit = soil and solids reported in milligrams per kilogram (mg/kg); water reported in micrograms per liter (µg/L).

ESLs = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for Soil (February 2016 [rev. 3]); Tier 1 ESLs based on: groundwater is a current or potential drinking water resource.

-- = not analyzed; N/A = not applicable (no ESL listed); ND<1.0 = Non detected below a reporting limit of 1.0. **BOLD** indicates concentrations above the ESL.

(1) Soil ESLs listed are not applicable to tank content samples. These samples are discussed in Section G.

